Evolution of Immigrant Wage Gap across Canadian Provinces from 2006 to 2011

By: Yitian Lyu

Student No. 7904949

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Supervisor: Professor David Gray

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1. Introduction

Canada is a traditional destination country for immigrants. There are on average approximately 250,000 immigrants entering Canada each year since 1991 (Citizenship and Immigration Canada). The stock of immigrants accounted for 19.8% of the total Canadian population in 2006 and 20.6% of the total Canadian population in 2011, meaning that one out of every five people in Canada was born abroad (Statistics Canada, 2011). From 2006 to 2011, more than a million individuals immigrated to this country. Many immigrants can find a suitable job after landing. However, there is a lot of research which shows that immigrants tend not to perform as well as Canadian-born workers in the Canadian labour market with respect to outcomes such as labour market participation rates, employment rates, and wages earned. With the large influx of migrants into Canada, the immigrants' economic integration into the domestic labour market becomes a challenge.

Even though many immigrants may have a higher measured human capital quality than their Canadian-born counterparts, it is often not associated with higher wages. The foreign work experiences and foreign degrees obtained tend to be undervalued in the Canadian labour market, which is one of factors generating the wage gap between Canadian-born workers and immigrants with similar characteristics. However, some previous research shows that if we control for the location of the highest degree obtained in Canada and equivalent domestic experience for the two groups, there still remains a significant wage gap. It implies that some other factors, such as employer discrimination, racism and other barriers in the labour market also have a large effect on the widening wage gap. Nadeau (2010) concludes in his study that the wage gap between natives and immigrants still exists, and that this variable has been deteriorating since the 1970s due to several factors, such as the shift in the composition of the source countries of immigrants from more developed countries to less developed countries, changes in immigrant policies, and human capital characteristics which are less remunerated than before. In addition, the provincial distribution of immigrants is also uneven. According to 2011 Census data, most

immigrants lived in Ontario, British Columbia, Quebec, and Alberta. King (2009) suggests that different immigrant concentrations among provinces have an impact on the wages that new immigrants receive upon arrival.

Using the most recent Canadian Census data sets, the main objective of this paper is to estimate the wage gap by immigration status across Canadian provinces and to show the provincial variation in the immigrant wage gap over the 2006-2011 period. Through comparative analysis, I attempt to show the evolution in the wage gap in Canadian provinces over time. Does the wage gap outcome become wider or narrower over time? How do different characteristics contribute to the immigrant wage gap over the 2006-2011 period? How does the wage gap in each province evolve across the whole income distribution? Addressing these questions can help us to better understand the labour market performance of Canadian immigrants and improve their labour market integration. Different provinces present different situations, indicating that the government can conduct labour market policy by province and pay particular attention to provinces that have greater immigrant wage differentials. The inter provincial differences of the wage gap also provide information that might be of interest to newly arrived migrants who have some choice as to where they locate.

Using the 2006 Census and the 2011 Census as datasets, the wage differentials between immigrants and comparable Canadian natives are estimated for all of Canada and examined after adding a set of controls to the wage model. I show the ordinary least squares (OLS) regression results by province or region in order to examine how the impact of characteristics on wages varies across provinces, and also how the immigrant-native differences in returns to those characteristics vary by province. To analyze the immigrant wage gap comprehensively over the period, I use two different decomposition methodologies: the Oaxaca Blinder (1973) decomposition and the Melly (2006) decomposition. The Oaxaca Blinder decomposition method is used first to understand the proportion of the contribution of each relevant factor to the total wage differential. The Melly (2006) decomposition method is used second to examine how the immigrant wage gap changes across different points in the income distribution over the 2006-2011 period.

The rest of this paper is divided into the following sections: Section 2 reviews the previous research and literature with regards to the immigrant wage gap in Canada and foreign countries. Section 3 describes the data, the sample selected, and presents the summary statistics. Section 4 presents the econometric model and the OLS regression results. The decomposition results of the immigrant wage gap by Oaxaca-Blinder method and Melly method are both analyzed in Section 5. Section 6 and Section 7 discuss the limitations that arise in my study and summarizes my main findings.

2. Literature Review

The native-immigrant wage gap is a popular topic of discussion, especially in those countries which have a lot of immigrants, and has been analyzed in many previous studies from different countries. I review some relevant literature involving this subject in both Canada and other countries.

2.1 Studies about immigrant wage gap in Canada

In a Royal Bank of Canada analysis by Desjardins and Cornelson (2011), the authors attempt to understand why the immigrant wage gap exists and the economic benefits that could occur if it were to be reduced. The report shows the total income of immigrants would increase significantly if the wage differential between the two groups were to narrow. Using 2006 Census data, it also studies how the Canadian labour market performance of immigrants evolves over the 1976-2006 period. They find that the earnings gap observed upon arrival not only persists over the past 30 years, but also widens gradually over time. Thus, it takes a longer time for the recent immigrants to narrow the gap than was the case for earlier cohorts of immigrants. Differences in returns to skills and labour market imperfections may contribute to the wage gap. Among these factors, discrimination against newcomers might play an important role in explaining the wage gap. Since the discrimination factor in the labour market is hard to measure empirically, the report cites an experimental conclusion drawn by Oreopoulos (2011). According to that author, even if both job

applicants have domestic working experience and educational background, the possibility of being granted an interview is lower for applicants who have ethnic-sounding names than for applicants who have English-sounding names. The analysis finally suggests that some positive policy measures (e.g. language training, a more efficient foreign credential recognition process) can be taken to accelerate the labour market assimilation of immigrants in Canada.

Nadeau and Seckin (2010) investigate the immigrant wage gap in Quebec and the Rest of Canada (ROC) separately from 1980 to 2000, and compare the results. Generally, the performance and labour market assimilation of immigrants in Quebec is worse than in the ROC. Using the Oaxaca-Blinder decomposition, they decompose the wage gap into the explained portion and the unexplained portion based on immigrant-specific characteristics. In the ROC, they find that immigrants received higher wages than natives in 1980, since they have better observed wage determining characteristics than natives. But this advantage changes in favor of natives in 2000, which partly results from the fact that more immigrants come from the non-traditional source countries over time, and the fact that foreign experience is less valued. In contrast, the wage gap is always in favor of natives in Quebec, and increases by 10.9 log points over 1980-2000 period. One of the explanations is that the advantage of immigrants' human capital relative to natives decreases over time, implying that natives gradually have better observed characteristics than immigrants in 2000. The fact that the citizenship premium effect[1] decreases in Quebec but remains unchanged in the ROC explains why the immigrant wage differential between Quebec and ROC widens significantly between 1980 and 2000. Finally, Nadeau and Seckin (2010) conclude that the knowledge of French plays an important role for Quebec's immigrants in assimilating into the local labour market, and that government policy should emphasize its impact to prospective immigrants.

In a research paper of the *Ministry of Advanced Education and Labour Market Development*, the author investigates the labour market outcomes of immigrants

[1] Immigrants who become Canadian citizens have a wage premium relative to immigrants with a "landed immigrant" status.

across Canadian provinces in 2009. With respect to the variable of time of residency, immigrants are divided into three groups: recent immigrants, very recent immigrants, and established immigrants. Based on the 2009 Labour Force Survey, the results show that immigrants receive lower wages than native Canadians in all Canadian provinces, and that immigrant assimilation occurs when the wage gap is reduced over time. The size of the wage gap between natives and very recent immigrants is smallest in the Atlantic provinces (5.7%), but largest in Manitoba (54.1%), which is followed by Ontario (42.2%) and Quebec (32.7%). Even though the percentage of university degree holders is the highest for very recent immigrants, their unemployment rate (13.8%) is much higher than the unemployment rate (3.2%) of comparable Canadian-born workers. Their analysis also suggests that the longer the years since migration for immigrants, the higher are their labour force participation rates. The participation rate varies by gender and is lower for women than for men. As for the unemployment rate, its differential between very recent immigrants and the Canadian-born is highest in Quebec and lowest in the Atlantic provinces. In 2009, the unemployment rate of Canadian-born citizens is higher for men than it is for women. However, it shows opposite results for immigrants, implying that female immigrants had more difficulties finding a job upon arrival than male immigrants.

King (2009) compared the total labour market income and total income differential between immigrants who obtain university degrees and their Canadian-born counterparts using the 2006 Canadian Census of Population. The percentage of university degree holders is larger for recent immigrants than for Canadian natives. However, the average earnings of immigrants with a university degree account for just 75.5% of the average earnings of comparable natives. He also finds that the average income differential declines or even disappears between the two groups as the years since migration variable increases. For instance, immigrant cohorts who arrived before 1980 earn more than comparable natives in 2006. King (2009) then carried out comparisons by province. The total incomes of immigrants with university degrees are higher than that of Canadian-born counterparts in the less popular immigrant-receiving provinces like Nova Scotia, Saskatchewan, but lower in the more

popular immigrant-receiving provinces like Ontario, British Columbia.

Boudarbat and Lemieux (2010) attempt to find the reasons why the relative wages of immigrants decreased in Canada using census data from 1981 and 2001. To examine the mean wage gap and the wage gap at different wage quantiles, they use both the standard Oaxaca-Blinder decomposition and unconditional quantile regressions as estimation methods. Boudarbat and Lemieux estimate the quantile wage gap as $\Delta_t(\tau) = q_{I_t}(\tau) - q_{N_t}(\tau)$, where $q_{I_t}(\tau)$ represents the wage of immigrants at the τ^{th} quantile, and $q_{N_t}(\tau)$ represents the wage of natives at the τ^{th} quantile. From this quantity, the change in the quantile wage gap over the period can also be estimated. The findings show that the wage differential falls significantly for male workers at the low points of the wage distribution, and it changes significantly at the bottom and top end of the wage distribution for female workers from 1981 to 2001. Decomposition results demonstrate that the change in the length of Canadian labour market experience explains most of the change in the immigrant wage gap over time. The aging of the baby boom generation in Canada contributes to the change in the length of labour market experience, which means that natives may obtain more experience in the labour market than immigrants. This in turn is valued by firms and drives the wages of natives relatively higher.

