Impacts of Human Capital Variables on Earnings of Immigrants and Non-Immigrants in

Canada: 1996 and 2006


By
Zirui Zhao


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Approved:     Dr. Ather Akbari
                   Supervisor


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**Abstract**

The purpose of this study is to analyze the impacts of education and post schooling labour market experience on wage differential between immigrants and non-immigrants in Canada, with particular focus on those who have completed university education.  The analysis is based on microdata obtained from 1996 and 2006 Censuses of Canadian population.   Human capital earning models are estimated separately for immigrants and non-immigrants and also by gender. Both human capital variables of education and post schooling experience positively affect the earnings of immigrants and non-immigrants before and after adding controls for demographic and labour market variables and province of residence. Immigrants are rewarded lower for their university education than non-immigrants. Married status has statistically significant effect on earnings, where married status has negative effect on earning of a female. A married woman earns lower wage than a married man among both immigrants and non-immigrants. The disadvantage of being a visible minority decreases from 1996 to 2006 for both male immigrants and non-immigrants.

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## 1. Introduction

Education is an investment in human capital made by individuals and societies. Jorgenson and Fraumeni (1989) suggested that the expenditures made by education institutions are much smaller than the benefits of education. In general, an investment in education benefits not only the individuals but also the whole society. Bergerhff at el. (2013) found that more and more European students are willing to obtain higher education abroad. Kopatz and Pilz (2015) provided the evidence that the return to vocational education and training are lower than the return to higher education. Many studies have examined the returns to education, and the impacts of policy change in education and the wage gap associated with education such as between genders, between immigrants and non-immigrants, between visible minorities and white caucasians. Over the past 3 decades, investment in higher education has increased in Canada and other western countries as demand for highly skilled workers has increased in labour markets. Bourbeau, Lefebvre, and Merrigan (2012) studied the evolution of returns to education for young Canadians in different education groups for the period 1990 to 2005. Their analysis was broken down by gender and province. They also analyzed returns to labour market experience which is another form of human capital investment. Their results show that the returns to higher education and experience have considerably increased for young male and female graduates from 1991 to 2006.

In 2016, Canada had a foreign-born population of about 7.5 million, representing more than 1 in 5 permanent residents in Canada. Canada continues to welcome thousands of individuals from other countries every year. Around 16.1% of immigrants to Canada came between 2011 to 2016, which means that approximately 1.2 million are recent immigrants (Statistic Canada). The vast

majority of foreign-born population lives in the nation`s largest urban centers of Alberta, British Columbia, Ontario and Quebec.

Many economists have estimated the wage gap between immigrants and native-born workers in the labor market. Smith and Fernandez (2017) studied the wage gap by skill and education for immigrants in Canada and United States. They suggested that better skilled and educated immigrants do not have the same wages as Canadian workers. The wage gap between immigrants and Canadian-born workers is a key measure of how well immigrants are integrated in the economy of Canada. The older the age of individual at immigration, the lower return that individual had from university education as investigated by Li (2001). The education and work experience obtained abroad may not bear the same weight by employers as certificates obtained by Canadians (Baker and Benjamin, 1994). Hum and Simpson (1999) found that no matter where the education is obtained there is a positive return, and only Canadian work experience has a positive impact on wages by using the OLS wage estimations. Lands and Richelle (2013), using the 2006 Census Public Use Microdata file, estimated the OLS log-earning regression to determine the wage discrimination between Visible Minority and Non-Visible minority immigrants in Canada. They found that the earning gaps do exist between the two groups of Whites and Visible Minority immigrants in both genders. The differential is larger for males, and also larger in manufacturing industry than in the general Canadian economy. They found that the causes of earning gap are not due to one particular characteristic. Years Since Immigration (YSM), which is a proxy for labour market experience in Canada and also, to some degree, of assimilation, is the most significant variable and of large magnitude throughout their estimation of wage differential. This means that the return to Canadian labour market experience is greater for visible minorities than whites. They used the Oaxaca-Blinder decomposition method to find

the sources of wage differences between visible minorities and white. The Oaxaca-Blind decomposition method decomposes the wage difference between two groups into two sources: one is the difference in characteristics such as education or work experience, and the other part is assigned to factors that are unexplained, are attributed to unobservable factors such as effort, motivation and discrimination. In their study, they find the observable male earnings difference to be largely due to the YSM variable. Because whites have advantage in terms of years in Canada and location of residence, they are better compensated. Throughout their study, YSM variable is a focal point, so they proposed conducting the analysis of wage differential for different YSM quantile through an Oaxaca-Blinder Decomposition in a future study.   Nadeau and Seckin (2010) compared sources of differences in the wage gap between immigrant males and Canadian born males in Quebec and in the rest of Canada from 1980 to 2000. They also provided a number of possible explanations to explain the expanding of the wage gap between immigrant and Canadian born workers since 1970s. These include:

- changes in the composition of immigrant source countries from the United States and Western Europe toward Asia, Africa, and Latin America; this may have reduced the transferability of immigrants' human capital because of potential issues regarding language, culture, quality of education and experience, and possibly discrimination;

- the declining entry earnings of immigrants;

- declining returns to pre-immigration labor market experience;

- changes in Canadian immigration policies[1]; and

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[1] The immigration policy changes discussed in their paper are that Quebec has been using its own points systems to select independent immigrants since the Cullen-Couture agreement in 1978. Since the Canada-Quebec Accord Immigration Accord in 1991, Quebec has the sole responsibility to select all independent immigrants and refugees and put much greater weight on French language skills in selecting independent immigrants than the rest of Canada.

- the prolonged recession of the early 1980s and 1990s and the IT bust post-2000 which negatively affected immigrants more than the Canadian born.

They compared the role immigration policies in labor market in Quebec with the rest of Canada (ROC). They found that the wage gap was consistently increasing more to the disadvantage of immigrants in Quebec than in the ROC.

In the present study, the impacts of two human capital variables, university education and post schooling labour market experience, on earnings of immigrants and non-Immigrants in Canada are analyzed for the years 1995 and 2005 based on 1996 and 2006 censuses. Following section presents a brief overview of immigration policy in Canada and how it has evolved over time.

## 2. An Overview of Immigration Policy in Canada

Canadian immigration policy has undergone some important changes since Confederation. The focus of Canadian immigration policy has been to increase the population, settle the land. Immigration policy also tend to reflect racial attitudes or national security concerns and provide labor and financial capital for the economy. Canadian population grew from 3.6 million in 1870 to more than 35 million in 2016, almost tenfold (Dirks, 2006). According to the British North America Act in 1867, provincial and federal governments have constitutional responsibilities for immigration. The province of Quebec established its own immigration department in 1968 and forms its own immigration policy based on its peculiar demographic and labour market needs. Emphasis is placed on recruitment of immigrants who have the potential to successfully integrate in French-speaking community. Quebec was the first province to sign a special immigration agreement with the federal government.

