

What type of wage can Canadian students expect in the Canadian labor market from
post-secondary foreign education?

By
Kaori Ichikawa

A Thesis Submitted to
Saint Mary's University, Halifax, Nova Scotia
in Partial Fulfillment of the Requirements for
the Degree of Bachelor of Commerce

April 2017
Halifax, Nova Scotia

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Associate Professor

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Abstract

The rapid increase in the number of international students worldwide is a sign of globalization in the economy. Yet, few Canadians choose to study abroad, even though the government encourages them to go abroad. To the best of my knowledge, this is the first study to investigate how much of a financial return Canadian students can expect from their foreign post-secondary education and so as to provide Canadian students and government agencies with useful information on the potential benefits of foreign education. Inspired by the Poot and Roskrug (2013)'s study, the Mincer's equation, using the Public-Use Microdata File of the 2006 Census of Population in Canada was applied. This study finds that there is no significant difference of return between domestic and foreign education in the Canadian labor market for native-born workers. There is a positive return on education from Europe, while education from Eastern Asia has significantly a negative impact on wage earnings in Canada. Further, there is a higher benefit of taking a Doctorate degree from the United States in Canada. These facts will be useful for the government to take some actions to the labor market in order to encourage Canadians to study abroad.

Date: _____

1. Introduction

The rapid increase in the number of international students worldwide is a sign of globalization in the economy. Students are looking for global experiences and higher education in order to meet the high demand for skilled workers in the global markets. In addition to lower transportation and communication costs, these factors influence students to receive tertiary education in foreign countries. In fact, the number of international students enrolled in tertiary education was 4.5 million students in 2012, which is a sharp increase from 0.8 million in 1975 (OECD, 2014). The current world trend is the majority of international students come from China, India, and Germany as reported in Table 1.

Table1: Number of students enrolled in the top 10 international students destinations, 2013

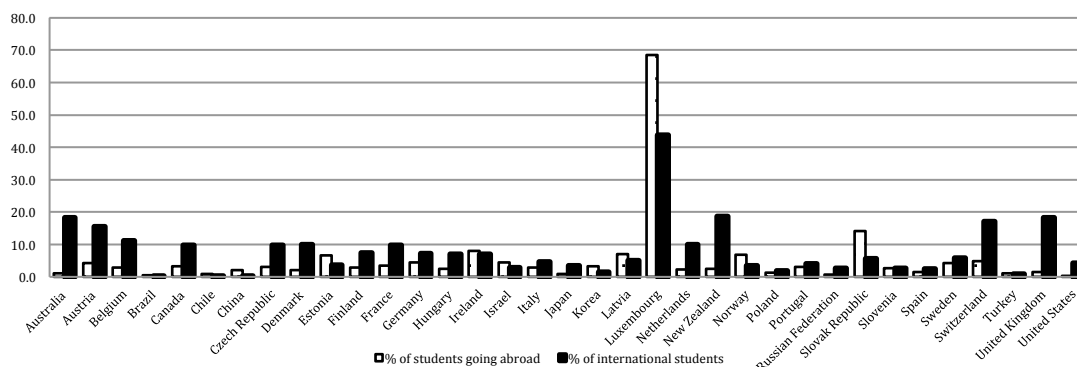
Countries	Number of students
China	712,157
India	181,872
Germany	119,123
Republic of Korea	117,942
France	84,059
Saudi Arabia	73,548
United States	50,292
Malaysia	56,260
Vietnam	53,546
Nigeria	52,066

Source: UNESCO, 2016

The mobility rates, meaning the percentage of a country's student body who are studying abroad and coming to study to the country, however, show different results; Luxemburg has the highest student mobility rates (Figure 1). China has an outbound mobility rate of only two percent. The United States, Australia and the United Kingdom also have small portions of students studying abroad. In the case of

Canada, student mobility outbound and inbound rates are 3.4 percent and 9.7 percent, respectively.

Figure 1: Percentage of post-secondary students studying abroad versus percentage of international students, in randomly selected countries, 2014



Sources: OECD Indicators, 2014

In particular, as seen in Table 2, the number of students enrolled in the Master’s and Doctorate levels are large relative to the number of students enrolled in the Bachelor’s level in Organization for Economic Corporation and Development (OECD) countries. That is, at the Master’s and Doctorate levels, the student mobility is higher than that at the Bachelor’s level. For example, 85 percent of students enrolled in the Doctorate or equivalent level in Luxemburg are international students. In short, people more actively pursue higher education outside their home countries. This trend benefits host countries because those who enroll in the Master’s or PhD programs will contribute to their host countries’ economy or research and development. If these students remained in the host countries (decide not to return their home countries), their home countries would lose important human capital that would contribute to the economy (that is, brain drain). On the other hand, if the governments are able to encourage those students to return to their home countries, internationalization of education will benefit both host and home countries (OECD, 2016).

Table 2: Percentage of international students in selected countries, by education level, 2014

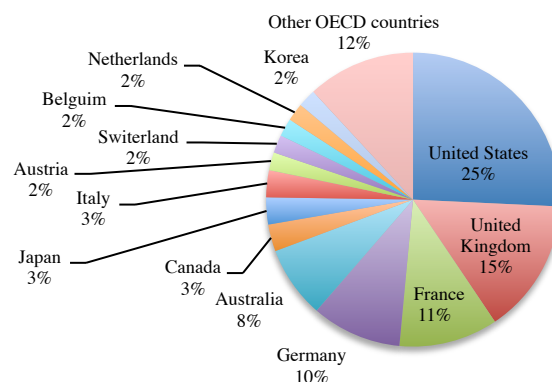
Country	Bachelor's or equivalent	Master's or equivalent	Doctoral or equivalent	Total tertiary education
Luxembourg	25.3	67.8	85.0	43.9
New Zealand	14.3	23.0	45.4	18.7
Australia	13.1	40.2	33.5	18.3
United Kingdom	13.7	36.9	42.5	18.2
Switzerland	9.9	28.4	53.4	17.1
Austria	18.6	17.8	25.1	15.5
Belgium	8.2	20.3	36.6	11.2
Netherlands	8.3	17.0	36.6	10.1
Denmark	5.5	17.4	30.5	9.9
France	7.3	13.5	39.9	9.8
Canada	8.1	14.3	27.5	9.7
Finland	5.2	11.9	18.7	7.4
Germany	4.4	12.2	7.4	7.2
Hungary	5.0	15.1	8.5	7.0
Ireland	5.8	13.8	23.1	7.0
OECD Total	4.9	12.4	27.4	6.4
Sweden	2.4	9.1	32.8	5.9
Latvia	6.0	4.5	6.5	5.0
United States	3.5	8.8	34.7	4.2
Portugal	2.6	4.9	15.8	4.1
Estonia	2.9	5.0	8.1	3.7
Norway	2.0	6.7	19.9	3.5
Japan	2.5	7.6	19.1	3.4
Lithuania	2.4	5.3	3.0	3.0
Slovenia	2.3	4.1	8.2	2.7
Spain	0.8	4.9	N/A	2.4
Poland	1.6	2.7	1.7	2.0
Chile	0.1	2.6	4.1	0.3
Czech Republic	8.5	11.6	13.9	9.8
Slovak Republic	4.4	7.3	9.0	5.6
Italy	4.7	4.3	13.2	4.7
Greece	4.7	N/A	N/A	4.2
Israel	3.1	4.2	4.9	2.8
Russia	N/A	6.4	4.9	2.7
Korea	1.3	6.2	8.2	1.6
Turkey	0.9	3.3	5.0	0.9
China	0.4	1.1	2.7	0.3
Brazil	0.2	1.3	2.3	0.2
India	0.1	0.2	0.9	0.1

Source: Education at a Glance 2016: OECD Indicators: Who studies abroad and where? (p. 339).