2.2 Studies about the immigrant wage gap in other countries

An Australian study by Islam and Parasnis (2014) has a totally opposite conclusion with respect to the findings in Canada. Immigrants in Australia are not in the raw wage disadvantage position. Using data from the Household Income and Labour Dynamics survey, they conduct in-depth research on the native-immigrant wage gap across occupations in Australia. Workers in the sample are classified as white collar or blue collar in terms of their occupations. They find that immigrants have a raw wage advantage relative to Australian natives in general, which is mainly due to the fact that most of the immigrants obtain higher education levels than natives. However, immigrants earn less compared with natives having the same qualification

background, mainly because the returns to education are lower for migrants. Islam and Parasnis use the FFL method developed by Firpo, Fortin and Lemieux (2009) to decompose the entire wage gap into the composition effect (the explained effect) and the structure effect (the unexplained effect). Even though the FFL decomposition method is similar in its approach to the Oaxaca-Blinder decomposition method, it can show the impact of each observed characteristic on the total wage distribution at various points and give the unconditional quantile estimates. The wage gap varies by the occupation of workers. They find that the education level plays a very important role in explaining the immigrant wage gap.

Unlike other studies, Aldashev et al. (2009) divide immigrants in Germany into foreigners and naturalized immigrants, suggesting that: "By explicitly regarding two immigrant groups, our estimates clearly establish the existence of an immigrant-native wage gap independently of citizenship" (2). The data used are from the German Socio-Economic Panel. In terms of the Oaxaca-Blinder threefold decomposition[2] method, they decompose the wage differential into three effects: the endowment effect, the price effect (the coefficient effect), and the interaction effect[3]. Since the years since migration variable is thought to positively affect wages, the covariates in the wage equation for native Germans and for immigrants are unequal in terms of value. Therefore, Aldashev et al. modify the wage equation of natives (N) and immigrants (I) respectively as follows,

$$Y^N = \beta_0^N + X^N \beta^N + \varepsilon^N$$

$$Y^I = \beta_0^I + X^I \beta^I + Z\gamma + \varepsilon^I$$

where the matrix Z represents years since migration and its square, γ represents the vector of its coefficients, and X represents the vector of the observed characteristics (e.g., age, age squared, education, industry, region, class of worker and weeks

[2] Daymont and Andrisani (1984) suggest that the different choice of the reference group in the Oaxaca-Blinder two-fold decomposition method affects the results of the explained and the unexplained portions to some extent. They extend this method to the three-fold decomposition method, allowing only one reference group to be selected.

[3] The endowment effect captures the difference in characteristics, the price effect captures the difference in coefficients, and the interaction effect captures the simultaneous existence of difference in endowments and coefficients between natives and immigrants.

worked). They find that immigrants earn less than natives in Germany, and the total wage gap differs between foreigners and naturalized immigrants. Returns for degrees obtained overseas are lower than returns for domestic degrees obtained. The decomposition results also show that if workers obtain their education in Germany rather than in other countries, the wage gap between immigrants and natives narrows for both males and females. The price effect explains most of the wage gap. With respect to native Germans, the foreigners' wage differential is larger than the naturalized immigrants wage differential, as one might expect.

Anees et al. (2011) study how the immigrants-natives earnings gaps evolve across the earnings distribution in Malaysia using the 2007 Enterprise Surveys. They use both OLS regression and Quantile regression techniques to estimate the average impact of explanatory variables on wages. Then the wage differential is decomposed using both the standard Oaxaca-Blinder method and the Machado-Mata (2005) method. They compare different decomposition results based on a pooled equation, and on equations for natives and equations for immigrants. The pooled model is regarded as the best way to examine the wages of both groups since it includes the characteristics of the two groups. Another advantage of the pooled equation is that it is easy to interpret the discrepancies in the parameters for the two groups. In both decomposition techniques, they find that the coefficient effect (the price effect) explains much of the wage differential, and that the effect of discrimination is discerned more at the lower part of the wage distribution than at its upper part. The raw wage differential between immigrants and natives is narrower at the bottom and top of the wage distribution than at its middle. They conclude that if discrimination were to be eliminated, immigrants would integrate better into the Malaysian labour market and contribute significantly to the economic growth of Malaysia.

3. Data and Descriptive Statistics

3.1 Data and Sample

The data I use are from the 2006 and 2011 Canadian Census Public Use Microdata File (PUMF): Individuals File, each of which represents 2.7% of the population in

Canada. There are 844,476 observations in total in the 2006 Census and 887,012 observations in the 2011 Census. The population of interest is all Canadian citizens and immigrants who have already landed.

My sample focuses on employed workers who are aged between 25 and 59 years in order to exclude the younger workers who may be still studying as part-time students as well as older workers who may be considering retirement. These omissions leave those working full-time weeks (30 hours or more per week) in the estimating sample. Unpaid family workers and self-employed individuals are excluded. Following Nadeau (2013), the outcome variable is the weekly wage which is estimated as the annual wage and salary income divided by the number of weeks worked, restricting the annual wage and salary income to values between $1000 and $600,000 in order to eliminate outliers.

The industry and occupation identifiers are categorized by the 2002 NAICS and by the 2006 NOCS, respectively. In the Canadian census files, the region of residence consists of ten Canadian provinces plus Northern Canada (e.g. Yukon Territory, Northwest Territories, Nunavut), and the immigrant status is divided into three groups (e.g. non-permanent residents, non-immigrants, and immigrants). Since the wage gap between Canadian-born citizens and landed immigrants is the focus of this paper, the non-permanent residents are not included in the sample. As far as the regional categories are concerned, I group Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick together as the Atlantic provinces. Since the immigrant density is lowest there, I also exclude Northern Canada from my analysis. After applying these restrictions on the samples, there are 164,544 observations left in the sample for 2006 and 175,010 observations left in the sample for 2011.

3.2 Summary Statistics

Table 1 describes the summary statistics for the native, immigrant and pooled samples of 2006 and 2011. The percentage of immigrants increased from 22.5% to 23.9% between 2006 and 2011. Compared with Canadian-born workers, immigrants are more likely to be in a marriage, have at least one child, and tend to have a larger

household size. They also have advantages in terms of measured human capital. In comparison to natives, a larger percentage of immigrants are in the relatively high education category, a smaller percentage of immigrants are in the low education level in the sample, and this particular differential widens over time. Even though immigrants tend to obtain more work experience and higher degrees, their labour market performance tends to be poorer. For instance, they are paid less than natives, and they also work fewer weeks than natives. The average weekly wages for immigrants are 5.6% lower than that of natives in 2006 and 6.5% lower in 2011. There is language deficiency existing among immigrants. A greater share of immigrants cannot communicate in the Canadian official language than is the case for comparable natives, which is negatively thought to be one of factors that affect immigrants' wages [4]. We expect that immigrants will have some bargaining disadvantages and communication barriers in searching for and obtaining higher-wage jobs.

The large difference between immigrants and natives is also obvious in the location of study[5]. Whereas 98.2% of Canadian-born workers obtained their highest degrees within Canada, only 51.7% of immigrant workers obtained their highest degrees in Canada. Immigrants are more likely to work in lower-paid industries like manufacturing and retail trade. There are also differences in the regional distribution of the two groups. Ontario, Quebec and British Columbia are the provinces with the highest density of immigrants. More than half of the immigrants reside in these provinces. However, the regional distribution of Canadian natives is more even than that of immigrants. In regards to the countries of origin, Table 1 shows that Asian and European countries are still the main source countries of immigrants in both census years. However, there is a transition in source countries from more-developed countries to less-developed countries. Over the 2006-2011 period, more and more immigrants came from Asia and Africa, but fewer immigrants came from USA, UK,

[4] Bonikowska, Green and Riddell (2008) suggest that the average weekly earnings of workers who communicate in neither English nor French are 3-5% lower than those who can communicate in either English or French.
[5] The location of study is defined as the institution's location (in Canada or outside Canada) from which the highest degrees of workers were obtained.

and the rest of Europe. This trend could be associated with a lower level of human capital and a declining quality over time.[6]

3.3 Evolution of average wages by province

Figures 1 and 2 show the average weekly wages for Canadian-born workers and immigrants across Canadian provinces for 2006 and 2011, respectively. Immigrants earned 5.6% less than Canadian-born workers in 2006 and 6.5% less in 2011, indicating that the raw wage disadvantage of immigrants relative to natives in Canada increases over time. By province, we can see that the average weekly wages are higher for Canadian-born workers than that for immigrants in most provinces. However, immigrants in the Atlantic provinces earn more than natives in both census years. In Saskatchewan, immigrants also have a raw wage advantage relative to natives in 2006, but this wage advantage disappears in 2011.

In 2006, the raw wage advantage of immigrants is larger in Atlantic provinces than in Saskatchewan. The raw wage disadvantage of immigrants relative to natives is largest in British Columbia ($134.73), followed by Ontario ($130.37), Manitoba ($127.29), and Alberta ($125.11). In 2011, the wage gap is largest in Manitoba ($225.01), followed by Alberta ($216.89), British Columbia ($168.97), and it is smallest in Saskatchewan ($45.06).

From 2006 to 2011, the difference in average weekly wages between the two groups widens in Ontario, Manitoba, Alberta and British Columbia, but narrows in Quebec and Saskatchewan. Figures 1 and 2 indicate that the Atlantic provinces made the largest progress in narrowing the average wage difference between immigrants and natives from $207.64 to $121.21 over time. But the wage differential deteriorates in Manitoba and Alberta over the period. In summary, the raw wage disadvantage of immigrants is notable especially in the provinces with large immigrant populations.

[6] According to the Times Higher Education World University Rankings from 2010 to 2011, 71 of the top 200 universities are located in the USA, 28 in the UK, 43 in the rest of Europe, but only 25 in Asia and only 2 in Africa.

4. Econometric Analysis

4.1 Econometric Model

The first set of regressions consist of log wage equations that allow for differences between native Canadians and immigrants in the coefficients of the variables that are typically included in earnings functions.

The second set of regressions consists of similar specifications that are estimated separately by province and by census year. The final part of my empirical analysis involves decompositions of the wage gap between immigrants and natives, with separate equations by province and by census year.

The log wage equation is first estimated as

$$Ln\, w_i = \beta_0 + \beta_1 IM_i + \beta_2 \exp_i + \sum_{j=1}^{2} \beta_{3j} educ_{ij} + \varphi X_i + \varepsilon_i \tag{1}$$

where the subscript i represents individual i , and j represents the j^{th} categorical variable. This wage model will be estimated using the Ordinary Least Squares (OLS) method. In this equation, $Ln\, w_i$ represents the log weekly wages of the worker i, IM_i is equal to one if the individual is an immigrant, and zero otherwise. β is the vector of corresponding coefficients of the explanatory variables, X_i is a matrix containing all the other characteristics that should be considered in modeling the weekly wages, such as sex, years since migration, years since migration squared, language skill, household size, marital status, residence, industry, and occupation. φ is a vector of corresponding coefficients of these characteristics that are included in X_i.