In the 19th century, the movement of farmers and farm laborers to Canada were basically unrestricted, except for the patients, the disabled and the poor under the first Immigration Act passed in 1869. In 1885, under pressure from British Columbia, a federal law was passed to restrict Chinese immigration by imposing a head tax -- the first of a series of such measures against the Chinese. In 1919, the 1869 Immigration Act was amended to prohibit certain groups from entering the country, including Communists, Mennonites, Dukhobors and other groups with special religious activities, and those whose countries fought against Canada during the First World War, such as Austrians, Hungarians and Turks. The official ban was introduced in late 19$^{th}$ century. The Chinese head tax was eliminated in 1923. The restrictive policies and practices continued until the mid-20$^{th}$ century.   In 1946, the official ban on Chinese immigrants was removed.   In 1952, the new immigration law continued Canada's discriminatory policy against non-European and non-US immigrants. The Immigration Act stipulated "preferred classes" for immigrants, including British subjects and French and American citizens, as well as Asian immigrants who want to reunite with their immediate Canadian relatives. The Act further discriminated against Asian immigrants in Canada who were not directly related, gay or mentally disabled. The main role of the new Act was to strengthen the authority of the federal cabinet and give the citizens and immigration ministers broad powers.

The year 1967 marks a milestone in Canadian immigration policy when it abolished its racially discriminatory aspects and introduced a "Points System" under which a universal selection criterion was adopted regardless of the country of origin of immigrants. The Race, color or nationality were no longer to determine the admissibility of an applicant for immigration. On the contrary, work skills, education, language skills (French or English) and family relationships became the main considerations for determining who can immigrate. The purpose of this shift in

focus was to admit those who have the ability to contribute to the Canadian community and economy. Canada was the first country to introduce the points-based immigration system. One of the main advantages of this system is that it is largely transparent. Potential applicants can review selection criteria to determine if they are able to score enough to achieve a passing score of 67. Another advantage of the system is that it makes it easier for people who cannot travel to Canada to arrange employment than before. (Ahmad, 2013) However, Ahmad (2013) suggested that the transparency leads to complaints about unfair treatment. People who fail do usually think they should get more points in one or more categories. This is especially true in more subjective categories, such as adaptability. In 1969, 18 years after the first United Nations Convention on the Status of Refugees was adopted by the United Nations, Canada signed the Convention. The Immigration Act in 1976 came into force in 1978 and is a complete breakthrough in the past. For the first time, it legally established the main objectives of Canadian immigration policy. This includes promoting Canada's demographic, economic, social and cultural goals, as well as family reunification, diversity and non-discrimination priorities. For the first time, the Act defined refugees as different immigrant groups in Canadian law and requires the government to fulfill its obligations to refugees in accordance with international agreements. In 1979, Canada began a unique program that allowed private groups (usually churches and minority community organizations) to fund refugee individuals or families, bring them to Canada as permanent residents, and help them settle here. In 1988, the Canadian Multiculturalism Act provided the legislative framework for the official multicultural policy adopted by the government in 1971. The Act aims to protect the cultural heritage of Canadians, reduce discrimination and encourage the implementation of multicultural projects and activities within institutions and organizations. In 2001, after the 9/11 terrorist attacks in the United States, Canada replaced the 1976

Immigration Act with the Immigration and Refugee Protection Act, which gave the government greater power to detain and expel land-based immigrants suspected of being a security threat. It is expected that by 2017, the government will allow about 44,000 refugees to enter the country (Dirks, 2006). As of now, most provinces and territories in Canada are participating in the Provincial Nominee Program (PNP) of the federal government which allows provinces to nominate immigrants who will meet their labour market needs if local residents are not available. Different provinces have introduced different streams to boost population growth, and to employ immigrants with desirable job skills, or language skills. As of January,1, 2015, a new Express Entry System was introduced by Immigration, Refugees and Citizenship Canada (IRCC) to expedite the processing of immigrant applications under economic immigration category. In 2017 the Minster of IRCC announced the new targets of over 1 million immigrants by 2020. The targets for the economic immigration will continually grow every year until 2020, in order to support Canadian business and meet the labor market needs. Another component of Canada`s immigration policy, regionalization, encourages immigrants to spread across the country. Regionalization aims at stimulating the economies of smaller cities (Goodbrand, 2015). At present, only one in 40 immigrants lives in small town or rural area, compared to one in five Canadian-born (Todd, 2017). The regionalization initiative, which picked up in early 2000s has resulted in a more wide spread provincial distribution of new arrivals. However, retention remains an issue in smaller provinces.

## 3.    Literature Review

Kim and Lim (2017) estimated the impacts of non-citizen workers[2] on U.S. citizens` income. They suggested that the non-citizen workers face more severe competition with new immigrants in labour market. They found no empirical evidence to support immigrants to replace native-born workers. There was no statistically significant difference in the impact of skilled and unskilled immigrants on U.S. citizens` income. They estimated the internal competition among foreign-born workers in U.S. by analyzing the impact of immigration on wages of native-born workers. They used the data on 51 U.S. states for the period 1995 to 2010 from the Current Population Survey (CPS). They separated the data into U.S. citizen and non-citizen groups. They applied the Mincer (1974) earning equation as a key empirical framework. The independent variables are the years of schooling and the years of working experience. The dependent variable is the log of earning. The dependent variable they used is the real income of U.S. citizens at state level in period t. The independent variables they used are calculated at state-level in period t, such as the log of total number of non-citizen foreign-born workers, the real GDP of the United States, the ratio of high-skilled and low-skilled U.S. citizens, the unemployment rate, the median age of U.S citizens, and the square of the median age of U.S. citizens, that are explained below. They used the age variable as a proxy for post schooling labour market experience because working experience is not reported in the CPS. They modified the standard Mincer earning equation to make the model more effective. CPS data set contains information on personal education attainment[3] and does not include the information about years of schooling. They used the ratio of number of U.S. citizens who completed post-high school education (viewed as high skilled in

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[2] Non-citizen workers in this study include all foreign-born workers comes from CPS data set.
[3] Educational attainments are classified by academic degrees such as high school diploma, associate degree, professional degree, and etc.

their study) to those with lower education (viewed low skilled by them) of state i in period t. They used the state-level unemployment rate variable to show the economic situation of each state in United States. The national-level real GDP is used to reflect the national economic situation in U.S. They estimated the effect of immigration on income by using the number of non-citizens workers. They used Ordinary Least Squares Regression (OLS), the fixed effects and random effects estimations in order to quantify the impact of non-citizen workers on U.S. citizen`s income. The basic OLS regression includes the educational attainment of population and working experiences. Then they modified the model by including a state-level unemployment rate variable to reflect each of U.S. states economic situation, and total number of non-citizen foreign-born workers to see the effect of immigration on citizen`s wage[4].They found that the key variable, the logarithm of the variable FOREIGN, has a statistically significant positive coefficient. The positive statistically significant variable FOREIGN suggests the number of non-citizen workers is positively correlated with the citizens` income in U.S. They separated the non-citizen workers into skilled and unskilled groups. The educational attainments of non-citizen workers have a positive coefficient but is statistically not different from zero. They presented the evident that both skilled and unskilled non-citizen workers are complements to U.S citizens and there is no heterogeneity between skilled and unskilled non-citizen workers of the impact of immigration on the income of citizens in United States. The coefficient of log of unskilled non-citizen workers positive but very small. The coefficient of skilled and unskilled non-citizens workers is statistically insignificant in the empirical model. Their estimation suggested that the non-citizen workers and immigrants are complements to U.S resident. There is no empirical evidence that there is internal competition among non-citizen workers in U.S.