Among OECD countries most of international students at the Master's or Doctorate programs choose to study in the United States (25%), the United Kingdom

(15%), France (11%), Germany (10%) and so on (Figure 2). Moreover, OECD (2016) states that in EU22 countries people actively move in and out between countries: approximately 53 percent of international students study in EU22 countries, and of these students, 25 percent are from other EU22 countries. In contrast, the same mobility is not observed in North America. 7 percent of international students in Canada are from North America: only 3 percent of international students in the United States are from North America. In the United States, Chinese students account for 35 percent of international students. Furthermore, language also plays an important role to attract international students; English, French, Spanish, German, and Russian are popular language (OECD, 2016, p. 332). This reflects the result of Figure 2: most international students attend the countries where these languages are spoken.

Figure 2: Share of international students, by destination among OECD countries, 2013



Sources: Education at a Glance 2016: OECD Indicators: Who studies abroad and where? (p. 331).

So, why do few Canadian students study abroad? In the *Globe and Mail*'s article, "Fewer Canadian students opting to study abroad," Chiose (2016) states that Canadian students do not choose to study abroad due to financial issues and uncertainty about academic credits. Furthermore, the United States, Australia, and the United Kingdom started funding for study-abroad programs and for low-income

students to encourage going abroad, while Canada did not. Canadians also think that studying abroad is not essential (Choise, 2016), in spite of the fact that 88.6 percent of Canadian students claimed their global experience helped their employment opportunities (CBIE, 2015). It is important for the Canadian government to be aware of how they are behind in the global economy, and for Canadian students to understand the labor market as well as the significance of the relationship between them. In fact, the Canadian government recently launched Canada's International Education Strategy, which aims to survive in the global competitive environment (Government of Canada, 2014). Despite the awareness of increased concerns in the global markets, the government has not taken any effective actions.

In Canada, 45,813 students studied abroad and 151,244 students came to the country to study in 2014 (UNESCO, 2016). The 2011 National Household Survey (NHS) shows that 40 percent of students pursue their Doctorate degree outside of Canada. There are also 58 percent of students choosing the United States to complete Master's and Doctorate degrees. Other popular destinations are the United Kingdom (15.7 percent) and Australia (9.5 percent)(NHS, 2011). As seen in Table 2, Canadian students are willing to spend money on Master's and Doctorate degrees, despite the higher tuition fees in foreign destinations. In the United States, Canadian students need to pay an average of \$16,205 for public school and \$24,015 for private school; on the other hand, it costs approximately \$4,961 at the Master's level in Canada (OECD, 2016).

Table 3: Estimated annual average of tuition fees (in US dollars) for foreign students by popular destinations chosen by Canadian students, 2013/2014

Countries	Category	Bachelor level	Master level	Doctorate level
United States*	Public institutions	16,066	16,205	20,168
	Government-dependent private institutions	a	a	a
	Independent private institutions	29,234	24,015	30,205
United Kingdom**	Public institutions	a	a	a
	Government-dependent private institutions	12,884	12,884	12,884
	Independent private institutions	m	m	m
Australia*	Public institutions	14,546	13,270	12,914
	Government-dependent private institutions	a	a	a
	Independent private institutions	9,615	11,013	8,679
France	Public institutions	0~8,313	300~2,166	458
	Government-dependent private institutions	1,808~7,59	1,098~12,9	m
	Independent private institutions	1,808~7,59	1,098~12,9	m
Germany	Public institutions	m	m	m
	Government-dependent private institutions	m	m	m
	Independent private institutions	m	m	m
Switzerland	Public institutions	1,015	1,015	457
	Government-dependent private institutions	1,015	1,015	a
	Independent private institutions	m	m	m
Republic of Korea	Public institutions	4,773	6,281	7,137
	Government-dependent private institutions	a	a	a
	Independent private institutions	8,554	11,520	12,270

Note 1: * country setting differentiation in tuition fees between domestic and foreign students

Note 2: ** data on differentiation in tuition fees are not applicable

Note 3: m-data is not available, a-data is not applicable

Source: OECD Indicator B5, 2016

Therefore, Canadian students who choose to study abroad expect high returns on education since it is unlikely for students to choose to study abroad unless they are able to receive high returns on education. Ultimately, the purpose of this paper is to investigate how much of a financial return Canadian students can expect from their foreign post-secondary education. In this paper, “foreign education” means education in a country that an individual does not have his/her citizenship. “Domestic education”, in contrast, refers to education acquired in an individual’s home country. In addition, this paper will also examine after returning to Canada, the differences in wages of students who received their education abroad when compare with students who received domestic education in an attempt to explore the effects on the Canadian labor market. Since there are few studies regarding returns on foreign education of natives, this study will be the first study in Canada, and will provide Canadian students and

government agencies with useful information on the potential benefits of foreign education.

Based on Poot and Roskrug (2013)'s study, I used the Mincer's equation with the 2006 Census of Population in Canada. This paper found that there is a not significant relationship between foreign education and the labor market outcomes in Canada. Although there is a slightly positive impact on wages, other factors such as age or gender play critical roles in the Canadian labor markets. Those who obtained their highest degree in Europe have a positive return on education; on the other hand, those who have education from Eastern Asia experience a negative impact on their wages. An individual who completed a Doctorate degree in the United States has more wage earnings than one who received it in Canada. Overall, taking foreign education does not have any impact in Canada; however, completion of the highest degree in a particular location such as the United States has a positive impact on wage earnings.

The rest of this paper consists of the following sections. Section 2 describes relevant studies on returns to education associated with foreign education. Section 3 provides information on data sets and descriptive analysis on labor market outcomes resulting from each location of study. Section 4 will explain empirical results from regression analyses on a relationship between location of study and labor market outcomes with regard to wage differentials. Section 5 will provide a discussion related to the data analysis, followed by the conclusion of this paper.

2. Previous literature

There have been many studies on how human capital is related to labor market outcomes. In particular, economists have devoted themselves to investigating how

schooling plays a role in the labor market. Since education is a part of capital accumulation, and tied to labor market performance, especially to productivity, it has been a major interest to the research field. Starting with Mincer (1958), and later Becker (1962), the study of the financial return on education has been developed by looking at a relationship between income distributions and human capital. The majority of studies associated with wage earnings and human capital, especially education, have used the Mincer's equation to investigate the correlation between schooling and income.

In the global era, research on education and the labor market outcomes has been extended to foreign education and international labour markets¹ (Bennell and Pearce, 2003; Bergerhoff et al., 2013; Tani, 2015). The majority of papers concentrate on how immigrants perform in labor market. In short, how much returns on education immigrants are able to expect in the labor market, compared to natives, has been investigated (Li, 2001; Dell' Aringa et al., 2015). Typically, immigrants have a foreign education, which is acquired before immigration, or a domestic education, which is completed after immigration. Since global immigration and mobilization has increased, there have been many studies on the comparison of wage earnings between individuals with foreign education and domestic education. According to Friedberg (1996), education acquired abroad is often less valued than education acquired domestically due to a lack of international recognition of academic achievement. For example, a medical license in various countries requires different standards and therefore it is not mobile. Additionally, immigrants normally tend to earn less than natives. Ginsburgh and Prieto-Rodriguez (2011) examines the return on foreign

¹ Here, "foreign education" of immigrants is education in their home country, and "domestic education" is education in their host country, that is, education in a country they immigrated.

education with respect to foreign language skills between natives and immigrants. There is a significantly higher return on language proficiency for natives who learned a foreign language; on the other hand, there is little impact on earnings for immigrants who acquired additional language proficiencies in their home countries. Gruetter (2005) studied different returns on foreign education of immigrants with different nationalities in Switzerland, and found that lower returns on additional foreign education were observed in most of the countries. Likewise, there have been a variety of studies regarding the return on foreign education of immigrants; however, there was few studies related to the return on foreign education of natives and this highlights an apparent gap in the existing literature.