To discern the marginal effect of specific characteristics and differences in the returns to some variables between the two groups, some interaction terms and quadratic terms are included. Following the approach that Cabral and Duarte (2013) used, the wage equation (1) is modified as:

$$Ln\, w_i = \beta_0 + \beta_1 IM_i + \sum_{k=1}^{2} \beta_{2k} \exp_i^k + \sum_{j=1}^{2} \beta_{3j} educ_j + \sum_{k=1}^{2} \gamma_{1k} IM_i \cdot \exp_i^k + \sum_{j=1}^{2} \gamma_{2j} IM_i \cdot educ_{ij}$$

$$+ \sum_{j=1}^{6} \gamma_{3j} IM_i \cdot pr_{ij} + \sum_{j=1}^{4} \gamma_{4j} IM_i \cdot indu_{ij} + \gamma_5 IM_i \cdot occup_i + \varphi X_i + \varepsilon_i \qquad (2)$$

where the superscript k represents the power of the exponent. I also interact the immigrant status dummy variable with experience, experience squared, education level, provinces, occupation and industry variables to discern the differences in the effect of these variables on log wages between immigrants and comparable natives. The parameters γ_{1k} and γ_{2j} show the discrepancies in the rate of return to experience and the rate of return to different education levels between the two groups, respectively. The parameters γ_{3j}, γ_{4j} and γ_5 show the discrepancies in the impact of region, industrial category, and occupation respectively between the two groups. Six different specifications of the equations are estimated. In specification (1), which will be discussed in the next part of the paper, only the immigrant dummy is included; there are no other explanatory variables in the equation. Some other explanatory variables are added progressively in the following specifications. The last specification will be my full model in the form of wage equation (2) listed above. Therefore, the coefficient β_1 in the first specification refers to the unadjusted differences in log weekly wages associated with immigrant status. The coefficient β_1 refers to the partial effect of immigrant status on log weekly wages in other specifications, measuring the extent of log wage differences between immigrants who satisfy characteristics of the omitted categories and comparable natives when holding all other explanatory variables fixed.

4.1.1 Dependent Variable

I use the log weekly wages in 2005 and log weekly wages in 2010 as the dependent variables. Since the Census data do not provide weekly wages directly, I divide annual wages and salary income by weeks worked in the year before the survey year.

4.1.2 Independent Variables

- Demographic and immigrant variables:

Demographic variables consist of gender, marital status, presence of child/children, and household size. **Female** is a dummy variable that is equal to one if the individual is female and zero otherwise. **Marital status** is a dummy variable that is equal to one if the individual is married and zero otherwise. **Presence of child** is a dummy variable that is equal to one if the family has at least one child, and zero if it has none.

Immigrant status is a dummy variable which is equal to one if the individual is an immigrant and zero otherwise. **Years since immigration** is a variable that only applies to immigrants and is set to zero for non-immigrants. It is calculated as the *census year* minus *the year of immigration* for the year of 1980 and thereafter. For the years prior to 1980, I choose the median year in each range of years as a proxy for the year of immigration in that group.

- Experience and language skill variables:

Following Mincer's definition of experience, I define the **work experience** variable as age minus years of schooling minus six and calculate it accordingly. Since ages in Census file are grouped into five-year ranges, I choose the median age in each range as a proxy for the age in that group. Following the procedure employed in Nadeau (2013), the years of schooling variable is defined in Appendix A. The quadratic term and interaction term of experience are included to see the marginal effect and different returns to experience between the two groups.

Four dummies capturing the **knowledge of languages** are created, and communicating in neither English nor French is treated as the reference group.

- Education variables:

I classify a high school graduation diploma or equivalency certificate, other trades certificate or diploma, and a registered apprenticeship certificate into the **low-education level** (reference group). I classify a college, CEGEP or other non-university certificate or diploma into the **medium-education level** group, and I

classify a university certificate or diploma and above into the **high-education level** group. Different education variables are interacted with the immigrant dummy variable in order to discern differences in the returns to education between immigrants and natives.

As for the **location of study** variable, I divide it into a Canadian study location and an overseas study location, with the latter serving as the reference category.

- Industry and occupation variables:

In terms of the 2002 North American Industry Classification, I categorize four industries (**Manufacturing, Retail trade, Health care and social assistance, Public administration**) in which most respondents worked, and then group all other industries together as the reference group. Interaction terms are also added in order to discern differences in the impact of industry on log wages between immigrants and natives.

The occupational categories are based on the National Occupational Classification System. Managers, professionals, semi-professionals, and technicians are classified as **white collar**, and the remaining occupations are classified as **blue collar** (reference group) following the simplified classification method of Islam and Parasnis (2014).

- Regional variables:

For the sake of simplicity, I group Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick into a category for Atlantic provinces (reference group). Finally, I divide Canadian provinces into seven categories that correspond to seven provincial dummies. I also interact each provincial dummy with immigrant status to assess differences in the impact of province of residence on the wage, with an eye on the wage gap between immigrants and natives.

4.2 Empirical Results

4.2.1 OLS regression results by specification

Drawing on the census data in 2006, there are six specifications for the OLS

regression estimates, which are reported in Table 2. The estimated raw immigrant wage differential (for which the only immigrant dummy variable is included) indicates that immigrants earn 10 percent less than the Canadian natives. After including indicators for the characteristics of gender, immigration years, work experience, education, language skill, family factors, industry, occupation and provinces in column (2), I find that the wage differential widens to 50.8 percent, which implies an increase of 40.8 log percentage points when controlling for the other characteristics. This remarkable change arises mainly from the inclusion of variables that affect the wage gap between immigrants and natives. For example, for immigrants accumulating more years since migration and more work experience, the wage gap decreases. Furthermore, there also exists a gender wage gap between male and female immigrants. These effects are not captured in the unconditional wage regression model (the first column), so that a lower wage gap is estimated. Thus, if these variables are controlled for, the wage differential will widen significantly. I find that one additional year since immigration will increase the weekly immigrant wage by 2.7 log percentage points for low values, but at the higher values of years since immigration, the wage increases at a decreasing rate. A similar pattern is discerned for the work experience variable. All of the coefficients for the provinces are positive, implying that workers who reside in Manitoba, Saskatchewan, Quebec, Ontario, Alberta and British Columbia receive raw wage advantages relative to workers residing in the Atlantic provinces. Compared with the Atlantic provinces, the provincial wage difference is largest in Alberta at 24.7%, followed by Ontario at 22%, and British Columbia at 15%. This estimated pattern shows that workers, both immigrants and natives, in large immigrant provinces have significant raw wage advantages relative to workers in other provinces.

I interact the work experience and the work experience squared variable with immigrant status in a specification whose coefficients are reported in column (3) in order to allow the estimated returns to work experience coefficient to vary between Canadian-born workers and immigrants. It shows that the returns to one additional year of experience are lower for immigrants, meaning that the total work experience

of immigrants is less valued in the Canadian labour market. The differences in the returns to education coefficients between natives and immigrants are presented in column (4). Similar to the case for work experience, the estimated returns to education for immigrants are lower than they are for natives. Immigrants with a high education level earn 6.7 percent less than comparable natives.

In column (5), I allow for the effect of gender on wages to differ between immigrants and natives, and observe that the coefficient of immigrant status increases by 11.12% (from 0.2511 to 0.2825). The positive coefficient of the interaction term between immigrant status and gender indicates that the female immigrants' wage gap is smaller than male immigrants' wage gap. If I control for the gender impact on wages between immigrant workers and Canadian-born workers, the immigrant wage gap increases.

In the last column, the specification is the same as the wage equation (2). I allow the effects of industry, occupation and region on wages to differ between immigrants and natives, which results in the coefficient of immigrant status falling by 38% (from 0.2825 to 0.2047). Since the impact on wages attributable to industry/occupation/region differs between immigrants and natives, these influences militate towards widening the wage gap. When these effects are included in the wage equation, the wage gap will decrease.

4.2.2 OLS regression results by province

The comparison of core OLS regression estimates results by province in 2006 and 2011 are presented in Table 3. There is a separate equation for each region and for each census year. (The full OLS regression results with all coefficients shown are presented in Appendix A). The results for all of Canada are shown in the first column, which facilitates comparisons across the regions. Based on the results in 2011, I find that the higher level of education obtained by a worker, the higher wages he or she will be paid. Workers who obtain their highest education degrees in Canada earn 3.73 percent more than those who obtain degrees outside of Canada, meaning that the returns to degrees from abroad are lower than the returns to domestic degrees. In the

manufacturing industries, which account for the largest of the sectoral shares, immigrant workers earn 4.73 percent less than Canadian-born workers in the same industry.

However, the regression results vary by province as one might expect. As I interact other variables with the immigrant status variable, the coefficient of the simple immigrant status dummy in the first row represents the wage differential between immigrants who have the characteristics that match the omitted categories and Canadian-born workers with equivalent characteristics. Taking Quebec as an example, I discovered that male immigrants who are in the low education group and communicate in neither official languages, obtain their highest degrees outside Canada, and work in a blue collar role in other industries earn 25.5 percent less than comparable natives. It is in Alberta that the largest differential of 40.08 percent is discerned, while it is the smallest in British Columbia at 14.34 percent. The coefficient of the immigrant status variable is negative in all Canadian provinces, and is statistically significant at the 1% level in most provinces. The coefficient of the immigrant status is not statistically significant at the 10% level in the Atlantic provinces and Saskatchewan, meaning that the immigrant status does not have a significant effect on wages in these locations.

The returns to work experience are always lower for immigrants in most provinces, but the magnitude of this effect varies among provinces. The difference in the estimated coefficient of the returns to work experience is highest in Ontario at 2.41 percent and lowest in Alberta at 0.03 percent. The estimated returns to education in most provinces are also lower for immigrants than for natives. The difference in the estimated coefficient of the returns to **medium education level** and of the returns to **high education level** is also highest in Ontario at 10.9 percent and 18.2 percent, respectively. Table 3 shows that the estimated returns to **medium education level** in 2011 are higher for immigrants than they are for natives only in Manitoba and in the Atlantic provinces, but the coefficient of the *immigrant status-medium education level* interaction term is not statistically significant in these locations. An interesting finding is that immigrants who work in a white collar role have higher wages than

comparable natives in most Canadian provinces.

When comparing the regression results for all of Canada in the 2006 census with that of the 2011 census, I find that the differences in returns to work experience decrease and the difference in returns to education between the two groups increases over this five-year period. However, this difference varies across provinces. In 2011, the educational degrees of immigrants are undervalued in large immigrant provinces like Ontario, Alberta, and British Columbia to a lesser extent than it was for 2006. In Quebec, Ontario, and Manitoba, the significance of the study location variable in affecting wages has increased over this period.