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[4] The equation is : $\ln(Y_{it}) = C + \beta \ln(FOREIGN_{it}) + \gamma \ln(GDP_t) + \delta (RATIO_{it}) + \zeta (UNEM_{it}) + \eta(AGE_{it}) + \theta(AGE_{it}) + u_{it}$

Nadeau and Seckin (2010) found that immigrants in rest of Canada (ROC) have been consistently, and increasingly, faring better than those born in Quebec in terms of wages compare to Canadian born individuals. They used the Public Used Microdata files (PUMF) on Individuals from the 1980, 1990, and 2000 Canadian Census and limited the age of men to between 20 and 64, who work more than 20 hours per week and more than 26 weeks per years, and who are not self-employed. They divided the sample between Canadian born and immigrants (foreign-born), and Quebec and ROC. In their samples, 56.9% of immigrants living in the ROC spoke English at home, whole 32.7% of immigrants living in Quebec spoke French at home in 2000. Immigrants living in ROC come from countries that are distinct from Quebec. For example, in 2000, their chances of coming from the United States and the United Kingdom exceeded 150%, while the likelihood of coming from other countries was reduced by 40%. They assumed that there are four possible reasons why immigrant wage gap with Canadian-born workers in Quebec might differ from that in the ROC. The first possible reason was that Quebec passed language laws in the 1970s, and it has been increasingly necessary since then to learn French in order to succeed in the Quebec labor market. The second possible reason is the difference in country of origin of immigrant. The next possible reason is that Quebec's immigration policy has more tolerance than in the ROC[5]. Another possible reason is discrimination. A number of empirical studies used the well-known "Blinder-Oaxaca" decomposition method to decompose the mean differences in log wages for the purpose of finding the sources of wage differences between two groups (see, for example Lands and Richelle 2013). For example, in this article, they used the decomposition

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[5] Since the Cullen-Couture Agreement of 1978, Quebec independently used its own points system to select immigrants, considering various economic and social factors to assess their potential integration and prosperity.

method to measure the extent to which each possible cause explained the difference in the immigrant wage gaps.

They found that the wage gap between male immigrants and the Canadian born over the period of 1980-2000 was consistently, and increasingly, detrimental to immigrants in Quebec and in the ROC. All other things equal, if Quebec could attract immigrants with the same language background as the Canadian born population of workers living there, the wage gap between Quebec immigrants and Canadian born would be reduced by about 4.6 points. However, they did not find any evidence that the expansion of the Quebec immigrant wage gap was due to the Quebec`s discrimination against immigrants.


## 4. Data Description

This study estimates an earning function, as suggested by Mincer (1974), to analyze earnings of immigrants and non-immigrants. The model is described in the next section. The 1996 and 2006 Census of Population Public Use Microdata Files (PUMF) on Individuals are used. The 1996 Census contained 792,448 observations and 122 variables. The 2006 Census contained 844,476 observations and 124 variables. The present study divides the total population into 3 categories: all immigrants, recent immigrants and non-immigrants. Immigrants are all those who are foreign-born. Recent immigrants are those who immigrated to Canada over the ten years prior to each census. About 17.4% and 19.8% of total population in 1996 and 2006 were immigrants (foreign-born) in Canada, respectively. The year of immigration variable in each census is used to isolate the recent immigrants. The census is conducted in May which means that immigrants who arrived during January to May of the census year, have been in the country for only six months or less. And many of immigrants who arrived in the year prior to census have also not been in the

country for a full year as they may have arrived at different times during the years. So, in 1996 census, only those arriving until 1994 are considered and likewise, in 2006 census, only those arriving until 2004 are considered in this study. 12 out of 122 variables in 1996 census and 12 out of 124 variables in 2006 census were used in this study. Only individuals from 25 to 64 years of age were considered because those under 25 are either children or students. Those over 64 are mostly retirees although Canada does not have mandatory retirement since 1976. Non-permanent residents are not included in the analysis as their earnings are determined differently in labour markets than permanent residents. Only those immigrants who arrived in Canada since 1970 are considered because most would have arrived under the Points System introduced in 1967. The variables: education, province of residence, gender, visible minority, marital status and industry of employment are included as dummy variables. Individuals living in the North Western Territories and the Atlantic Province are not included because of the lack of observations of immigrants and the inability to produce robust results. Weekly wage was calculated by dividing yearly wages and salaries before divided by the number of weeks. This variable was restricted to be greater than zero and its logarithm was used as the dependent variable. The sample was also restricted to paid worker working for wages, salary, tips or commission. Three separate estimations of earnings model were performed    for all immigrants, recent immigrants and non-immigrants by gender in each census.

## 5. Methods

The impact of education on earnings is best analyzed by estimating a human capital earnings function, originally proposed by Mincer (1974). In this study, this function is estimates separately for all immigrants, recent immigrants and non-immigrants.

### 5.1 Earning function

The basic earning function specifies logarithm of wages of an individual as dependent on his / her education level, experience and square of experience. Mincer (1974) calculated the potential post schooling experiences or age minus years of education minus five as most survey data do not include data on experience. He also mentioned that some studies have also used age as a proxy of potential years of post-schooling work experience since there is usually no information on work experience in longitudinal administrative data and cross-sectional survey data. There is no information on actual experience in both 1996 and 2006 in the Census of Population PUMF files. Since years of schooling associated with certain levels of educational attainment may vary by source countries of immigrants, years of experience calculated using the above method may not be comparable between them. Hence, the variable age is used as a proxy for their potential labour market experience. The variable Years of Schooling is unavailable in 2006 Census as well. Following other studies, the following model is specified for all immigrants, recent immigrants and non-immigrants:

$$\ln wage_i = \alpha + \gamma\, U_i + \beta_1 AGE_i + \beta_2 AGE_i^2 + \varepsilon \qquad (1)$$

All the dependent and independent variables are described in Table 1. $\ln wage_i$ is the natural logarithm of Weekly Wage for the individual $i$, computed by dividing yearly wage by weeks worked in a year, $U_i$ is the categorical dummy variable to indicate the university degree which is equal to 1, if the individual completed University Certificate or Diploma Below Bachelor Level or higher and equal to 0 otherwise, $AGE$ represents age of the individual which is used as a proxy for post schooling experience, $AGE^2$ is the squared of age, $\varepsilon$ is the random the error term. $AGE$ variable is also included in its quadratic form to account for any diminishing effect of human capital as one ages. The results of these estimations will be used to compare the marginal

impacts of education and experience on weekly wages of recent immigrants with all immigrants and non-immigrants by using 1996 and 2006 census microdata. These models will be estimated separately for men and women in each of the three groups. Miller (1993) suggested that age and potential experience will fall short of actual experience since married women usually have non-continuous labor market histories. However, the direct information about labor market histories is necessary in studies of female labor supply as it is not uncommon for married women to have family responsibilities to limit participation. He found that the potential experience does not reflect the human capital investment gained through market participation but reflects the negative impact of ageing when participation is non-continuous.