There is one study discussing the return on foreign education of natives. Poot and Roskrug (2013) have investigated how an additional year of foreign education acquired by immigrants and natives, and of domestic education were weighted in New Zealand, using the Mincer's equation. They found that there were higher returns on an additional year of New Zealanders' studying abroad than any other individuals' returns on an additional year of education. In short, an additional year of foreign education is more beneficial to natives in New Zealand. Looking at New Zealand immigrants, however, their return on an additional year of education in their home country was less than that of an additional year of education in New Zealand. When natives with foreign education return on their home countries, there are triple benefits to be expected. This is because there are benefits not only for individuals, but also social and financial benefits for their home and host countries. As Poot and Roskrug (2013) examined an impact of foreign education of natives on wage earnings in New Zealand, this thesis investigated the return on foreign education acquired by natives in Canada instead. Di Pietro (2013) found that the probability of being employed within

three years after graduation is higher for students who studied abroad during university than for students who did not, using an ordinary-least-squares (OLS) and fixed effects model with instrument variables (IV) approach. Therefore, foreign education has a positive impact on natives in labor market. It can be estimated that natives with some foreign background earn more than those without, under the condition that those with foreign backgrounds are familiar with the labor market in their home country, unlike immigrants. In fact, Chiswick (1987) stated that since immigrants could have a lack of knowledge of the labor market, culture and language in host countries unlike natives, it is challenging for immigrants to acquire the same earnings. However, the more time immigrants spend in the host countries, there is an increase in their potential wages compared to natives.

Furthermore, Card and Krueger (1992) stated that there is a positive correlation between the return on education and quality of education. One of the reasons why students study abroad is because they seek better quality of education. This is why the number of international students is high in OECD countries because those countries tend to have a better quality of education than non-OECD countries. It may not be necessarily a great idea to study abroad for Canadians because Canada has a higher standard of education compared to other countries, even among OECD countries. Hence, studying abroad for Canadians may mean obtaining a lower quality of education, which could have a negative impact on the return on education. However, studying abroad might have other understanding for Canadians. That is, they may not look for a higher quality of education, but for a global experience or learning language.

3. Data and descriptive analysis

The 2006 Census of Population, which represents the majority of Canadians with the overall response rate of 96.5 percent, has been used in this study. Of the 2006 Census of population, the Public-Use Micro File (PUMF) represents 844,476 people, which accounts for approximately 2.7 percent of the population. In order to investigate a pure impact of foreign education on wage earnings in the Canadian labor market, I controlled individual characteristics, such as gender, age, marital status, language, generation status and visible minority. I also took into account the educational background and labor market activity each individual holds, which have an impact on wage earnings, including field of study, degree types, occupation, industry, labor status and employment types. To apply the Mincer's equation into this analysis, I converted an age group into continuous variable². This study imposed the same restrictions as Poot and Roskrug (2013) did. First, only individuals between 18 to 65 year-old have been included. Second, self-employees have been excluded. This is because their wage earnings do not provide a proper measurement of earnings in the labor markets; hence, only individuals of paid-employees have been included. Third, individuals with less than 1,000 dollars of wage earnings have also been excluded. In addition to these restrictions, I only included individuals who are Canadians, neither naturalized Canadians nor non-Canadians, with post-secondary education, which is above or equivalent to the Bachelor level. Table 4 is the summary table of relevant continuous variables: age, annual wages, weeks worked, weekly wages and log of weekly wages of Canadians with tertiary education, by comparing domestic and foreign education.

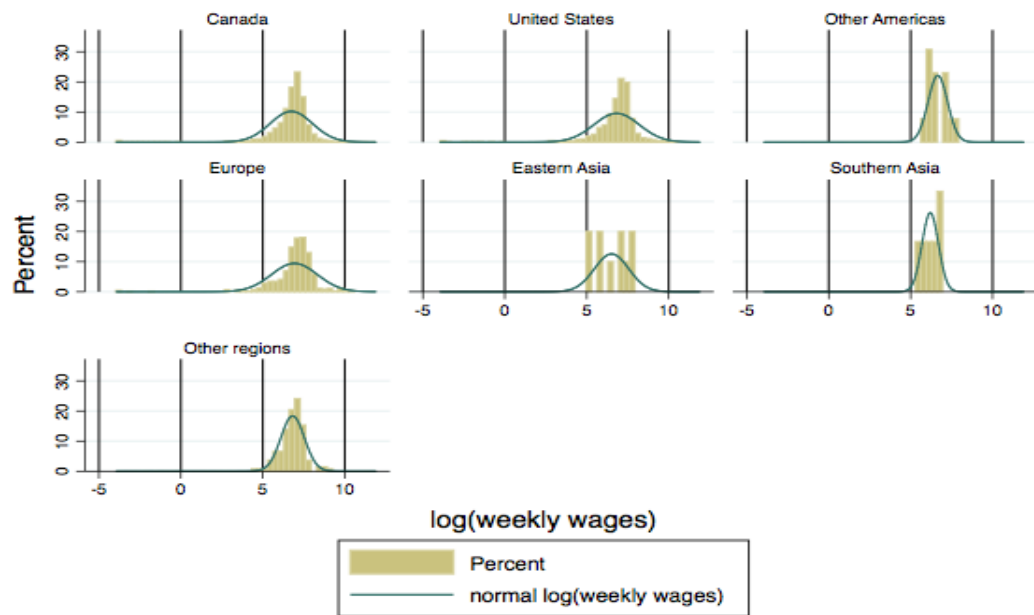
² In order to convert "age group" into continuous variable, taking a mean of each age group allows us to apply Mincer's equation. (Example: Age group of 20 to 24 years is treated as 22 years.)

Table 4: Summary Statistics

Variable	Domestic			Foreign		
	Mean	Std. Err.	Obs.	Mean	Std. Err.	Obs.
Age	39.39	11.08	59661	41.20	11.28	2431
Annual wages	62124.06	79598.57	59661	73794.22	102546.70	2431
Weeks worked	46.00	11.54	59661	45.71	11.74	2431
Weekly wages	1354.40	2040.39	59661	1607.29	2292.73	2431
log(weekly wage)	6.86	0.8249	59661	6.98	0.8763	2431

Those who obtained the highest degree outside Canada are 41.20 years old on average; the mean of age for those who studied in Canada is 39.39 years old. Annual wages for domestically educated people are lower than those for internationally educated ones, 63,124 dollar and 73,794 dollar respectively. Weeks worked are 46.00 weeks for people with domestic education and 45.71 weeks for people with foreign education. Weekly wages for people with domestic education are 1,354.40 dollar and 1,607.29 dollar for people with foreign education. When comparing by taking a logarithm, log of weekly wages is 6.86 for domestic to 6.98 for foreign education. As observed, foreign educated people earn higher wages, on average, than domestically educated people in the Canadian labor markets. This higher wages might result from the higher mean of ages for foreign education. Moreover, standard deviations in foreign education are overly higher than that in domestic education. For example, standard deviation of annual wages for foreign education is larger than that for domestic education; that is, annual wages for foreign education are more scattered. This indicates the fact that different level of returns to foreign education from location to location due to different quality of education (Card and Krueger, 1992). Hence, Figure 3 shows the distribution of log of weekly wages of Canadians based on location of study.