5. Decomposition Results

5.1 Oaxaca-Blinder decomposition of the native-immigrant wage gap

It is useful to examine the proportion of the total immigrant log wage gap that can or cannot be accounted for by the immigrant status differences in individual or job characteristics. I will estimate the differences between immigrants' average log wages and Canadian-born workers' average log wages in every province by using the standard Oaxaca-Blinder decomposition methodology. In order to simplify my analysis, I will consider the wage equation (1) as the full model in this decomposition section. Following Schirle (2015), the wage equation for Canadian-born citizens and immigrants can be modified and estimated separately as follows:

N: native Canadians

$$Ln\, w_i^N = \alpha^N + X_i^N \beta^N + \varepsilon_i^N \tag{3}$$

I: immigrants

$$Ln\, w_i^I = \alpha^I + X_i^I \beta^I + \varepsilon_i^I \tag{4}$$

Estimating equations (3) and (4) using OLS and calculating sample means yields:

$$\overline{Ln\, w^N} = \sum_{i=1}^{n} \left(\frac{\hat{\alpha}^N + X_i^N \hat{\beta}^N + \hat{\varepsilon}_i^N}{n}\right) = \hat{\alpha}^N + \hat{\beta}^N \overline{X^N} + 0 \tag{5}$$

$$\overline{Ln\, w^I} = \sum_{i=1}^{n}\left(\frac{\hat{\alpha}^I + X_i^I \hat{\beta}^I + \hat{\varepsilon}_i^I}{n}\right) = \hat{\alpha}^I + \hat{\beta}^I \overline{X^I} + 0 \tag{6}$$

Following the approach developed in Oaxaca (1973) and Blinder (1973), the average log wage differential between immigrants and natives can be decomposed by using equation (5) minus (6):

$$\overline{Ln\, w^N} - \overline{Ln\, w^I} = (\overline{X^N} - \overline{X^I})\hat{\beta}^* + \left[\overline{X^N}(\hat{\beta}^N - \hat{\beta}^*) + \overline{X^I}(\hat{\beta}^* - \hat{\beta}^I)\right] \tag{7}$$

This is the two-fold decomposition which is estimated based on the pooled model as the reference model. $\hat{\beta}^*$ is the vector of coefficients estimated from the pooled model. Therefore, the difference in the total log wage for natives and immigrant workers is made up of two parts: the first term on the right side is defined as the explained portion of the immigrant log wage difference, representing the component of the immigrant log wage gap that can be explained by the differences in the means of observed characteristics across immigrants and natives. The second term is defined as the unexplained portion of the log wage difference, representing the component of the log wage gap that cannot be explained by the means of the observed characteristics in each province. Due to the limited available data, the unexplained portion is generated by factors like labour market discrimination, unobserved characteristics that affect labour productivity (e.g., motivation, personal ability), and the difference in the returns to equivalent characteristics (e.g., work experience, education) between the two groups (Darity, 2012). In most studies, the unexplained portion is typically interpreted as the extent of discrimination against immigrants in the labour market.

The decomposition results for 2006 are shown in Table 4. I find that the unexplained portion is an important component of the total immigrant wage gap in Canada. In most of the provinces, the unexplained portion accounts for a much larger percentage in explaining the total wage gap than the explained portion, indicating that the difference in returns to equal wage generating characteristics between the two groups explains the majority of the immigrant wage gap. This empirical pattern is often interpreted as evidence of discrimination. What are some of the factors that might generate such a pattern? The Canadian point-based immigration system favours

highly educated workers, but professional skills acquired outside of Canada are undervalued or tend to be not recognized in the Canadian labour market, which would result in imperfect transferability of human capital in terms of quality.

Some provinces have interesting and extreme results. In Saskatchewan, the total explained portion is negative, and thus the unexplained portion is even larger than the total wage gap, meaning that immigrants have better wage generating characteristics than natives, which would result in higher earnings ceteris paribus, but it is more than offset by the unexplained component. Therefore, discrimination against immigrants (or some other unobservable influences) explains the entire wage gap in Saskatchewan. In contrast to this finding, the entire wage gap can be entirely attributed to the explained portion in the Atlantic provinces, and the unexplained component is more than offset, which means the entire gap is due to the difference in observed characteristics between the two groups. A finding that is unique to be Atlantic provinces is that immigrants earn more than Canadian-born counterparts, as they have better wage-determining characteristics than the Canadian-born citizens in this geographical area. The largest contribution in the explained portion is the education factor rather than the study location factor, indicating that the negative wage gap mainly results from the fact that immigrants receive a higher level of education than Atlantic Canadians.

I now turn to the task of isolating the effects of each explanatory variable within the explained component. In Canada, more than half of the wage gap in 2006 can be explained by the study location factor (64 percent), followed by the occupation variable (14 percent) and the industry variable (13 percent)[7]. I find that the difference in the study location between immigrants and natives generates the largest contribution to the total immigrant wage gap in most provinces, except in the Atlantic provinces. However, the factor that generates the second largest contribution varies by province. For example, the difference in the study location and industry explains most of the wage gaps in Ontario and Manitoba. The difference in the occupation accounts for the second largest percentage of the wage gap in Quebec, Alberta, and British

[7] These figures are calculated as the percentage of the exogenous variables in the explained portion.

Columbia. Furthermore, I find that the signs of some of the components, like those associated with education and experience, are negative in explaining the wage gap for 2006. For example, education negatively contributes to the wage gap at -0.0281 percent in Manitoba because immigrants are usually more educated than natives. The negative sign of the contribution means that immigrants would have earned more than natives if the returns to education of both groups were the same. The negative value of work experience can be interpreted in the same way.

For the sake of comparison over the two years, the decomposition results for 2011 are presented in Table 5. In comparing these two years, I find that a larger part of the wage gap can be attributed to the unexplained portion in all provinces except Saskatchewan. The effect of the explained portion is smaller in 2011 than that in 2006. The study location factor still plays the most important role in explaining the wage gap in most provinces, and its impact is even larger. The second largest contributor is either occupation or industry. In Canada, the difference in study location and industry explains most of the wage gap. The most obvious change happens in Saskatchewan, where the explained effect increases. In 2006, the entire wage gap in Saskatchewan is only due to the unobserved component. In 2011, 33 percent of the gap can be attributed to the observed characteristics in this province. With the exception of the Atlantic provinces, the component capturing the differences in the observed characteristics can explain most of the wage gap in Manitoba for 2006 at 64%, while this figure declines to 51% in 2011.

5.2 Melly decomposition of the native-immigrant wage gap

The traditional Oaxaca-Blinder decomposition method is based on the mean wage gap. To decompose the wage gap at different points of the earnings distribution, the Oaxaca-Blinder decomposition is extended beyond the mean wage. The Melly (2006) decomposition method[8], which is similar to the approach of Machado and Mata (2005), is applied in this section. This approach allows for the decomposition of the wage differential to vary across the wage distribution, decomposing the raw wage

[8] Melly (2006) decomposition assumes exogenous covariates.

differential into the characteristics effect (explained portion) and the coefficients effect (unexplained portion). Furthermore, the quantile regression can perform better than the OLS regression given the presence of heteroscedasticity (Deaton, 1997). However, in comparison to the Oaxaca-Blinder decomposition, the limitation of the Melly method is that it cannot provide the contribution of each co-variate to the total wage gap in detail (Fortin et al., 2011), therefore the impact of individual factors on the immigrant wage difference is unknown. The analysis below focuses on the total wage gap, the total explained portion, and the total unexplained portion rather than the contribution of specific factors.

Following the Melly approach, the conditional quantile regression functions for natives and immigrants are estimated separately as:

$$Q_\theta^N(W_N|X_N) = (X_i^N)^T \beta_\theta^N \tag{8}$$

$$Q_\theta^I(W_I|X_I) = (X_i^I)^T \beta_\theta^I \tag{9}$$

where N and I represent the natives group and immigrants group, respectively, W represents the log weekly wage, X_i represents the set of covariants for individual i, and β_θ represents the vector of coefficients at the θ^{th} quantile. Then, following the Melly approach, and several steps applied in Machado and Mata (2005), the counterfactual unconditional wage distribution is calculated as:

$$Q_\theta^c = (X_i^I)^T \beta_\theta^N \tag{10}$$

Therefore, the wage differential of the unconditional function between Canadian-born citizens and immigrants can be decomposed as:

$$\begin{aligned}\Delta_\theta &= \left[Q_\theta^N - (Q_\theta^c)^N\right] + \left[(Q_\theta^c)^N - Q_\theta^I\right] \\ &= \left[(X_i^N)^T \beta_\theta^N - (X_i^I)^T \beta_\theta^N\right] + \left[(X_i^I)^T \beta_\theta^N - (X_i^I)^T \beta_\theta^I\right]\end{aligned} \tag{11}$$

The first two terms give the characteristics effect, and the last two terms give the coefficients effect.

5.2.1 Melly (2006) decomposition results of the wage gap in Canada

Figures 3 and 4 show the distribution of the wage gap, the coefficients effect, and

the characteristics effect for all of Canada across the different wage quantiles for 2006 and 2011, respectively (the detailed values of the Melly decomposition are presented in Appendix A). The deciles I selected range from 0.1 to 0.9 with an interval of 0.1. Figures in the two census years both present similar trends and patterns. In general, the raw wage differential shows a downward trend that decreases with the higher deciles. The wage differential is larger at the low point of the wage distribution, and then decreases at its upper point. This means that the raw wage disadvantage of immigrants relative to natives shrinks at the high point of income distribution, and the higher-paid workers face a narrower wage gap between the two groups than do the lower-paid workers.

Moving up the wage distribution, the effect of characteristics increases, and the effect of coefficients falls at first but then rises at the high wage quantiles. This pattern shows that the characteristics advantage of immigrants (in comparison to natives) is larger for higher-paid workers, and that the lower-paid immigrant workers face greater discrimination than higher-paid immigrants workers. The characteristics effect is always negative, indicating that immigrants have better characteristics than Canadian-born citizens at the same point of the income distribution. However, this is more than offset by the coefficients effect. In Figure 3, the downward trend of the wage gap is driven mainly by the characteristics effect. The variation of the coefficients effect is more stable across the entire wage distribution, contributing less to the fall of the differential. In contrast, the characteristics advantage of immigrant workers relative to natives becomes increasingly noticeable as one moves towards the higher deciles of the distribution. It implies that the larger difference in characteristics between the immigrant and the Canadian-born population among higher paid workers mainly explains the decrease of the raw wage gap across the wage quantiles. Even though the unexplained component rises slightly at the top end of the distribution, the wage gap between immigrants and natives does not widen due to the stronger effects of these characteristics.