### 5.2 Expanded earning model

The weekly wage model specified above is expanded to control for province, gender, marital status, visible minority, and industry of employment in 1996 and in 2006 as these characteristics can account for wage differences in a cross-section data. The choice of these control variables is based on Lands and Richelle (2013), Bourbeau, Lefebvre, and Merrigan (2012) and Nadeau and Seckin (2010) among others.

$$\ln wage = \alpha + \gamma U_i + \beta_1 AGE_i + \beta_2 AGE_i^2$$

$$+ \sum_{j=1}^{9} \delta_j PR_{ij} + \vartheta Marital_i + \sum_{j=1}^{2} \theta_j Industry_{ij} + \eta VMIN_i + \tau YSM_i + \varepsilon \qquad (2)$$

Estimations are performed separately for 1996 and 2006. All variable descriptions can be found in Table 1.

## 6. Results and Discussion

### 6.1 Sample characteristics

Averages of dependent and independent variables used in this study are provided in table 2. This table is separated into two main groups by gender. The sample means are shown for 3 immigration status categories: all immigrants, recent immigrants and non-immigrants in 1996 and 2006 census years. According to 1996 and 2006 census files, around 15.1% and 15.2% of Canadian women and men were immigrants in 1996 census year. About 20.9% of Canadian women and around 21% of Canadian men were immigrants in 2006 census year. The portion of immigrants increased from 1996 to 2006.

All male immigrants earned 725.3 dollars per week and 1798.5 dollars per week, while all female immigrants earned 523.4 dollars per week and 1380 dollars per week, in 1996 and 2006 census years respectively. Recent female immigrants earned the lowest not only in both census years. Overall, females earned less than males. All immigrants in 2006 census year earned the highest weekly wage, about three times the weekly wage in 1996 earned by all immigrants. The weekly wages earned by recent male immigrants in 2006 census year were approximately doubled those in 1996.

Approximately 64% of male recent immigrants had completed university education at the time of 2006 census. It means that 64 percent of male immigrants who arrived Canada from 1996 to 2005 had university education. However, only 25% of Canadian-born males had completed university education. There is not much difference between female and male immigrants, with 44% of all female immigrants and 60% of recent female immigrants having acquired university education, while 46% of all male immigrants and 64% of recent male immigrants having acquired university education in 2006. However, there was around 4 percent difference in

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education levels of female and male non-immigrants (Canadian-born) in 2006. Recent immigrants in 2006 who had completed university education were twice as much as those in 1996, both females and males, except for female Canadian-born. About 22% and 30% of Canadian-born women had completed university education in 1996 and 2006.

The average ages for all immigrants, recent immigrants and non-immigrants are around 40 years of age. Overall, the average age in the three immigrant categories: all immigrants, recent immigrants and non-immigrants (Canadian-born) in 2006 census year is higher than those in 1996 census year, about 2 years higher. On average, the immigrants are slightly younger than Canadian-born.

When it comes to provinces, more than half of immigrants live in Ontario, while slightly more than 35percent and less than 40 percent Canadian-born living in Ontario. Ontario is home to the highest proportion of Canadian-born (non-immigrants), although the percentage of Canadian-born residents living in Ontario is far less than that of immigrants. Saskatchewan has the least immigrants and Canadian-born residents, with less than 1% of immigrants and around 4% of Canadian-born. The order of provinces from the lowest to highest percentages of all immigrants and Canadian-born resident are followed by SK, MB, AB, QC, BC, and ON (excluding the Northern Canada and Atlantic provinces).

Approximately 30% and 25% of all immigrants are male paid workers who work in manufacturing industries, while around 22% and 19% of Canadian-born residents are men in 1996 and 2006 census years. Female paid workers who work in manufacturing are less than 20%, with the lowest 9% and 7% of female Canadian-born workers in 1996 and 2006 census year. There is about 10% difference between male and female immigrants who work in manufacturing. Overall, the percentages of workers in manufacturing are less in 2006 census year than those in

1996 census year, with the proportion of female paid workers less than male paid workers in manufacturing in both census years. Women have higher percentage of immigrants and Canadian-born workers who work in service industry than men in 1996 census year, but these proportions of female paid workers working in service industry dropped between 1996 and 2006. The difference between male and female immigrants is narrow in 2006 census year, while there is a 10% difference between Canadian-born male and female workers[6]. The types of service industry in 1996 and 2006 census files are different, so the comparison of service industry between 1996 and 2006 are not meaningful.

The marital status is similar for both females and males in both years. The non-immigrants have the lowest portion of legally married, about 54% and 56% for males and females in 2006 census year. About 54% of male Canadian-born and 56% of female Canadian-born are legally married. The highest percentages for males and females are 81% and 79% for recent immigrants in 2006 census years, which mean that 81% of males and 79% of female recent immigrants who arrived Canada from 1996 to 2005 are legally married.

Visible minorities make up a larger proportion of immigrants than Canadian-born residents in both censuses. About 3% of all Canadian-born are visible minorities which means that about 97% of Canadian-born are white. In 2006, about 74% of recent male immigrants and 74% of recent female immigrants were visible minorities.

On average, years since immigration (YSM) is similar for males and females, with around 13 years in 1996 and about 17 years in 2006 for all immigrants.

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[6] In 2006 census year, around 19% of Canadian-born male workers work in service industry, and about 28% of Canadian-born female workers work in service industry.

**6.2 Regression Results**

The earning function is a classic OLS earning regression model used to compare the differences between each immigrant status within 1996 census year and within 2006 census year. First, this model will determine whether the variables of education, experience and squared experience are significant. Then, if they are significant, what sign the coefficient carries. The result of regression is shown by females and males in Table 3 for 1996 census file and in Table 4 for 2006 census files. For females and males, all variables such as education level, experience and squared experience are statistically significant at 0.01 level of significance. Both education and experience have positive coefficients showing positive returns of education and experience. The negative coefficient of experience variable indicates an increase in earnings as people age, but at a decreasing rate. This indicates flattening of age-earning profile as returns to human capital (education and experience) decrease at older age.