Figure 3: Log of weekly wage distribution by location of study



As estimated before, log of weekly wages in foreign education by classifying each location is different from location to location. Location of study such as Canada, the United States, Europe and Other regions experience normal distribution of log of weekly wages. In particular, log of weekly wages associated with Canada, the United States, Europe and other regions are similarly distributed. This tells us that return on education acquired in these locations brings us similar outcomes in the Canadian labor market. In short, taking a degree in these foreign destinations, that is, the United States, Europe and other regions, have neither negative nor positive impacts on wage earnings in the Canadian labor market. In contrast, Other Americas, Eastern Asia and Southern Asia do not have normal distribution. This is because there are only few samples available, 13 10 and 6 samples, respectively. Therefore, these distributions of weekly wages logs may not be useful indicators to predict wage earnings of individuals who acquired foreign education in these locations.

As observed, individuals who completed the highest degree outside Canada earn slightly higher wages than those who obtained theirs in Canada. This indicates that foreign education and wages are positively related to each other. Importantly, however, this effect may vary from location to location of study owing to the quality matter. Location such as the United States might have increased weekly wages logs earned by Canadians.

4. Regression analysis

Most education-related studies, including Poot and Roskrug (2013), used the standard Mincer's equation, which was introduced by Mincer (1958) to examine a relationship between an additional year of education and labor market outcomes. In this study, instead of an additional year of education, I have used the location of study, where individuals obtained the highest degree. Accordingly, I compared return on education obtained between inside and outside Canada, with respect to log of weekly wages to be expected in the Canadian labor market. Therefore, this study automatically excluded students who used an exchange program, or who studied abroad for one semester or few years. In the regression analyses, I have investigated three different situations. First analysis is a relationship between foreign education and wage earnings in the Canadian labor market, which is reported in Table 5 with selected variables (refer to Appendix A for the completed table).

Table 5: Return on foreign education, by Canadians with tertiary education

	Coef.	Std. Err.
Age	0.0801***	0.00197
Male	0.0917***	0.00599
Foreign	0.0175	0.0144

Note 1: The dependent variable is log of weekly wage. Other variables are age, age-squared, location of study, gender, marital status, first official language spoken, generation status, visible minority population, highest degree, major field of study, industry, occupation, province of work, class of worker and full-time or part-time weeks worked.

Note 2: * p<0.1, ** p<0.05, *** p<0.01

Note 3: Adjusting Standard Errors for heteroscedasticity does not change the significance of coefficients.

Return on foreign education and log of weekly wages are positively correlated. An individual who has completed his/her highest degree outside Canada earns, on average, 1.75 percent higher wages than an individual completed in Canada. However, the result is not statistically significant due to the high p-value. In short, although there is a positive return on foreign education, it does not have a significant impact on wage earnings in Canada; it does not matter whether you obtain your highest degree inside or outside Canada in the Canadian labor market. Instead, other factors, including age, gender, degree types, field of study, industry, occupation, work place, and labor status, have more significant impacts on wage determination in Canada. Interestingly, generation status and visible minority does not have any significant impacts on wage earnings in Canada. In brief, any foreign background may or may not work in Canada. There is less discrimination of foreign background in the Canadian labor market despite the fact that the discrimination of foreign background in the labor market has been an issue in many countries. Whether you are a visible minority or not, whether your parents are immigrants or not, whether you are educated in Canada or not, it does not play any important role in the Canadian labor market. This fact reflects the Canadian society as a multicultural nation, which is a strength of Canada. What you have done in your life seems more important, degree types, and field of study, for example. These factors eventually affect your decision of occupation or industry, which has a huge impact on wage earnings. This result is unfortunate for Canadians who received foreign education because it does not have any impact on wage earnings in Canada in spite of the cost of studying abroad. This probably explains the reason why few Canadians choose to study abroad.

Although there is no significant impact on return on foreign education, it is also important to look at return on foreign education at a country level, as Figure 3

from the previous section shows. Table 6 shows return on foreign education by areas of study for selected variables (see Appendix A for more details).

Table 6: Return on foreign education, comparing area of study, by Canadians with tertiary education³

	Coef.	Std. Err.
Age	0.0801***	0.00197
Male	0.0919***	0.00599
United States	0.0138	0.0164
Other Americas	-0.0197	0.198
Europe	0.0822**	0.0320
Eastern Asia	-0.790***	0.237
Southern Asia	-0.420	0.257
Other Regions	-0.0751	0.0581

Note 1: The dependent variable is log of weekly wage. Other variables are age, age-squared, location of study, gender, marital status, first official language spoken, generation status, visible minority population, highest degree, major field of study, industry, occupation, province of work, class of worker and full-time or part-time weeks worked.

Note 2: * p<0.1, ** p<0.05, *** p<0.01

Note 3: Adjusting Standard Errors for heteroscedasticity does not change the significance of coefficients except for Southern Asia. The regression result with robust standard errors shows the statistical significance of the coefficient of Southern Asia. However, this might result from the small sample size.

For an individual who obtained the highest degree in the United States, he or she is able to expect 1.38 percent more weekly wages than one with the highest degree in Canada. If a person studied in Other America, weekly wages are 1.97 percent lower. An individual with highest degree in Europe earns 8.22 percent higher weekly wages. Completing the highest degree in Eastern and Southern Asia and other regions decreases weekly wages by 0.790, 0.420 and 0.0751 percent, respectively. Only an individual with highest degree from the United States and Europe has experienced a positive outcome of being educated outside Canada. These effects, however, have differently contributed to logs of weekly wages. When looking at p-values of each location of study, I found that results of Europe and Eastern Asia are statistically significant; other effects are not. That is, taking the highest degrees in the United

³ “Other America” includes Central America, Caribbean, Bermuda and South America. “Europe” means Western, Eastern, Northern and Southern Europe. “Other Region” refers to Western Africa, Eastern Africa, Northern Africa, Central Africa, Southern Africa, West Central Asia and the Middle East, Oceania, Other Greenland and Saint Pierre and Miquelon (Statistics Canada: Catalogue no. 95M0028XVB, 2006, p. 51).

States, Other America, Southern Asia and Other Regions have no strong impacts on wage earnings in the Canadian labor markets. In contrast, studying in Europe and Eastern Asia will have significant impacts in Canada. Therefore, although the Canadian labor market does not distinguish individuals between with foreign and domestic education, studying in Europe and Eastern Asia plays an important role in wage determination. However, as mentioned earlier, since there are only few samples available for individuals who received education in Other Americas, Eastern Asia and Southern Asia, the effects on wage earnings may be inaccurate.

In addition, since the majority of Canadians choose to study abroad in the United States, they might be more interested in how much return on education in the United States could be expected in the Canadian labor market. Table 7 shows return on education received in the United States by degree types, Bachelor, Master and Doctorate level with selected variables (see Appendix A for more details).