Comparing the results in Figure 3 to those reported in Figure 4, a larger percentage of the raw wage gap can be attributed to the unexplained component in 2011, which is

consistent with the findings of the Oaxaca-Blinder decomposition that I reported above. Compared with the wage gap in 2006, the gap in 2011 decreases at the low points of the wage distribution and increases at the high points over this period.

5.2.2 Melly (2006) decomposition results of wage gap by province

After interpreting the Melly decomposition results for all of Canada in both years, I provide figures about the trend of the log wage gap over different wage quantiles (0.1 to 0.9) for each province for the two census years. Figure 5 shows the evolution of the immigrant wage gap across the entire wage distribution in each province for 2006 and 2011. Between 2006 and 2011, the wage gap at each wage quantile decreases in Quebec and Ontario but increases in Manitoba, Alberta and British Columbia. In these five provinces, the wage differential in both years still shows a declining trend with quantiles generally, but the wage differential in 2011 rises at the top end of the distribution for both Ontario and British Columbia. The findings are interesting in comparison to the other two provinces. In Saskatchewan, the wage gap between the 10^{th} and 80^{th} percentiles widens between 2006 and 2011, but narrows at the 90^{th} percentile. The gap changes to negative in sign over the percentiles between the 60^{th} and the 90^{th}, suggesting that Saskatchewan's immigrants in the medium to high end of the wage distribution earned more than their Canadian counterparts in 2006. In the Atlantic provinces, the two trend lines intersect, indicating that the wage gap between 2006 and 2011 narrows before the 60^{th} percentile and widens thereafter. The trend of the wage gap in 2006 is U-shaped since the differential increases over the lower part of the distribution but then increases over the higher parts. However, the wage gap in 2011 increases consistently with higher quantiles, meaning that the raw wage advantages of immigrants relative to Canadians are relatively larger for relatively high-paid workers.

I discovered that the variation of the gap across wage quantiles is relatively stable in Quebec, Ontario, Alberta, Manitoba and British Columbia. In contrast, the wage gap in Saskatchewan and Atlantic provinces shows a large variation over quantiles. As a general tendency, the total immigrant wage gap declines with an increase of quantile

and it is positive in most of the provinces. The change of the wage gap from 2006 to 2011 is most remarkable in Saskatchewan.

6. Discussion

There are still some methodological problems with the wage equations. I now turn to the potential endogeneity issues. For any regression analysis, three main causes of endogeneity issues are measurement error, omitted variable bias, and reverse causality. Measurement error and omitted variable bias are the main methodological problems that arise in my analysis. For example, work experience is measured as age minus years of schooling minus six, following Mincer's approach. However, this approach assumes that people have been continuously working in the labour market since leaving school, and thus the non-working time is not considered. This leads to measurement error in the work experience variable (Oaxaca and Regan, 2004). The OLS estimates of the effect of work experience on wages will be biased due to this measurement error. It is the attenuation bias which pushes the estimated coefficient toward zero. The endogeneity caused by unobserved heterogeneity can also affect my results. The omission of variables that belong in the wage model results in biased OLS estimates of the observed characteristics. If the omitted characteristics are correlated with both wages and immigrant status, it will cause the negative coefficients for immigrant status to be inconsistent. There might be an unobserved characteristic that contributes to wages, and there might be an immigrant wage gap associated with the unobserved characteristic (Bjerk, 2007). Since these unobserved effects cannot be captured, the omitted variable bias will arise. In this paper, the endogeneity issue will not be corrected for because there is no appropriate instrumental variable available in the data sets.

In addition, the actual wage gap between immigrants and Canadians may be underestimated in this study. The employment rate and the labour market participation rate of immigrants are lower than for Canadian-born workers, which could have been considered in the immigrant wage differential analysis. However, the samples only focus on the employed workers for which wages are observed. Unemployed

immigrants and immigrants who do not participate in the Canadian labour market are excluded. If those non-participants did participate, their wages would likely be low. This results in an overestimate of the average wages of immigrants relative to natives and an underestimated wage gap between the two groups. The global financial crisis of 2008 happened during the 2006-2011 period, indirectly causing a steep recession in Canada. It is possible that lower-skilled workers were laid off disproportionately over this downturn. If that is the case, then since immigrants with a poor skill set are generally paid less than those with a better skill set, the exclusion of poorer skilled immigrants may make the observed wage gap decline to some extent. Therefore, the actual wage gap in each province may be larger to varying degrees than the estimated wage gap in my analysis.

7. Conclusion

Some key findings are listed below:

(1) Immigrants earn less than comparable natives in large provinces like Ontario and Quebec, but earn more in small provinces such as the Atlantic provinces. The raw immigrant wage gap is wider in provinces with high concentrations of immigrants and narrower in provinces with lower concentrations of immigrants.

(2) Immigrant workers have a raw wage disadvantage relative to their Canadian-born counterparts in most of the Canadian provinces, with the exception of the Atlantic provinces. The observed wage advantage of immigrants in the Atlantic provinces mainly arises from having better individual or job characteristics than native Canadians in the Atlantic provinces. As immigrants spend more years in Canada, they gain work experience and knowledge of the official language, and their raw wage disadvantages decrease.

(3) Excluding Quebec and Atlantic provinces, the average weekly wage gap widened in other Canadian provinces from 2006 to 2011. The increase of the wage gap is largest in Manitoba and Saskatchewan over this period.

(4) In most provinces, the immigrant wage gap is a result of both differences in characteristics and differences in coefficient effects. On one hand, immigrants may

not possess unobserved skills and attributes in comparison to Canadian-born workers. Immigrant workers often have a deficiency in language skills, quality of education, and experience compared to their Canadian counterparts. On the other hand, immigrants have lower returns to the equal characteristics than Canadian-born counterparts. This component of the wage gap is often interpreted as discrimination.

(5) The difference in study location explains a good part of the wage gap, followed by the factors of occupation or industry of workers. Immigrants are more likely to obtain their highest degree outside of Canada, which is less valued than degrees obtained within. They are more likely to work in lower-paying industries or lower-paying occupations than Canadian-born citizens. However, more than half of the wage gap is due to the unexplained component in most provinces. The only exception is in the Atlantic provinces, where the entire wage gap can be attributed to differences in the observed characteristics. The extent of wage discrimination is greatest in Quebec.

(6) From 2006 to 2011, the part of the wage gap that can be explained by observed characteristics has decreased in most provinces, and a larger percentage of the gap is due to the unexplained component, which is associated with discrimination, differences in return to equal characteristics, and unobserved characteristics.

(7) In Canada, the wage differential varies by the position of workers across the entire wage distribution. Low-paid immigrant workers face larger wage differentials, smaller characteristic advantages, and greater labour market discrimination than high-paid immigrant workers. The declining wage gap as one moves up the income distribution is mainly due to the larger characteristics advantage of immigrants working at higher-paid jobs. Comparing the 2006 results to the 2011 results, the wage gap for lower-paid workers narrows, but the wage gap issue deteriorated for high-paid workers.

(8) Among provinces, the variation of the gap across the entire wage distribution is larger in Saskatchewan and in the Atlantic provinces than that in any of the other five provinces.

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Table 1. Summary Statistics

Variables	Pooled		Natives		Immigrants	
	2006	2011	2006	2011	2006	2011
Log weekly wages	6.80	7.00	6.83	7.03	6.73	6.93
Weekly wages	1141.29	1387.48	1154.98	1408.08	1094.19	1322.04
Weeks worked	48.2	46.7	48.5	46.9	47.4	46.2
Immigrants	0.2251	0.2394	0	0	1	1
Female	0.4593	0.4817	0.4622	0.4860	0.4492	0.4683
Years since immigration	3.6717	3.9472	----------	----------	18.4714	17.7425
Experience	20.4881	20.6061	20.3221	20.5470	21.0639	20.7959
Married	0.5997	0.5497	0.5615	0.5023	0.7310	0.7005
A. Education						
Low education	0.1942	0.1710	0.2148	0.1946	0.1227	0.0950
Medium education	0.3463	0.3320	0.3694	0.3595	0.2662	0.2437
High education	0.4596	0.4971	0.4158	0.4459	0.6111	0.6613
B. Family						
Household size	3.0522	3.0754	2.9425	2.9456	3.4294	3.4884
Presence of child	0.6155	0.7298	0.5870	0.7050	0.7134	0.8038
C. Language skill						
English only	0.6514	0.6470	0.6049	0.5996	0.8117	0.7975
French only	0.1073	0.1000	0.1315	0.1214	0.0243	0.0323
Both English and French	0.2394	0.2506	0.2634	0.2790	0.1566	0.1605
Neither English nor French	0.0018	0.0023	0.0002	0.0000	0.0074	0.0097
Study location	0.8774	0.8681	0.9820	0.9812	0.5172	0.5094
White collar	0.5073	0.7207	0.5073	0.7214	0.5076	0.7186
D. Industry						
Manufacturing	0.1267	0.1000	0.1164	0.0928	0.1620	0.1233
Retail trade	0.0661	0.0651	0.0648	0.0632	0.0709	0.0711
Health care and social assistance	0.1266	0.1355	0.1298	0.1370	0.1156	0.1308
Public administration	0.0930	0.1139	0.1036	0.1269	0.0567	0.0720
Other fields	0.5876	0.5854	0.5855	0.5800	0.5948	0.6029
E. Region						
Atlantic provinces	0.0692	0.0655	0.0853	0.0823	0.0138	0.0122
Manitoba(MB)	0.0313	0.0307	0.0339	0.0325	0.0223	0.0250
Saskatchewan(SK)	0.0255	0.0252	0.0306	0.0299	0.0080	0.0101
Quebec(QC)	0.2545	0.2620	0.2906	0.2980	0.1304	0.1478

Ontario(ON)	0.3892	0.3879	0.3386	0.3410	0.5634	0.5372
Alberta(AL)	0.1092	0.1098	0.1127	0.1112	0.0973	0.1053
British Columbia(BC)	0.1210	0.1188	0.1083	0.1051	0.1648	0.1624
F. Main source country						
USA	0.0098	0.0077	-------	-------	0.0401	0.0312
UK	0.0200	0.0158	-------	-------	0.0874	0.0670
Europe	0.0525	0.0442	-------	-------	0.2270	0.1857
Africa	0.0165	0.0193	-------	-------	0.0728	0.0830
Asia	0.0983	0.1173	-------	-------	0.4356	0.5048
Oceania	0.0024	0.0019	-------	-------	0.0102	0.0079
Observations	164,544	175,010	127,497	133,100	37,047	41,910

Figure 1.