**6.2.1 All immigrants VS. Non-immigrants: 1996 Census Year**

For all male immigrants, having completed the university education increases the weekly wage by 30.8%, while for all female immigrants, weekly wages are increased by 34%. Having university education increases weekly wage more for Canadian-born than for all immigrants. Canadian-born men's weekly wage rises by 33.3% if they complete university education, while Canadian-born women's wage rises by 52%. For females, the weekly wage earned by Canadian-born increases much more than for immigrants. Hence, Canadian born females completing university educated enjoy higher returns than males.

For males, weekly wage increases with years of experience (as proxied by age) by 8.8% for all immigrants and 11.4% for Canadian-born, while for females, it increases by 6.41% for all

immigrants and 6.6% for Canadian-born. Hence, it can be concluded that the years of experience for Canadian-born increases wages more than that for all immigrants.

### 6.2.2    All immigrants VS. Non-immigrants: 2006 Census Year

For males, completing university education for Canadian-born increases the weekly wage by about 10% more than that for immigrants, where Canadian-born obtain 26.7% return to education.

For females, the Canadian-born who have completed university education would experience increase in their weekly wage by 52.9%, while for all immigrants, wages only increased by 36.5%. The weekly wage is increased the most for Canadian-born women.

When it comes to post-schooling experience, a 12.7% increasing in weekly wage is expected for each additional year of experience in case of Canadian born men. Compared to only 7.33% for all male immigrants. For females, one more year of experience Canadian-born workers take would results in about 9.5% increase in weekly wage, while the immigrants would result in about 5.1% increasing in weekly wage. Hence, Canadian-born workers would obtain more increasing in return to experience, especially for males.

### 6.2.3    All immigrants VS. Recent Immigrants:    1996 Census Year

Recent male immigrants (those who arrived within five years prior to census year) received about 1% more rise in weekly wage than all male immigrants if they have completed university education, while for females, the university education for recent immigrants increases weekly wage by 30.5%.

The coefficient of variable experience does not have much difference between all immigrants and recent immigrants. Male immigrants experience higher of return to experience than females.

### 6.2.4    All immigrants VS. Recent Immigrants:    2006 Census Year

For males, the impact of completing university education on weekly wage is very similar between all immigrants and recent immigrants, about 26.7% rise for all immigrants and 28.2% rise for recent immigrants. However, for females, the return to university education for all immigrants and recent immigrants is much different. The return to university education is about 31.6% for female all immigrants, about 26.4% for female recent immigrants. Among recent immigrants, women could not get more return to university education than men.

The coefficient of experience reported is similar between all immigrants and recent immigrants for females, while for males, the wages increase by 9.39% for recent immigrants and 7.33% for all immigrants. This rise on return to experience is more for men than that for females.

### 6.2.5    Recent immigrants VS. Non-immigrants:    1996 Census Year

Weekly wage of Canadian-born workers increases more than that of recent immigrant workers if both    complete the university education. The wages earned by Canadian-born female workers increase more, compared with Canadian-born male workers. The impact of experience on weekly wage by a Canadian-born worker is higher than that for a recent immigrant worker.

### 6.2.6    Recent immigrants VS. Non-immigrants: 2006 Census Year

Comparative outcomes of recent immigrants and non-immigrants (Canadian-born) in 2006 are the same as those noted above for 1996.

In short, women who completed university education experience higher increase in their wages than men, except for those who came recently. However, men are rewarded more for additional years of experience (in terms of weekly wage increases) than women. For both genders, years of experience and university education of Canadian-born are rewarded more than for all immigrants and recent immigrants. Recent male immigrants get better return to working experience than r females. For recent immigrants, the return to university education is very similar for males and females, about 28.2% for male recent immigrants and about 26.4% for female recent immigrants. Canadian-born men obtain more return to experience than Canadian-born women, while Canadian-born women obtain more return to completing university education than Canadian-born men.

**6.3 Regression results of Expanded Model**

In a cross-section data, earnings of individuals are also affected by their demographic and labour market characteristics. Location also matters. In case of immigrants, their length of stay in Canada also matters as it proxies their experience in Canadian labour markets. Hence, it is important to control for these factors. In the present study, this is achieved by introducing variables for province of residence, marital status, visible minorities, industry of employment and years since immigration (YSM) in the basic earning model. Regression results with these control variables are reported in Table 5.

All coefficients of human capital variables (education, experience and squared experience) are statistically significant at 0.001 level, except some coefficients of squared experience[7]. Again,

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[7] The coefficient of squared experience is significant at 0.01 level of significance for: male immigrants in 1996, female immigrants in 1996 and 2006, and female Canadian-born in 1996.
The coefficient of squared experience is significant at 0.001 level of significance for: male immigrants in 2006, male Canadian-born in 1996 and 2006, and female Canadian-born in 2006.

the positive coefficients of education and experience variables in indicate that workers who obtain and complete their university education earn more than those who do not and those with more experience also earn more weekly wages. In both 1996 and 2006 censuses, women who complete university education increased their wages more compared to men. Canadian-born workers would obtain more return to working experience. Men earn more weekly wages than women who have acquired same years of experience. All control variables in the expanded earning model are statistically significant, except for some coefficient of the provincial dummy variables[8]. Earnings in in manufacturing are higher than in service industries for those with same education, experience, demographic characteristics and province of residence. The coefficient of marital dummy for female non-immigrants in 2006 census year and for female immigrants in 1996 are not significant. The comparative results of immigrants and non-immigrants by genders are discussed below.

### 6.3.1 Males: All immigrants VS. Non-immigrants

In 1996 census, none of the provincial dummy variables is significant for immigrants, while the variables QC, ON, AB and BC are significant for Canadian-born. It means that residing in QC, ON, AB and BC, positively affects the wages of all male Canadian-born compared to SK. The coefficient of industrial dummy variables, marital dummy variables, visible minority dummy variable are significant for both immigrants and non-immigrants compared to the reference group[9]. YSM measures the return to Canadian experience. The living time in Canada has positive effect on earning, if the coefficient of variable YSM is positive. Working in service industries has

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[8] The statistically insignificant coefficients are shown in Table 5. There are many possible explanations for this insignificant effect.

[9] Reference group includes: individuals who have not completed university education, live in SK, work in industries other than manufacturing and services, are single, widowed and divorced, and White Caucasian.

negative effect on wage for Canadian-born workers. The variable YSM is significant for immigrants. The variable YSM does not apply in the case of non-immigrants.

In 2006 census, all provincial dummy variables are significant for non-immigrants.   Only the coefficient of MB has negative sign. For immigrants, only coefficients of the variables QC and MB are significant with negative sign. It means that residing in QC or MB, negatively affects the wages of all male immigrants compared to SK. Working in services industries has much lower negative effect on wages for immigrants than for Canadian-born.