Table 7: Return on foreign education, by Canadians with tertiary education

	Bachelor	Master	Doctorate
	Coef.	Coef.	Coef.
Age	0.0829*** (0.00227)	0.0937*** (0.00573)	0.0578*** (0.0190)
United States	-0.0231 (0.0274)	0.0229 (0.0257)	0.146** (0.0592)
Male	0.0914*** (0.00703)	0.0621*** (0.0146)	0.120*** (0.0444)

Note 1: The dependent variable is log of weekly wage. Other variables are age, age-squared, location of study, gender, marital status, first official language spoken, generation status, visible minority population, highest degree, major field of study, industry, occupation, province of work, class of worker and full-time or part-time weeks worked.

Note 2: * p<0.1, ** p<0.05, *** p<0.01

Note 3: Standard errors in parentheses.

Note 4: Adjusting Standard Errors for heteroscedasticity does not change the significance of coefficients.

Those who completed the highest degree at the Bachelor level in the United States earn weekly wages 2.31 percent more than those who took a Bachelor's degree in Canada. For an individual who completed the highest degree at the Master level,

2.29 percent higher weekly wages can be expected. With a Doctorate degree, an individual earns weekly wages 14.6 percent more in the Canadian labor market. Only the effect of taking a Doctorate degree in the United States is statistically significant. In a word, it brings more benefits to Canadians by taking a Doctorate degree in the United States than in Canada. Obtaining a Bachelor's and Master's degree, on the other hand, has no significant impact on wages in Canada. Wage earnings of those who have obtained a Doctorate degree in the United States are more significantly affected by age, gender, generation status, some fields of study and occupation, and class of workers. For those who have a Bachelor's and Master's degree from the United States, field of study, industry worked, occupation and place of work play a more important role in the Canadian labor market than location of study do. Overall, Canadians who took a Doctorate degree in the United States experience higher wages than those who took it in Canada.

As a result, in the Canadian labor markets, location of study does not have a significant impact on wage earnings. However, if an individual carefully considers which country to study and what degree to take, it will bring him or her greater benefits on wage earnings after returning to Canada. Canadians, hence, have made a right decision in foreign education, as the majority of Canadians study in the United States and take a Doctorate degree. Yet, there are only few people studying abroad. This may be because they are aware of lower or no significant returns on foreign education as a whole. Therefore, even though the government currently encourages students to study abroad, it would be challenging to increase the number of students going abroad. This is because realized returns to education play a major role in the selection of education (Carneiro et al., 2010). This simple example examines MBA programs; it has been known that possession of an MBA is better than that of

Bachelor's degree. Therefore, in this case it would be more important for the government to take some actions to the labor markets.

5. Discussion and Conclusion

This paper has investigated financial return on tertiary foreign education received by Canadians, based on Poot and Roskrug (2013)'s study, with the 2006 Census of Population in Canada. This is the first study in Canada that found that there is no significant difference of return between domestic and foreign education in Canadian labor market. That is, taking a degree outside Canada does not have any impacts on wage earnings in Canada. The result, however, is different when looking at the return on education from area to area. There is a positive return on education from Europe, while education from Eastern Asia has a significantly negative impact on wage earnings in Canada. Furthermore, the return on education from the United States has different impacts from degree to degree. For an individual with a Bachelor degree, he or she experiences lower wage earnings; there is a higher benefit of taking a Doctorate degree from the United States in Canada. Hence, when Canadians make a decision to study abroad, an individual should be careful of choosing the area. In order to encourage more people to study abroad The Canadian government should provide us with more information on the financial return on foreign education. Therefore, it would be a good idea to go on a campaign at high schools or universities. In addition, it would be effective for the government to take another look at wage earnings of Canadians with foreign education.

However, there are some issues taken into account associated with the analysis. First, this analysis has used area of study; that is, it does not distinguish between countries. Although studying in Eastern Asia has a negative impact on wages because

there are many developing countries, compared to Western areas, education in a country like Japan might bring a different result in wages in the Canadian labor markets, for example. Since each country has a different quality of education, looking at a country level would provide us with more accurate results. In this study, however, due to a limited accessibility to data, it was impossible to investigate effects of different countries. Second, creation of a mean of age might have brought us inaccurate outcomes. By converting age group into age, that is, discrete variables into continuous variables, it enables me to apply the wage equation into this study. Since a mean of age does not provide true ages to us, this analysis might not investigate true effects of ages on earnings. Third, unlike other wage analysis, this study does not use years of education. That is, this study fails to evaluate any years of foreign education acquired by individuals. Suppose an individual took a Master's degree outside Canada and returned to Canada to receive a Doctorate degree. This individual's highest degree is a Doctorate degree and location of study is reported as Canada. In this sense, it does not evaluate this individual's foreign education. In short, there is opportunity for more detailed work. As Poot and Roskrug (2013) found, an additional year of foreign education brings benefits to native-born. Therefore, my study was not able to address situation of some individuals with some years of foreign education, including exchange programs. Yet, this study provides us, especially those who plan to study abroad, with useful information of effects of taking a degree outside Canada and returning to Canada. For the future studies, these problems could be resolved.

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Appendix A

Table 5: Regression analysis, foreign vs domestic education

Variable	Coef.	(Std. Err.)
Age	0.0801***	(0.00197)
Age^2	-0.000778***	(0.0000235)
Foreign	0.0175	(0.0144)
Male	0.0917***	(0.00599)
2.MARST	0.0656***	(0.0109)
3.MARST	-0.00174	(0.0205)
4.MARST	-0.0467***	(0.0118)
5.MARST	-0.0297	(0.0351)
2.FOL	0.0116	(0.0104)
3.FOL	-0.0385	(0.0448)
4.FOL	-0.135	(0.168)
2.GENSTAT	0.0506	(0.0369)
3.GENSTAT	0.0359	(0.0369)
4.GENSTAT	0.0417	(0.0362)
2.VISMIN	-0.0116	(0.0319)
3.VISMIN	-0.0741**	(0.0370)
4.VISMIN	-0.0851	(0.0579)
5.VISMIN	-0.0237	(0.122)
6.VISMIN	-0.146	(0.0911)
7.VISMIN	-0.137	(0.0767)
8.VISMIN	-0.154	(0.238)
9.VISMIN	0.0930	(0.0748)
10.VISMIN	0.0695	(0.0562)
11.VISMIN	0.0962	(0.107)
12.VISMIN	0.0990	(0.0752)
13.VISMIN	-0.00362	(0.0215)
10.HDGREE	0.0299***	(0.00912)
11.HDGREE	0.170***	(0.0253)
12.HDGREE	0.0940***	(0.00757)
13.HDGREE	0.213***	(0.0186)
2.CIP	-0.187***	(0.0180)
3.CIP	-0.116***	(0.0118)
4.CIP	-0.0173	(0.0106)
5.CIP	0.0661***	(0.0110)
6.CIP	-0.0405***	(0.0135)
7.CIP	0.0322*	(0.0167)
8.CIP	0.110***	(0.0142)
9.CIP	-0.0710***	(0.0214)
10.CIP	0.00687	(0.0143)
11.CIP	-0.0877	(0.0561)
12.CIP	-0.301***	(0.117)
2.NAICS	0.714***	(0.0458)
3.NAICS	0.420***	(0.0478)