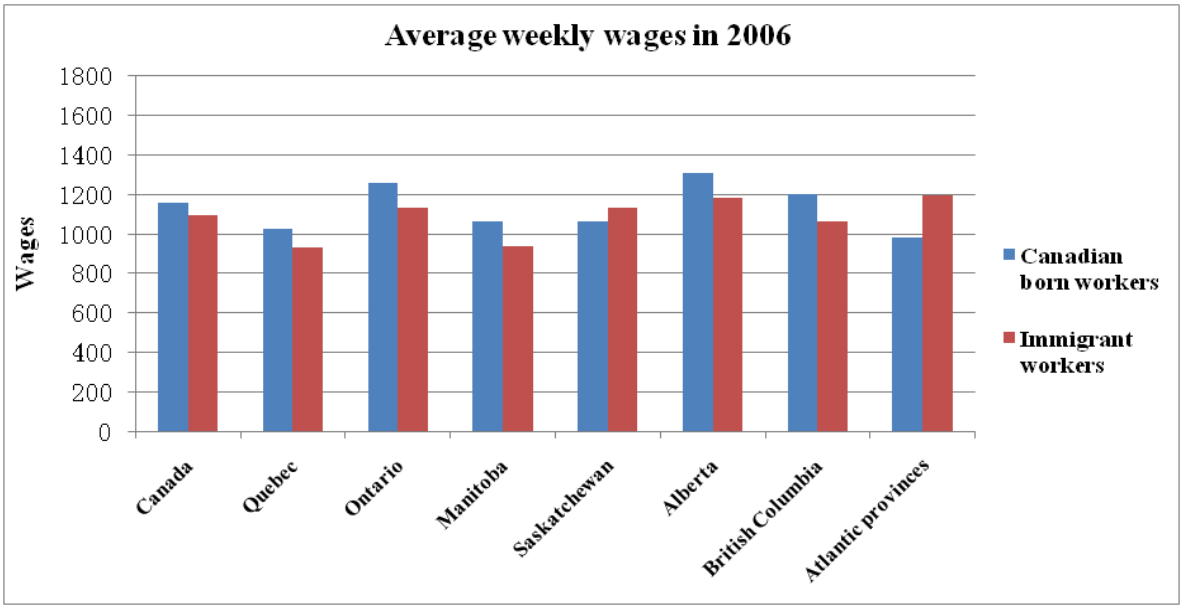


Figure 2.

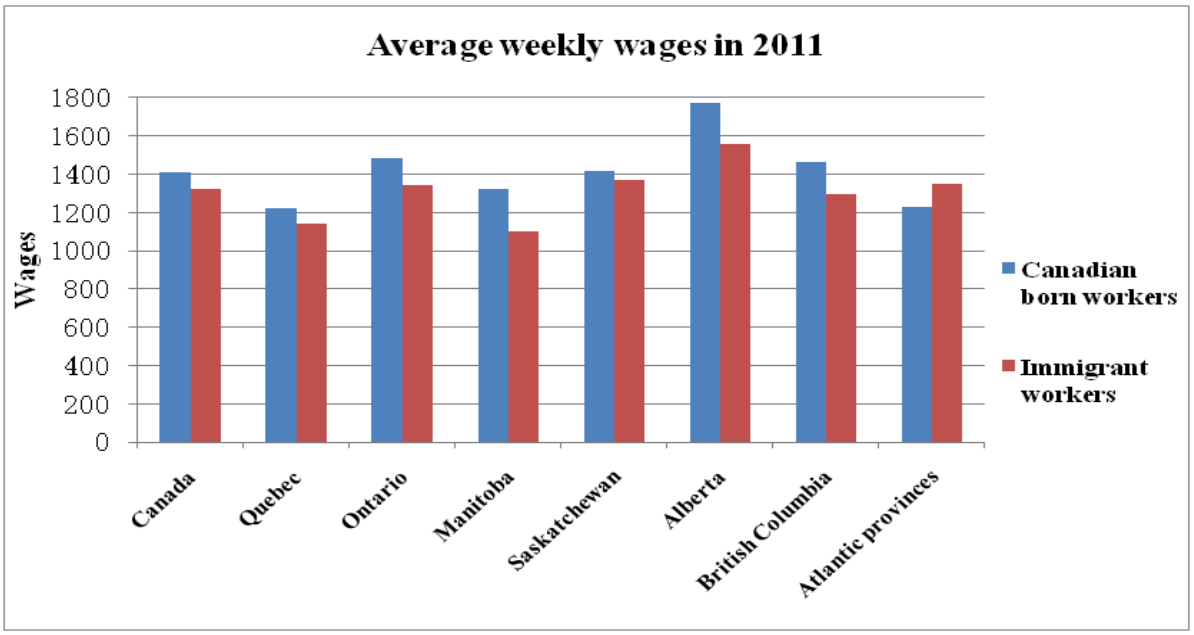


Table 2. OLS regression results of the wage equation

	Specifications					
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Immigrant	-0.1***	-0.508***	-0.3099***	-0.2511***	-0.2825***	-0.2047***
Female		-0.2517***	-0.2516***	-0.2523***	-0.2701***	-0.2675***
Immi*female					0.0874***	0.0804***
Years since migration		0.027***	0.0317***	0.031***	0.0304***	0.0295***
Years since migration^2		-0.0003***	-0.0004***	-0.0004***	-0.0003***	-0.0003***
Experience		0.04***	0.0435***	0.0437***	0.0436***	0.0436***
Experience^2		-0.0007***	-0.0008***	-0.0008***	-0.0008***	-0.0008***
Immi*experience			-0.022***	-0.0223***	-0.0218***	-0.0218***
Immi*experience^2			0.0003***	0.0003***	0.0003***	0.0003***
Married		0.1089***	0.1086***	0.1084***	0.1085***	0.1095***
A. Education						
Medium education		0.0357***	0.037***	0.0368***	0.0408***	0.0476***
High education		0.2402***	0.2404***	0.2531***	0.2566***	0.2704***
Immi*medium edu.				-0.0026	-0.0175	-0.0429***
Immi*high edu.				-0.067***	-0.0812***	-0.1355***
B. Family						
Household size		-0.013***	-0.013***	-0.0132***	-0.0132***	-0.0128***
Presence of child		0.0084*	0.0091*	0.0097**	0.0099**	0.0092*
C. Language skill						
English only		0.3083***	0.28***	0.2898***	0.2909***	0.281***
French only		0.251***	0.2228***	0.2333***	0.2356***	0.2203***
English & French		0.3417***	0.3146***	0.3237***	0.3249***	0.314***
Study location		0.0606***	0.0222***	0.0149**	0.0143*	0.0086
White collar		0.2838***	0.2826***	0.2815***	0.2829***	0.2625***
Immi*white collar						0.0922***
D. Industry						
Manufacturing		0.1262***	0.1284***	0.1284***	0.1292***	0.1415***
Retail trade		-0.2014***	-0.2014***	-0.2009***	-0.2007***	-0.2035***
Health care and social assistance		-0.0421***	-0.041***	-0.0407***	-0.0404***	-0.0466***
Public administration		0.154***	0.1531***	0.1528***	0.1523***	0.1505***
Immi*manufacturing						-0.0424***
Immi*retail trade						0.0162
Immi*health care						0.0401***
Immi*public adm.						0.0065
E. Region						
Manitoba (MB)		0.0408***	0.0419***	0.0409***	0.0404***	0.0422***

Saskatchewan (SK)		0.0707***	0.0707***	0.0704***	0.0709***	0.0697***
Quebec (QC)		0.0758***	0.0755***	0.0751***	0.0744***	0.0829***
Ontario (ON)		0.2195***	0.2206***	0.22***	0.2193***	0.2182***
Alberta (AL)		0.2467***	0.2481***	0.2477***	0.247***	0.248***
British Columbia (BC)		0.1502***	0.1504***	0.1496***	0.1488***	0.1471***
Immi*MB						-0.0731
Immi*SK						0.0212
Immi*QC						-0.1199**
Immi*ON						-0.0658
Immi*AL						-0.0758
Immi*BC						-0.065
Constant term	6.8286	5.6904	5.7129	5.7032	5.7087	5.7227
R squared	0.0036	0.2085	0.2103	0.2106	0.2113	0.2122
F-stat	602.72	1583.77	1486.34	1390.00	1350.23	1002.40
Observations	164,544	156,308	156,308	156,308	156,308	156,308

Note: Significance of a t-test of the differences is indicated as follows: *** denoting the 1% level, ** denoting the 5% level, * denoting the 10% level.

Table 3. OLS regression results for the wage equation by province

Variables	Canada		Quebec		Ontario		Manitoba	
	2006	2011	2006	2011	2006	2011	2006	2011
Immigrant	-0.2818***	-0.2550***	-0.2519***	-0.2553***	-0.2450***	-0.1804***	-0.4394**	-0.3793**
Immi*female	0.0835***	0.0635***	0.0960***	0.0527**	0.0646***	0.0675***	0.0479	0.0231
Immi*experience	-0.0208***	-0.0182***	-0.0218***	-0.0234***	-0.0260***	-0.0241***	-0.0101	-0.0140
Medium education	0.0556***	0.0569***	0.1067***	0.1364***	0.0342***	0.0653***	0.0222	-0.0437
High education	0.2783***	0.3641***	0.3278***	0.4360***	0.2742***	0.3877***	0.2248***	0.2472***
Immi*medium edu.	-0.0396***	-0.0829***	-0.0628**	-0.0469	-0.0236	-0.1087***	-0.0125	0.0129
Immi*high edu.	-0.1335***	-0.1736***	-0.1479***	-0.1435***	-0.1324***	-0.1816***	-0.1853**	-0.0898
Study location	0.0024	0.0373***	0.0049	0.0413**	0.0052	0.0464***	0.0018	0.1439***
Immi*white collar	0.0908***	0.1685***	0.1339***	0.2180***	0.0734***	0.1342***	0.0950	0.1699**
Immi*manufacturing	-0.0433***	-0.0473***	-0.0439*	-0.0700**	-0.0662***	-0.0407**	0.0640	0.1109
Immi*retail trade	0.0221	0.0316*	-0.0852**	-0.0931**	0.0131	0.0561**	0.0874	0.0519
Immi*health care	0.0424***	0.0038	-0.0574*	-0.0965***	0.0473**	0.0095	0.0650	-0.1285
Immi*public adm.	0.0135	0.0085	0.0034	-0.0889**	0.0004	0.0115	-0.0049	-0.0315
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant term	5.8962	6.1326	6.0141	5.9413	5.9046	6.0937	5.8967	6.1655
R squared	0.202	0.1993	0.2187	0.222	0.2108	0.208	0.2026	0.1977
F-stat	1318.85	1139.09	380.34	343.26	541.07	479.00	39.57	32.79
Observations	156,308	137,280	40,804	36,115	60,807	54,749	4,702	3,889