In both 1996 and 2006 census data, the coefficient of YSM is significant. For males, the return to working in manufacturing are always higher for immigrant workers. Working in manufacturing has more positive effect on wage for immigrants than for Canadian-born compare to the industries other than manufacturing and services. Being male and legally married has a much more positive effect on wages for Canadian-born than for immigrants. Being a visible minority has a negative effect on wages, where the negative effects are much more for immigrants than for Canadian-born compared with the reference group white. Overall, being a legally married male and working in manufacturing has more positive effect on wages for immigrants than Canadian-born (comparing with the reference group). The return to YSM in 1996 census year is greater than that in 2006 census year.

### 6.3.2   Females: All immigrants VS. Non-immigrants

In 1996 census, only coefficient of ON variable in provincial dummies is significant and positive for immigrants, while all provincial dummy variables, except for MB are significant for non-immigrants. Being female and residing in ON has positive effect on weekly wages for both immigrants and Canadian-born, whereas the positive effect is much greater for Canadian-born

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than for immigrants. The other control variables are significant for both immigrants and non-immigrants. The coefficients of Manufacturing and Service are greater for non-immigrants than for immigrants. Being female, legally married and visible minority has more negative effects on weekly wages for Canadian-born than for immigrants in 1996 census year (compare with those who are single, widowed and divorced, and White).

In 2006 census year, no provincial dummy variable is statistically significant for immigrant. For Canadian-born, all coefficients are positive significant compare to the reference group SK, except the coefficient of MB. Coefficient of MB is not significant compare to SK, where the reason why it is insignificant is not clear in this study. Living outside MB and SK has positively effects on the weekly wage for female Canadian-born workers. The coefficient of Manufactory is not significant for immigrants compare to industries other than manufacturing and services. Coefficients of Service variable are negative and significant for both immigrants and non-immigrants. The return to working in service is about -12.4% for female immigration workers and about -16.3% for female Canadian-born workers. It means that workers in service earn lower income than in other, non-service, industries. The marital status does not have statistically significant effect on wages for female Canadian-born workers, while it has negative effect on wages for female immigrant workers. Being a visible minority has negative effect for immigrants and positive effect for non-immigrants on weekly wages.

In both 1996 and 2006 census years, YSM has positive effect on wages, and the positive effect is higher in 1996 census than in 2006 census. The return to the length of time spent in Canada is greater in 1996 than in 2006. It means that returns to Canadian experience increased over time in Canada. Overall, being female and completing university education has higher positive effect on wages of Canadian-born than of immigrants.

### 7. Conclusions

This study examined the impacts of completing university education and post schooling experiences on earnings of immigrants and non-immigrants. The returns to higher education and experience have increased for female and male workers from 1996 to 2006. Return to education are higher for females than for males, while the returns to experience are higher for males. This finding is consistent with the previous literature and explained by Dougherty (2003). According to his study, it is estimated that return to schooling in the United States is often higher for women than for men. With the introduction of discrimination, taste and environmental indicators, the difference in the schooling coefficient fell to 0.093. This suggests that for women, a small but important side effect of schooling is to make them more capable and willing to compete with men in the labour market. Returns to the university level of education are higher for immigrants than for Canadian-born. The result might be because immigrants are more likely to obtain the university level education or might be because the portion of immigrants who have completed the university education is higher than that of Canadian-born in Canada. Years since migration (YSM) has positive effects on wages for both genders. However, the YSM has lower positive effects in 2006 census than in 1996 census. The reason why effects of YSM on earnings slowly decreased from 1996 to 2006 might be because the number years since immigrants in 2006 census is higher than that in 1996 census for both genders, where the median of YSM in 2006 census is about 16.8 for males and 17.1 for females and the median of YSM in 1996 census is about 13.1 for males and 13.2 for females. For a given year of working experience, a male immigrant who is legally married is expected to earn higher wages than a female immigrant. This result might be because of different occupation choice or education choice (field of study)

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between men and women, the preferences of employers and the unexplained gender discrimination. Vincent (2013) found that diversification of educational and occupational choices might contribute to reducing wage inequality between women and men. However, the present study did not control for occupation. Earnings in manufacturing industries fell from 1996 to 2006 for immigrants, keeping other factors the same. The disadvantage of being a visible minority decreased from 1996 to 2006 for both male immigrants and non-immigrants. The disadvantage of being a visible minority increased from 1996 to 2006 for female immigrants. This might because the unexplained gender discrimination. Males are greater victims than women. Although the immigration policy does not discriminate against visible minority applicants, visible minorities earn lower than non-visible minorities in labour markets. It could be due to unobservable factors such as discrimination or motivation which could be investigated in a future study. The marital status is an important factor for women in labor market. Both Legally married female immigrants and Canadian-born have negative impact on their wages compare to the single, widowed and divorced women. It means that women would reward lower earning once they get married. It could be because the unobservable factors such as family's responsibility for women or the occupational choices or discrimination which could also be investigated in future study.

This study has not tested for heteroscedasticity which is an econometric issue in estimations that use cross section data. However, the use of dependent variable in logarithmic form often takes care of this use. This may be investigated in a future study.

**Table 1:**
**Variable Descriptions**

| Variable name | Variable notation | Description: |
|---|---|---|
| **Dependent variable** | | |
| Log Weekly Wage | $lnwage_i$ | The weekly wage is restricted to greater than zero and only for paid workers. |
| **Independent Variables** | | |
| Education level | $U_i=1$ if the individual $i$ has completed university education | This includes all those who have acquired: 1) University certificate or diploma below bachelor level, 2) Bachelor's degree, 3) University certificate or diploma above bachelor level, 4) Degree in medicine, dentistry, veterinary, 5) Master's degree, 6) Earned doctorate degree. |
| | $U_i=0$ if the individual $i$ has not completed university education | This includes all those who have acquired: 1) No Degree certificate or diploma 2) High school graduation certificate or equivalency Certificate, 3) Trades certificate or diploma, 4) College, CEGEP or other non-university certificate or diploma |
| Experience | $Age_i$ | Using variable Age as proxy of experience. The variable Age is categorical variable in 2006 census, which is continuous variable in 1996. The continuous variable, Age, in 2006 census was created by using the median number of each age group in 2006. |
| Square of Experience | $Age_i^2$ | (For example: Age is equal to 27 if the age group is ranged from 25 to 29.) |
| Province | $PR_{ij} = 1$, for each one province | There are 6 dummy variables for provinces: QC, ON, MB, AB, and BC. |
| | $PR_{ij} = 0$, otherwise | Where Saskatchewan is set for the reference province in the model. |
| Marital Status | $Marital_i = 1$, for the individual who legally married | This includes all those who are separated, but still legally married and legally married (and not separated). |
| | $Marital_i = 0$, for the individual who is single, widowed and divorced | This includes all those who are single, widowed and divorced |
| Industry | $Industry_{ij}$: $MANUFACTORING_i=1$ for the individual who work in manufacturing | There are 2 dummy variables for industry: Manufacturing and Service. Where Service in 1996 census and in 2006 census are showing for different types. |
| | $MANUFACTORING_i = 0$ for the individual who work in other industries. | Reference group includes all other industries |
| | $SERVICE_i=1$ for the individual who work in services. | |
| | $SERVICE_i = 0$ for the individual who work in other industries. | |
| Visible Minorities | $VMIN_i = 1$ for Visible Minorities | This includes all those who are visible minorities |
| | $VMIN_i = 0$ for White | Reference group includes White |
| Years Since Immigration | In 1996 census: $YSM_i = 1996$ minus year at immigration | The year at immigration in this census exclude 1995. It is because immigrants arrive in different months of the year and therefore some may not have lived whole year. The variable Year at Immigration is categorical variable in this census. So, the YSM was created by using the median year of each Year at Immigration group. (For example, if the Year at Immigration ranges from 1971 to 1972, then the YSM equal to 1996-1971.5) |
| | In 2006 census: $YSM_i = 2006-$ year at immigration | The year at immigration in this census excludes 2005 for the same reason as in case of 1996 census explained above. For the 2 year groups (1970 to 1974 and 1975 to 1979), I choose the median year in each range of years as a proxy for the year of immigration in that group. And the YSM for categorical variable, Year at Immigration, is created by the same way as above in 1996 census. |