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Variable	Coef.	(Std. Err.)
4.NAICS	0.176***	(0.0461)
5.NAICS	0.256***	(0.0402)
6.NAICS	0.267***	(0.0414)
7.NAICS	-0.0572	(0.0409)
8.NAICS	0.204***	(0.0443)
9.NAICS	0.189***	(0.0413)
10.NAICS	0.327***	(0.0402)
11.NAICS	0.160***	(0.0466)
12.NAICS	0.174***	(0.0394)
13.NAICS	0.460***	(0.0794)
14.NAICS	-0.0164	(0.0431)
15.NAICS	0.0492	(0.0405)
16.NAICS	-0.0327	(0.0401)
17.NAICS	-0.0544	(0.0430)
18.NAICS	-0.181***	(0.0461)
19.NAICS	-0.123***	(0.0417)
20.NAICS	0.184***	(0.0394)
2.NOCS	-0.282***	(0.0172)
3.NOCS	-0.427***	(0.0191)
4.NOCS	-0.611***	(0.0203)
5.NOCS	-0.765***	(0.0191)
6.NOCS	-0.460***	(0.0183)
7.NOCS	-0.173***	(0.0229)
8.NOCS	-0.546***	(0.0299)
9.NOCS	-0.459***	(0.0181)
10.NOCS	-0.467***	(0.0205)
11.NOCS	-0.621***	(0.0213)
12.NOCS	-0.511***	(0.0253)
13.NOCS	-0.771***	(0.0253)
14.NOCS	-0.717***	(0.0392)
15.NOCS	-0.399***	(0.0299)
16.NOCS	-0.865***	(0.0383)
17.NOCS	-0.771***	(0.0281)
18.NOCS	-0.517***	(0.0765)
19.NOCS	-0.699***	(0.0816)
20.NOCS	-0.610***	(0.0475)
21.NOCS	-0.963***	(0.0523)
22.NOCS	-0.876***	(0.0570)
23.NOCS	-0.837***	(0.0418)
24.NOCS	-0.617***	(0.0356)
25.NOCS	-0.676***	(0.0761)
11.PWPR	-0.0799*	(0.0459)
12.PWPR	-0.00876	(0.0272)

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Variable	Coef.	(Std. Err.)
13.PWPR	-0.00872	(0.0290)
24.PWPR	0.0548**	(0.0254)
35.PWPR	0.213***	(0.0236)
46.PWPR	0.0655**	(0.0270)
47.PWPR	0.0411	(0.0280)
48.PWPR	0.206***	(0.0245)
59.PWPR	0.126***	(0.0245)
60.PWPR	0.329***	(0.0499)
2.COW	0.358***	(0.120)
3.COW	0.553***	(0.118)
4.COW	0.689***	(0.117)
5.COW	-0.0178	(0.119)
6.COW	-0.0283	(0.121)
2.FPTWK	-0.596***	(0.00825)
Constant	4.537***	(0.138)
R²	0.408	
F	391.8	
N	56905	

* p<0.1, ** p<0.05, *** p<0.01

Table 5: Regression analysis, by location of study

Variable	Coef.	(Std. Err.)
Age	0.0801***	(0.00197)
Age^2	-0.000778***	(0.0000235)
United States	0.0138	(0.0164)
Other Americas	-0.0197	(0.198)
Europe	0.0822**	(0.0320)
Eastern Asia	-0.790***	(0.237)
Southern Asia	-0.420	(0.257)
Other Regions	-0.0751	(0.0581)
Male	0.0919***	(0.00599)
2.MARST	0.0655***	(0.0109)
3.MARST	-0.00191	(0.0205)
4.MARST	-0.0467***	(0.0118)
5.MARST	-0.0302	(0.0351)
2.FOL	0.0114	(0.0104)
3.FOL	-0.0370	(0.0448)
4.FOL	-0.135	(0.168)
2.GENSTAT	0.0524	(0.0369)
3.GENSTAT	0.0376	(0.0369)
4.GENSTAT	0.0436	(0.0362)
2.VISMIN	-0.0113	(0.0319)
3.VISMIN	-0.0750**	(0.0370)
4.VISMIN	-0.0829	(0.0579)
5.VISMIN	-0.0249	(0.122)
6.VISMIN	-0.147	(0.0912)
7.VISMIN	-0.138*	(0.0767)
8.VISMIN	-0.164	(0.238)
9.VISMIN	0.0908	(0.0748)
10.VISMIN	0.0684	(0.0562)
11.VISMIN	0.0930	(0.107)
12.VISMIN	0.0962	(0.0752)
13.VISMIN	-0.00488	(0.0215)
10.HDGREE	0.0300***	(0.00912)
11.HDGREE	0.171***	(0.0253)
12.HDGREE	0.0939***	(0.00757)
13.HDGREE	0.211***	(0.0186)
2.CIP	-0.188***	(0.0180)
3.CIP	-0.117***	(0.0118)
4.CIP	-0.0185*	(0.0106)
5.CIP	0.0652***	(0.0110)
6.CIP	-0.0412***	(0.0135)
7.CIP	0.0316*	(0.0167)
8.CIP	0.109***	(0.0142)
9.CIP	-0.0718***	(0.0214)
10.CIP	0.00627	(0.0143)

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Variable	Coef.	(Std. Err.)
11.CIP	-0.0911	(0.0561)
12.CIP	-0.302***	(0.117)
2.NAICS	0.715***	(0.0458)
3.NAICS	0.420***	(0.0477)
4.NAICS	0.176***	(0.0461)
5.NAICS	0.256***	(0.0402)
6.NAICS	0.268***	(0.0414)
7.NAICS	-0.0568	(0.0409)
8.NAICS	0.205***	(0.0443)
9.NAICS	0.189***	(0.0413)
10.NAICS	0.328***	(0.0402)
11.NAICS	0.161***	(0.0466)
12.NAICS	0.174***	(0.0394)
13.NAICS	0.458***	(0.0794)
14.NAICS	-0.0163	(0.0431)
15.NAICS	0.0495	(0.0404)
16.NAICS	-0.0323	(0.0401)
17.NAICS	-0.0541	(0.0430)
18.NAICS	-0.181***	(0.0461)
19.NAICS	-0.122***	(0.0417)
20.NAICS	0.184***	(0.0394)
2.NOCS	-0.282***	(0.0172)
3.NOCS	-0.427***	(0.0191)
4.NOCS	-0.611***	(0.0203)
5.NOCS	-0.765***	(0.0190)
6.NOCS	-0.460***	(0.0183)
7.NOCS	-0.173***	(0.0229)
8.NOCS	-0.546***	(0.0299)
9.NOCS	-0.459***	(0.0181)
10.NOCS	-0.467***	(0.0205)
11.NOCS	-0.620***	(0.0213)
12.NOCS	-0.510***	(0.0253)
13.NOCS	-0.769***	(0.0253)
14.NOCS	-0.716***	(0.0392)
15.NOCS	-0.399***	(0.0299)
16.NOCS	-0.864***	(0.0383)
17.NOCS	-0.770***	(0.0281)
18.NOCS	-0.517***	(0.0765)
19.NOCS	-0.699***	(0.0816)
20.NOCS	-0.605***	(0.0476)
21.NOCS	-0.962***	(0.0523)
22.NOCS	-0.875***	(0.0570)
23.NOCS	-0.836***	(0.0418)
24.NOCS	-0.615***	(0.0356)