Table 3. OLS regression results by province (Continued)

Variables	Saskatchewan		Alberta		British Columbia		Atlantic provinces	
	2006	2011	2006	2011	2006	2011	2006	2011
Immigrant	-0.7113*	-0.3633	-0.4597***	-0.4008***	-0.2370***	-0.1434**	-0.1478	-0.2528
Immi*female	0.1471	-0.0641	0.0573*	0.0145	0.0920***	0.0305	0.0318	0.1232
Immi*experience	-0.0198	0.0005	-0.0060	-0.0003	-0.0233***	-0.0196***	-0.0154	0.0203
Medium education	0.0462*	-0.0153	-0.0320**	-0.0170	0.0153	0.0016	0.0754***	0.0208
High education	0.2271***	0.2874***	0.1747***	0.2550***	0.2081***	0.2488***	0.3106***	0.3666***
Immi*medium edu.	0.1683	-0.0650	-0.0119	-0.0879*	-0.0383	-0.0442	-0.1644	0.0407
Immi*high edu.	-0.0733	-0.1358	-0.0341	-0.1680***	-0.1262***	-0.1809***	-0.1307	-0.0991
Study location	-0.0787	0.1017	0.0465*	0.0354	0.0048	0.0129	-0.0394	-0.0097
Immi*white collar	0.2608	0.2327*	0.0636	0.1828***	0.0951***	0.1420***	0.2351*	0.0892
Immi*manufacturing	-0.0383	-0.1200	-0.0023	-0.0528	-0.0991***	-0.1571***	-0.1567	-0.3040
Immi*retail trade	-0.0395	-0.1890	0.0341	-0.0499	-0.0160	0.0586	0.2776	-0.1371
Immi*health care	0.2282	0.1504	0.0056	0.0146	0.0910***	0.1296***	-0.0753	-0.2816*
Immi*public adm.	0.0224	-0.2291	0.0189	0.0088	0.0711	0.0041	-0.0829	-0.0388
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant term	5.6637	6.7410	5.9389	6.4897	5.8336	6.1105	6.1410	6.0925
R squared	0.1844	0.1619	0.1728	0.1701	0.1803	0.1751	0.2400	0.2174
F-stat	28.93	21.76	116.79	98.49	137.75	110.88	110.17	86.69
Observations	3,870	3,296	16,802	14,445	18,823	15,707	10,500	9,079

Note: The full OLS regression results are shown in Table A3 and Table A4 in the Appendix.

Significance of a t-test of the differences is indicated as follows: *** denoting the 1% level, ** denoting the 5% level, * denoting the 10% level.

Table 4. Oaxaca-Blinder Decomposition Results, 2006

Provinces	Canada	Quebec	Ontario	Manitoba	Saskatch-ewan	Alberta	British Columbia	Atlantic Provinces
Total explained	0.0156 (15%)	0.0043 (2%)	0.0542 (34%)	0.0985 (64%)	-0.0570 (-536%)	0.0379 (26%)	0.0593 (37%)	-0.0908 (157%)
Exogenous variables								
Female	-0.0023	-0.0044	-0.0029	-0.0057	-0.0132	0.0013	0.0027	-0.0075
Experience	-0.0077	0.0088	-0.0157	-0.0114	-0.0133	-0.0125	-0.0055	-0.0166
Marital status	-0.0142	-0.0124	-0.0103	-0.0109	-0.0081	-0.0141	-0.0144	-0.0058
Education	-0.0422	-0.0579	-0.0328	-0.0281	-0.0488	-0.0380	-0.0276	-0.0474
Household size	0.0048	0.0015	0.0047	0.0032	0.0013	0.0114	0.0121	-0.0008
Presence of child	-0.0035	-0.0032	-0.0020	-0.0015	-0.0030	-0.0095	-0.0056	-0.0002
Language skill	-0.0153	-0.0126	0.0067	0.0045	-0.0023	0.0012	0.0069	-0.0017
Study location	0.0679	0.0587	0.0747	0.0754	0.0046	0.0562	0.0644	-0.0043
Occupation	0.0148	0.0228	0.0065	0.0317	0.0352	0.0259	0.0158	0.0134
Industry	0.0134	0.0030	0.0253	0.0415	-0.0095	0.0160	0.0105	-0.0200
Total unexplained	0.0904 (85%)	0.1681 (98%)	0.1038 (66%)	0.0553 (36%)	0.0677 (636%)	0.1087 (74%)	0.1031 (63%)	0.0330 (-57%)
Total log wage gap	0.1060	0.1723	0.1580	0.1539	0.0106	0.1466	0.1624	-0.0578

Table 5. Oaxaca-Blinder Decomposition Results, 2011

Provinces	Canada	Quebec	Ontario	Manitoba	Saskatch-ewan	Alberta	British Columbia	Atlantic Provinces
Total explained	-0.0066 (-6%)	-0.0044 (-3%)	0.0277 (20%)	0.1244 (51%)	0.0413 (32%)	0.0271 (16%)	0.0645 (38%)	-0.1369 (127%)
Exogenous variables								
Female	-0.0040	-0.0093	-0.0027	-0.0149	-0.0349	0.0003	0.0028	-0.0075
Experience	-0.0034	0.0095	-0.0122	0.0043	0.0044	-0.0018	-0.0005	0.0013
Marital status	-0.0183	-0.0069	-0.0132	-0.0106	-0.0094	-0.0151	-0.0121	-0.0118
Education	-0.0637	-0.0803	-0.0532	-0.0392	-0.0665	-0.0542	-0.0397	-0.0892
Household size	0.0017	-0.0031	0.0044	0.0020	0.0070	-0.0005	0.0070	-0.0002
Presence of child	-0.0035	-0.0013	-0.0045	-0.0060	-0.0045	-0.0052	-0.0043	-0.0001
Language skill	-0.0163	-0.0053	0.0065	0.0020	0.0002	0.0016	0.0097	-0.0010
Study location	0.0733	0.0660	0.0778	0.1322	0.1048	0.0694	0.0620	-0.0031
Occupation	0.0071	0.0000	0.0140	0.0276	-0.0041	0.0051	0.0094	-0.0286
Industry	0.0205	0.0262	0.0108	0.0270	0.0442	0.0275	0.0302	0.0032
Total unexplained	0.1105 (106%)	0.1337 (103%)	0.1118 (80%)	0.1193 (49%)	0.0857 (67%)	0.1447 (84%)	0.1042 (62%)	0.0295 (-27%)
Total log wage gap	0.1039	0.1292	0.1395	0.2437	0.1270	0.1718	0.1687	-0.1074

Note: The figures in the bracket are the percentage of the explained portion or the percentage of the unexplained portion in the total log wage gap.

Figure 3.

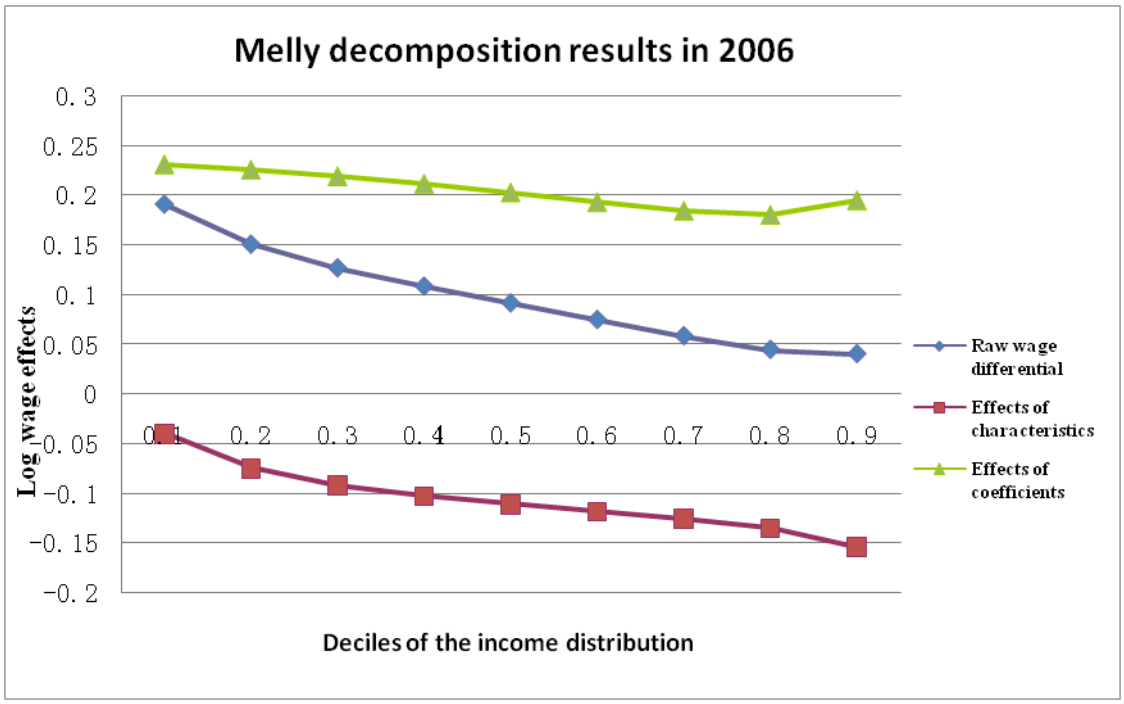


Figure 4.