Note: The groups of service industry in 1996 files includes: Business Services, Government Services Federal, Government Services other, Educational Services, and other Services.
The groups of services industries in 2006 files includes: Professional scientific and Technical Services, Educational Services, Accommodation and Food Services, and other Services (except public administration)

Table 2

Sample Means of Selected Variables

| | Males | | | | | | Females | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | All Immigrants | | Recent Immigrants | | Non-Immigrants | | All Immigrants | | Recent Immigrants | | Non-Immigrants | |
| | 1996 | 2006 | 1996 | 2006 | 1996 | 2006 | 1996 | 2006 | 1996 | 2006 | 1996 | 2006 |
| Weekly Wage (in Dollars) | 725.285 | 1798.489 | 615.391 | 1147.456 | 848.3703 | 1318.601 | 523.3641 | 1380.022 | 458.6476 | 675.5299 | 567.8923 | 906.4431 |
| Log Weekly Wage | 6.262816 | 6.619084 | 6.06831 | 6.473184 | 6.495354 | 6.78121 | 5.916087 | 6.261789 | 5.767511 | 6.059697 | 6.042791 | 6.378708 |
| Education level (High Degree) | 0.2960666 | 0.4609007 | 0.3093236 | 0.6355781 | 0.1992649 | 0.2566547 | 0.2739064 | 0.4428492 | 0.2949869 | 0.5974616 | 0.2189122 | 0.2999936 |
| Age | 39.7192 | 42.77847 | 37.58313 | 39.47586 | 40.09004 | 42.22201 | 39.3796 | 42.25635 | 37.07098 | 38.02739 | 39.95528 | 42.36118 |
| QC | 0.1370865 | 0.1449097 | 0.1332664 | 0.1611182 | 0.3145918 | 0.3076857 | 0.1167871 | 0.1271016 | 0.1107582 | 0.141483 | 0.300062 | 0.2953677 |
| ON | 0.5608036 | 0.5630928 | 0.5919187 | 0.5729352 | 0.3674068 | 0.3728618 | 0.5622618 | 0.5615443 | 0.5894214 | 0.5629927 | 0.376792 | 0.3776312 |
| MB | 0.0291561 | 0.0269796 | 0.0248463 | 0.0152478 | 0.0432891 | 0.0416615 | 0.0292963 | 0.0246316 | 0.0227869 | 0.0164329 | 0.044197 | 0.0423453 |
| SK | 0.0085878 | 0.0070611 | 0.0060233 | 0.0010165 | 0.0371443 | 0.0354629 | 0.0080209 | 0.0087179 | 0.0059384 | 0.0017368 | 0.0414436 | 0.0386865 |
| AB | 0.0944656 | 0.0977658 | 0.082068 | 0.0874206 | 0.1090966 | 0.1198269 | 0.0957961 | 0.0990798 | 0.0860378 | 0.0843019 | 0.1085925 | 0.1201471 |
| BC | 0.1699003 | 0.1601911 | 0.1618773 | 0.1622618 | 0.1284713 | 0.1225012 | 0.1878378 | 0.1789248 | 0.1850573 | 0.1930528 | 0.128913 | 0.1258223 |
| MANUFACTORY | 0.3024809 | 0.2486826 | 0.3122098 | 0.2533672 | 0.2177753 | 0.1890908 | 0.1787929 | 0.1387255 | 0.1955531 | 0.1470942 | 0.0875304 | 0.0731485 |
| SERVICE | 0.2509542 | 0.2337525 | 0.2282595 | 0.2602287 | 0.2922824 | 0.1765981 | 0.4498549 | 0.2672456 | 0.4306035 | 0.2893788 | 0.525172 | 0.2807234 |
| MARITAL | 0.754983 | 0.749877 | 0.7645878 | 0.8109276 | 0.6279679 | 0.5434905 | 0.7260367 | 0.7166332 | 0.7243475 | 0.79332 | 0.6303303 | 0.555735 |
| VISMINORITY | 0.615352 | 0.6660578 | 0.6974526 | 0.7426938 | 0.0356247 | 0.0270102 | 0.6246089 | 0.667716 | 0.7011463 | 0.7364061 | 0.0351036 | 0.0262594 |
| YSM | 13.1088 | 16.80916 | 5.767223 | 5.793011 | | | 13.23848 | 17.11868 | 5.685955 | 5.897261 | | |

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**Table 3**

**OLS Log-Earnings Estimation by SEX and Immigration Status in 1996 census year**

| | Males | | | Females | | |
|---|---|---|---|---|---|---|
| | All Immigrants | Recent Immigrants | Non-immigrants | All Immigrants | Recent Immigrants | Non-immigrants |
| Education level (High Degree) | 0.308*** | 0.316*** | 0.333*** | 0.340*** | 0.305*** | 0.521*** |
| | (20.64) | (13.09) | (53.18) | (21.18) | (12.21) | (77.60) |
| Experience | 0.0881*** | 0.0964*** | 0.114*** | 0.0641*** | 0.0636*** | 0.0660*** |
| | (14.91) | (9.55) | (54.27) | (10.17) | (6.20) | (28.00) |
| Square of Experience | -0.000904*** | -0.00115*** | -0.00119*** | -0.000683*** | -0.000781*** | -0.000723*** |
| | (-12.84) | (-9.42) | (-48.06) | (-8.98) | (-6.20) | (-25.82) |
| Constant | 4.178*** | 4.061*** | 3.887*** | 4.412*** | 4.449*** | 4.512*** |
| | (35.02) | (20.27) | (90.96) | (34.88) | (22.13) | (94.36) |
| N | 18864 | 7969 | 105292 | 17579 | 7241 | 98423 |
| R-squared | 0.0479 | 0.035 | 0.0706 | 0.0337 | 0.027 | 0.0647 |