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Variable	Coef.	(Std. Err.)
25.NOCS	-0.675***	(0.0761)
11.PWPR	-0.0795*	(0.0459)
12.PWPR	-0.00857	(0.0272)
13.PWPR	-0.00856	(0.0290)
24.PWPR	0.0551**	(0.0254)
35.PWPR	0.214***	(0.0236)
46.PWPR	0.0656**	(0.0270)
47.PWPR	0.0411	(0.0280)
48.PWPR	0.206***	(0.0245)
59.PWPR	0.126***	(0.0245)
60.PWPR	0.329***	(0.0499)
2.COW	0.358***	(0.120)
3.COW	0.553***	(0.118)
4.COW	0.689***	(0.117)
5.COW	-0.0180	(0.119)
6.COW	-0.0283	(0.121)
2.FPTWK	-0.596***	(0.00825)
Constant	4.536***	(0.138)
R²	0.408	
F	373.5	
N	56905	

* p<0.1, ** p<0.05, *** p<0.01

Table 7: Return on foreign education received in the United States by degree types

Variable	Bachelor		Master		Doctorate	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Age	0.0829***	(0.00227)	0.0937***	(0.00573)	0.0578***	(0.0190)
Age^2	-0.000822***	(0.0000275)	-0.000908***	(0.0000653)	-0.000454**	(0.000205)
United States	-0.0231	(0.0274)	0.0229	(0.0257)	0.146**	(0.0592)
Male	0.0914***	(0.00703)	0.0621***	(0.0146)	0.120***	(0.0444)
2.MARST	0.0726***	(0.0131)	0.0728***	(0.0250)	0.164**	(0.0687)
3.MARST	0.0223	(0.0242)	0.0113	(0.0481)	-0.0433	(0.160)
4.MARST	-0.0347**	(0.0140)	-0.0663***	(0.0272)	0.00465	(0.0777)
5.MARST	-0.0776*	(0.0430)	0.0577	(0.0797)	0.354*	(0.181)
2.FOL	0.00666	(0.0124)	-0.0125	(0.0249)	-0.0324	(0.0719)
3.FOL	-0.0570	(0.0511)	-0.175	(0.123)	0.254	(0.318)
4.FOL	-0.0705	(0.248)	-0.266	(0.231)		
2.GENSTAT	0.0369	(0.0452)	0.00712	(0.0757)	0.319*	(0.180)
3.GENSTAT	0.0237	(0.0453)	0.00368	(0.0755)	0.298*	(0.179)
4.GENSTAT	0.0368	(0.0445)	-0.0214	(0.0734)	0.338**	(0.172)
2.VISMIN	0.0138	(0.0359)	-0.147	(0.0946)	0.130	(0.388)
3.VISMIN	-0.0815*	(0.0417)	-0.0875	(0.110)	-0.374	(0.393)
4.VISMIN	-0.0990	(0.0605)	-0.195	(0.327)		
5.VISMIN	-0.0909	(0.126)				
6.VISMIN	-0.156	(0.105)	-0.0161	(0.254)		
7.VISMIN	-0.143*	(0.0844)	-0.275	(0.251)		
8.VISMIN	0.106	(0.249)				
9.VISMIN	0.111	(0.0828)	0.204	(0.224)		
10.VISMIN	0.0826	(0.0618)	-0.0798	(0.165)	0.356	(0.476)
11.VISMIN	0.159	(0.117)	-0.177	(0.250)		
12.VISMIN	0.0885	(0.0856)	0.00956	(0.195)		
13.VISMIN	-0.0123	(0.0242)	-0.0241	(0.0646)	0.241	(0.269)
2.CIP	-0.201***	(0.0205)	-0.209***	(0.0492)	-0.367**	(0.173)
3.CIP	-0.105***	(0.0143)	-0.219***	(0.0289)	-0.0755	(0.0937)
4.CIP	-0.0228*	(0.0129)	-0.0472*	(0.0261)	0.114	(0.0874)
5.CIP	0.0377***	(0.0136)	0.0866***	(0.0251)	0.0332	(0.124)
6.CIP	-0.0451***	(0.0162)	-0.105***	(0.0330)	0.0924	(0.0882)
7.CIP	0.0519***	(0.0198)	-0.0597	(0.0391)	0.0474	(0.141)
8.CIP	0.132***	(0.0169)	-0.0163	(0.0344)	0.137	(0.107)
9.CIP	-0.0807***	(0.0249)	-0.0766	(0.0489)	-0.0338	(0.142)
10.CIP	0.0229	(0.0170)	-0.0472	(0.0355)	-0.0361	(0.111)
11.CIP	-0.118*	(0.0671)	-0.0925	(0.121)	-0.0374	(0.453)
12.CIP	-0.165	(0.124)	-0.508	(0.454)	-1.437***	(0.495)
2.NAICS	0.707***	(0.0491)	0.814***	(0.152)	-0.0837	(0.650)
3.NAICS	0.399***	(0.0518)	0.453***	(0.154)	-0.353	(0.746)
4.NAICS	0.186***	(0.0494)	0.0380	(0.157)	-0.0683	(0.604)
5.NAICS	0.236***	(0.0429)	0.295**	(0.141)	-0.208	(0.624)
6.NAICS	0.246***	(0.0442)	0.359**	(0.145)	-0.205	(0.669)
7.NAICS	-0.0706	(0.0436)	-0.0944	(0.148)&	-0.730	(0.656)
8.NAICS	0.182***	(0.0475)	0.290*	(0.151)&	-0.552	(0.715)
9.NAICS	0.183***	(0.0443)	0.147	(0.142)&	-0.263	(0.636)
10.NAICS	0.273***	(0.0429)	0.496***	(0.140)&	-0.116	(0.655)
11.NAICS	0.129**	(0.0505)	0.325**	(0.156)	-0.928	(0.737)
12.NAICS	0.174***	(0.0422)	0.160	(0.138)	-0.398	(0.615)
13.NAICS	0.430***	(0.0886)	0.563***	(0.211)	0.219	(0.922)
14.NAICS	-0.0306	(0.0461)	0.0694	(0.151)	-1.373**	(0.667)
15.NAICS	0.0125	(0.0438)	0.0551	(0.139)	-0.575	(0.614)
16.NAICS	-0.0598	(0.0432)	-0.0466	(0.139)	-0.506	(0.618)
17.NAICS	-0.0496	(0.0461)	-0.194	(0.146)	-0.462	(0.604)
18.NAICS	-0.182***	(0.0490)	-0.274	(0.174)&	-1.215	(0.817)
19.NAICS	-0.129***	(0.0453)	-0.111	(0.141)&	-0.750	(0.633)
20.NAICS	0.184***	(0.0421)	0.137	(0.138)&	-0.567	(0.614)
2.NOCS	-0.294***	(0.0214)	-0.210***	(0.0344)	-0.0148	(0.143)
3.NOCS	-0.407***	(0.0234)	-0.421***	(0.0419)	-0.606***	(0.232)
4.NOCS	-0.624***	(0.0240)	-0.416***	(0.0512)	-0.317	(0.226)
5.NOCS	-0.763***	(0.0228)	-0.638***	(0.0490)	-0.470**	(0.200)
6.NOCS	-0.470***	(0.0224)	-0.373***	(0.0386)	-0.295**	(0.136)
7.NOCS	-0.154***	(0.0279)	-0.170***	(0.0513)	-0.409**	(0.165)
8.NOCS	-0.541***	(0.0341)	-0.581***	(0.0983)	-0.162	(0.258)
9.NOCS	-0.457***	(0.0226)	-0.397***	(0.0355)	-0.352**	(0.139)
10.NOCS	-0.442***	(0.0262)	-0.479***	(0.0405)	-0.247*	(0.148)
11.NOCS	-0.620***	(0.0256)	-0.515***	(0.0471)	-0.863***	(0.201)
12.NOCS	-0.484***	(0.0289)	-0.610***	(0.0739)	-0.944	(0.713)

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Variable	Bachelor		Master		Doctorate	
	lnwage	Std. Err.	lnwage	Std. Err.	lnwage	Std. Err.
13.NOCS	-0.765***	(0.0287)	-0.795***	(0.0898)	-0.801*	(0.475)
14.NOCS	-0.719***	(0.0426)	-0.662***	(0.179)	-1.055*	(0.572)
15.NOCS	-0.392***	(0.0333)	-0.388***	(0.104)	-0.301	(0.322)
16.NOCS	-0.880***	(0.0421)	-0.647***	(0.134)		
17.NOCS	-0.749***	(0.0315)	-1.029***	(0.102)	-0.664**	(0.310)
18.NOCS	-0.523***	(0.0813)	-0.500*	(0.266)	-0.659	(0.701)
19.NOCS	-0.733***	(0.0868)	-0.971***	(0.326)		
20.NOCS	-0.657***	(0.0523)	-0.626***	(0.144)	-1.100**	(0.463)
21.NOCS	-0.922***	(0.0555)	-0.965***	(0.222)	-0.143	(0.610)
22.NOCS	-0.886***	(0.0603)	-0.417	(0.326)	-0.200	(0.729)
23.NOCS	-0.838***	(0.0454)	-0.813***	(0.142)	-1.001*	(0.545)
24.NOCS	-0.615***	(0.0393)	-0.615***	(0.119)	-0.817**	(0.378)
25.NOCS	-0.660***	(0.0814)	-0.882***	(0.266)	-1.828**	(0.717)
11.PWPR	-0.117**	(0.0525)	0.0649	(0.117)	-0.348	(0.701)
12.PWPR	-0.0322	(0.0316)	0.0461	(0.0649)	-0.0387	(0.207)
13.PWPR	-0.0189	(0.0334)	-0.0315	(0.0707)	0.157	(0.210)
24.PWPR	0.0613**	(0.0296)	0.102*	(0.0596)	0.116	(0.186)
35.PWPR	0.216***	(0.0274)	0.220***	(0.0553)	0.117	(0.176)
46.PWPR	0.0458	(0.0311)	0.0935	(0.0688)	0.0794	(0.211)
47.PWPR	0.0302	(0.0320)	0.101	(0.0696)	0.0569	(0.207)
48.PWPR	0.199***	(0.0283)	0.211***	(0.0585)	0.0787	(0.182)
59.PWPR	0.129***	(0.0285)	0.124**	(0.0572)	0.0908	(0.183)
60.PWPR	0.364***	(0.0575)	0.187	(0.114)	-0.0624	(0.716)
2.COW	0.510***	(0.126)	0.0665	(0.645)		
3.COW	0.615***	(0.124)	0.333	(0.644)	0.509**	(0.216)
4.COW	0.823***	(0.122)	0.489	(0.643)	0.442**	(0.187)
5.COW	0.122	(0.125)	-0.104	(0.644)	-0.227	(0.229)
6.COW	0.241*	(0.129)	-0.0478	(0.649)	-0.627**	(0.283)
2.FPTWK	-0.579***	(0.00944)	-0.648***	(0.0219)	-0.817***	(0.0780)
Constant	4.388***	(0.149)	4.574***	(0.679)	5.128***	(0.909)
R ²	0.423		0.383		0.357	
F	301.7		61.79		7.914	
N	39661		9448		1280	

*p<0.1, **p<0.05, ***p<0.01

Appendix B

Variable	Description
MARST (Marital Status)	1 Divorced
	2 Legally married (and not separated)
	3 Separated, but still legally married
	4 Never legally married (single)
	5 Widowed
FOL (First official language spoken)	1 English
	2 French
	3 Both English and French
	4 Neither English nor French
GENSTAT (Generation status)	1 First generation
	2 Second generation, both parents born outside Canada
	3 Second generation, one parent born outside Canada
	4 Third generation, respondent born in Canada, both parents born in Canada
VISMIN (Visible minority population)	1 Chinese
	2 South Asian
	3 Black
	4 Filipino
	5 Latin American
	6 Southeast Asian
	7 Arab
	8 West Asian
	9 Korean
	10 Japanese
	11 Visible minority, n.i.e.
	12 Multiple visible minority
	13 Not visible minority
HDGREE (Highest certificate, diploma or degree)	9 Bachelor degree
	10 University certificate or diploma above bachelor level
	11 Degree in medicine, dentistry, veterinary medicine or optometry
	12 Master degree
	13 Earned doctorate degree
CIP (Major field of study)	1 Education
	2 Visual and performing arts, and communications technologies
	3 Humanities
	4 Social and behavioral sciences and law
	5 Business, management and public administration
	6 Physical and life sciences and technologies
	7 Mathematics, computer and information sciences
	8 Architecture, engineering, and related technologies
	9 Agriculture, natural resource and conservation
	10 Health, parks, recreation and fitness
	11 Personal, protective and transportation services
	12 Other field of study
NAICS (Industry)	1 Agriculture, forestry, fishing and hunting
	2 Mining and oil and gas extraction
	3 Utilities
	4 Construction
	5 Manufacturing
	6 Wholesale trade
	7 Retail trade
	8 Transportation and warehousing
	9 Information and cultural industries
	10 Finance and insurance
	11 Real estate and rental and leasing
	12 Professional, scientific and technical services
	13 Management of companies and enterprises
	14 Administrative and support, waste management and remediation
	15 Educational services
	16 Health care and social assistance
	17 Arts, entertainment and recreation
	18 Accommodation and food services
	19 Other services (except public administration)
	20 Public administration
NOCS (Occupation)	1 Senior management occupations
	2 Other management occupations
	3 Professional occupations in business and finance

	4 Financial, secretarial and administrative occupations
	5 Clerical occupations and clerical supervisors
	6 Occupations in natural and applied sciences
	7 Professional occupations in health, registered nurses and su
	8 Technical, assisting and related occupations in health
	9 Occupations in social science, government services and relig
	10 Teachers and professors
	11 Occupations in art, culture, recreation and sport
	12 Wholesale, technical, insurance, real estate sales specialists
	13 Retail trade supervisors, salespersons, sales clerks and cas
	14 Chefs and cooks, supervisors, and other occupations in food
	15 Occupations in protective services
	16 Childcare and home support workers
	17 Service supervisors, occupations in travel and accommodation
	18 Contractors and supervisors in trades and transportation
	19 Construction trades
	20 Other trades occupations
	21 Transport and equipment operators
	22 Trades helpers, construction, and transportation labourers
	23 Occupations unique to primary industries
	24 Supervisors, machine operators and assemblers in manufacturing
	25 Labourers in processing, manufacturing and utilities
PWPR (Province of work)	10 Newfoundland and Labrador
	11 Prince Edward Island
	12 Nova Scotia
	13 New Brunswick
	24 Quebec
	35 Ontario
	46 Manitoba
	47 Saskatchewan
	48 Alberta
	59 British Columbia
	60 Northern Canada
COW (Class of worker)	1 Unpaid family workers-worked without pay for a relative in
	2 Paid worker- originally self-employed without pay help, in
	3 Paid worker-originally self-employed with paid help, incor
	4 Paid worker-working for wages, salary, tips or commision
	5 Self-employed without paid help, not incorporated
	6 Self-employed with paid help, not incorporated
FPTWK (Fulltime or part-time weeks worked in 2005)	1 Worked mainly full-time weeks in 2005
	2 Worked mainly part-time weeks in 2005

Source: Census of Population