Note: t-statistics in parentheses; * p<0.05, ** p<0.01, *** p<0.001

**Table 4**

**OLS Log-Earnings Estimation by SEX and Immigration Status in 2006 census year**

| | Males | | | Females | | |
|---|---|---|---|---|---|---|
| | All Immigrants | Recent Immigrants | Non-immigrants | All Immigrants | Recent Immigrants | Non-immigrants |
| Education level (High Degree) | 0.267*** | 0.282*** | 0.365*** | 0.316*** | 0.264*** | 0.529*** |
| | (19.98) | (10.84) | (53.76) | (22.55) | (8.94) | (76.45) |
| Experience | 0.0733*** | 0.0939*** | 0.127*** | 0.0510*** | 0.0597*** | 0.0950*** |
| | (12.77) | (7.81) | (51.79) | (8.35) | (4.18) | (35.84) |
| Square of Experience | -0.000714*** | -0.00111*** | -0.00136*** | -0.000490*** | -0.000735*** | -0.00103*** |
| | (-10.92) | (-7.75) | (-47.82) | (-6.95) | (-4.21) | (-33.30) |
| Constant | 4.737*** | 4.395*** | 3.903*** | 4.889*** | 4.746*** | 4.142*** |
| | (39.04) | (18.15) | (77.22) | (38.25) | (16.94) | (75.41) |
| N | 28466 | 7870 | 104701 | 28906 | 7485 | 109599 |
| R-squared | 0.0266 | 0.0576 | 0.0278 | 0.022 | 0.015 | 0.0598 |

Note: t-statistics in parentheses; * p<0.05, ** p<0.01, ***<0.001

Table 5

OLS Log-Earnings Estimation by SEX and Immigration Status in 1996 and 2006 census year

| | Males | | | | Females | | | |
|---|---|---|---|---|---|---|---|---|
| | Immigrants | | Non-Immigrants | | Immigrants | | Non-Immigrants | |
| | 1996 | 2006 | 1996 | 2006 | 1996 | 2006 | 1996 | 2006 |
| Education level (High Degree) | 0.358*** | 0.375*** | 0.351*** | 0.395*** | 0.362*** | 0.400*** | 0.485*** | 0.565*** |
| | (23.49) | (26.49) | (53.96) | (56.80) | (22.28) | (27.16) | (70.27) | (80.07) |
| Experience | 0.0748*** | 0.0579*** | 0.0950*** | 0.105*** | 0.0544*** | 0.0544*** | 0.0673*** | 0.0933*** |
| | (12.58) | (9.46) | (45.18) | (43.07) | (8.58) | (8.48) | (28.36) | (34.83) |
| Square of Experience | -0.000853*** | -0.000659*** | -0.00101*** | -0.00116*** | -0.000631*** | -0.000632*** | -0.000739*** | -0.00100*** |
| | (-12.18) | (-9.57) | (-40.94) | (-41.04) | (-8.30) | (-8.57) | (-26.33) | (-32.31) |
| QC | -0.101 | -0.292* | 0.0337* | 0.0578*** | 0.00151 | -0.0641 | 0.0825*** | 0.0530** |
| | (-1.37) | (-2.26) | (2.48) | (3.51) | (0.02) | (-0.48) | (5.69) | (3.11) |
| ON | 0.113 | -0.0296 | 0.152*** | 0.158*** | 0.181* | 0.174 | 0.217*** | 0.191*** |
| | (1.56) | (-0.23) | (11.31) | (9.75) | (2.27) | (1.30) | (15.25) | (11.42) |
| MB | -0.0368 | -0.271* | -0.00778 | -0.0612** | -0.0418 | 0.0127 | 0.0363 | -0.0000304 |
| | (-0.45) | (-1.99) | (-0.45) | (-2.91) | (-0.47) | (0.09) | (1.93) | (-0.00) |
| AB | 0.000203 | 0.0410 | 0.134*** | 0.282*** | -0.0102 | 0.122 | 0.0969*** | 0.172*** |
| | (0.00) | (0.32) | (9.04) | (16.01) | (-0.12) | (0.90) | (6.11) | (9.40) |
| BC | 0.130 | -0.131 | 0.210*** | 0.132*** | 0.152 | 0.0685 | 0.232*** | 0.0950*** |
| | (1.77) | (-1.02) | (14.49) | (7.48) | (1.87) | (0.51) | (15.00) | (5.21) |
| MANUFACTORY | 0.183*** | 0.133*** | 0.114*** | 0.123*** | 0.0524* | 0.0124 | 0.235*** | 0.108*** |
| | (11.66) | (8.03) | (17.87) | (15.98) | (2.54) | (0.59) | (22.76) | (8.80) |
| SERVICE | 0.0941*** | -0.0626*** | -0.0223*** | -0.153*** | 0.0440** | -0.124*** | 0.150*** | -0.163*** |
| | (5.50) | (-3.67) | (-3.70) | (-18.98) | (2.76) | (-7.47) | (24.96) | (-22.63) |
| MARITAL | 0.143*** | 0.164*** | 0.247*** | 0.273*** | -0.0249 | -0.0988*** | -0.0396*** | -0.00251 |
| | (8.47) | (9.29) | (45.00) | (42.73) | (-1.52) | (-5.99) | (-6.71) | (-0.38) |
| VISMINORITY | -0.283*** | -0.266*** | -0.187*** | -0.0902*** | -0.0303* | -0.0604*** | -0.109*** | 0.0408* |
| | (-20.50) | (-17.97) | (-13.93) | (-4.93) | (-2.04) | (-3.89) | (-7.23) | (2.05) |
| YSM | 0.0253*** | 0.0176*** | | | 0.0218*** | 0.0209*** | | |
| | (26.60) | (23.43) | | | (21.63) | (26.20) | | |
| _cons | 4.204*** | 5.081*** | 4.059*** | 4.151*** | 4.311*** | 4.661*** | 4.277*** | 4.075*** |
| | (30.41) | (28.07) | (91.71) | (78.92) | (29.15) | (24.71) | (86.32) | (71.01) |
| N | 18143 | 23481 | 105292 | 104701 | 17012 | 23855 | 98423 | 109599 |
| R-squared | 0.1283 | 0.0831 | 0.1034 | 0.0907 | 0.0687 | 0.0656 | 0.0808 | 0.0697 |

Note: t-statistics in parentheses; * p<0.05, ** p<0.01, ***<0.001

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