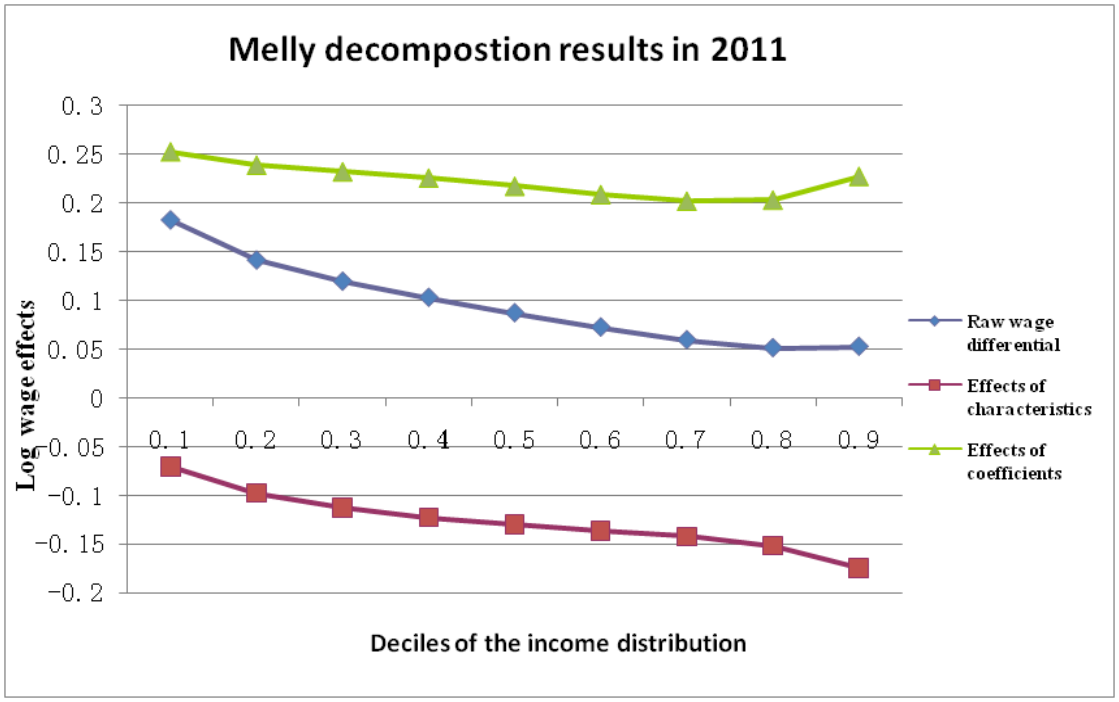
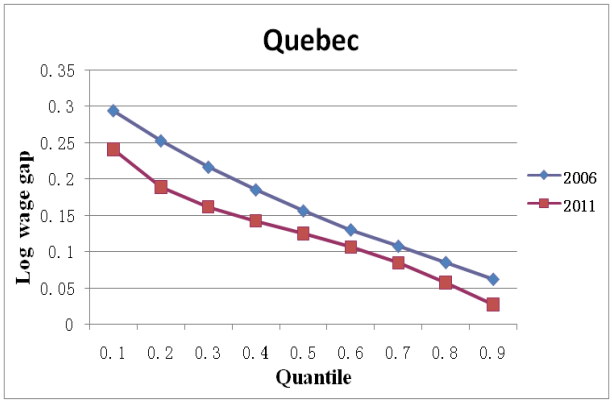
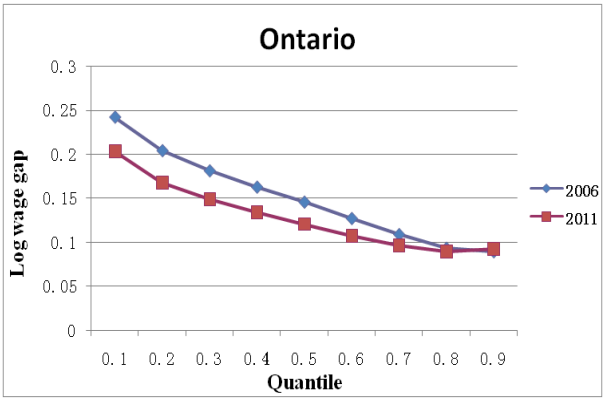
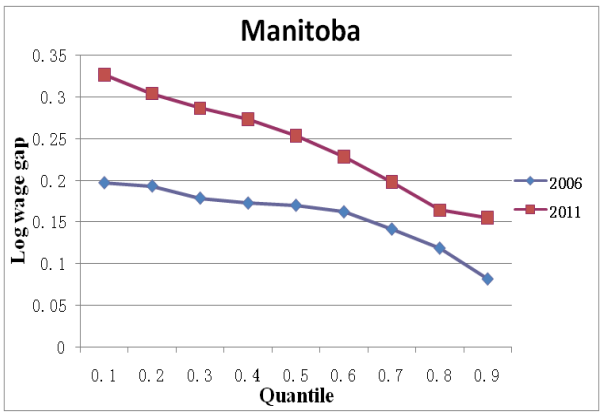
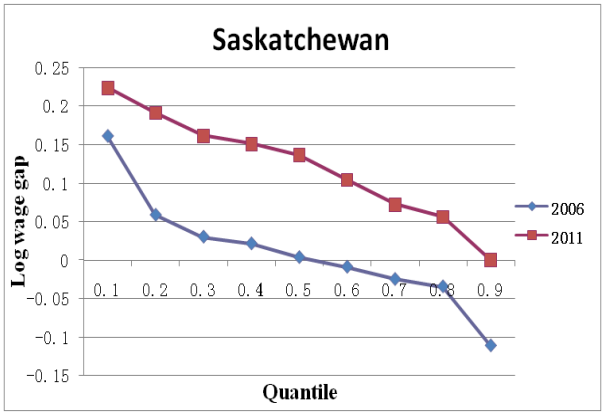


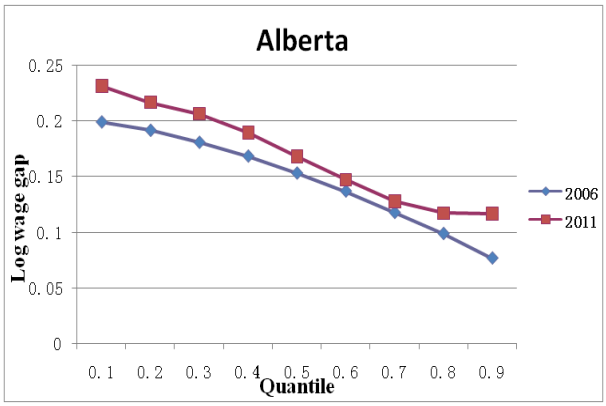
Figure 5.

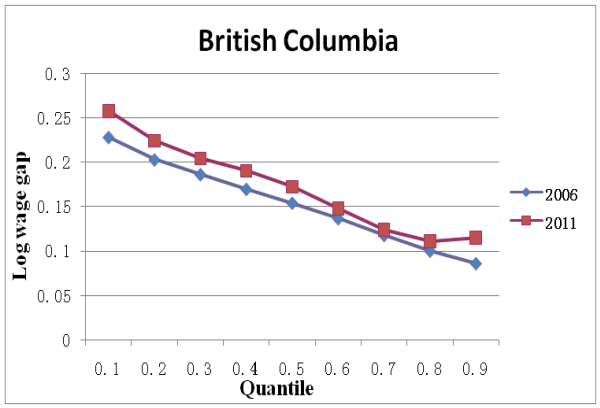

Quebec
Log wage gap
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
Quantile
2006
2011

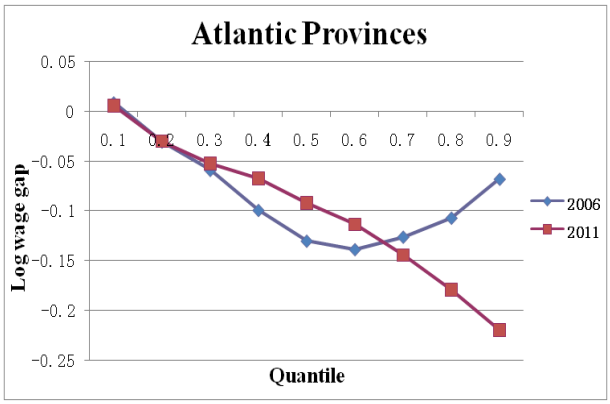

Ontario
Log wage gap
0.3
0.25
0.2
0.15
0.1
0.05
0
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
Quantile
2006
2011


Manitoba
Log wage gap
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
Quantile
2006
2011


Saskatchewan
Log wage gap
0.25
0.2
0.15
0.1
0.05
0
−0.05
−0.1
−0.15
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
Quantile
2006
2011


Alberta
Log wage gap
0.25
0.2
0.15
0.1
0.05
0
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
Quantile
2006
2011


British Columbia
Log wage gap
0.3
0.25
0.2
0.15
0.1
0.05
0
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
Quantile
2006
2011


Atlantic Provinces
Log wage gap
0.05
0
−0.05
−0.1
−0.15
−0.2
−0.25
0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9
Quantile
2006
2011

Appendix A

Table A1.

Highest certificate, diploma or degree	**Estimated years of schooling**
High school graduation certificate or equivalency, other trades certificate or diploma, registered apprenticeship certificate	12
College, CEGEP or other non-university certificate or diploma	14
University certificate or diploma below bachelor level	15
Bachelor's degree	16
University certificate or diploma above bachelor level	17
Master's degree, degree in medicine, dentistry, veterinary medicine or optometry	19
Earned doctorate degree	21

Table A2.

Melly decomposition in 2006									
Quantile	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Raw wage differential	0.1911	0.1507	0.1269	0.1085	0.0915	0.0748	0.0585	0.0447	0.0404
Characteristics effects	-0.0397	-0.0747	-0.092	-0.1029	-0.1112	-0.1182	-0.1257	-0.1353	-0.1544
Coefficients effects	0.2308	0.2255	0.219	0.2114	0.2028	0.1929	0.1843	0.1801	0.1948

Melly decomposition in 2011									
Quantile	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
Raw wage differential	0.1819	0.1407	0.1189	0.1024	0.0866	0.0719	0.0589	0.0507	0.0521
Characteristics effects	-0.0704	-0.0979	-0.1128	-0.1227	-0.1302	-0.1362	-0.1424	-0.1519	-0.175
Coefficients effects	0.2523	0.2386	0.2317	0.2252	0.2168	0.2081	0.2013	0.2025	0.227

Table A3. Full OLS regression results for the wage equation in 2006

Variables	Canada	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Atlantic provinces
Immigrant	-0.2818***	-0.2519***	-0.2450***	-0.4394**	-0.7113*	-0.4597***	-0.2370***	-0.1478
Female	-0.2675***	-0.2412***	-0.2410***	-0.2608***	-0.3084***	-0.3452***	-0.2892***	-0.3149***
Immi*female	0.0835***	0.0960***	0.0646***	0.0479	0.1471	0.0573*	0.0920***	0.0318
Years since migration	0.0301***	0.0231***	0.0318***	0.0313***	0.0547***	0.0241***	0.0298***	0.0137
Years since migration^2	-0.0004***	-0.0002***	-0.0004***	-0.0004***	-0.0008**	-0.0003***	-0.0004***	-0.0001
Experience	0.0425***	0.0425***	0.0470***	0.0394***	0.0343***	0.0435***	0.0423***	0.0364***
Experience^2	-0.0008***	-0.0008***	-0.0009***	-0.0007***	-0.0006***	-0.0008***	-0.0007***	-0.0006***
Immi*experience	-0.0208***	-0.0218***	-0.0260***	-0.0101	-0.0198	-0.0060	-0.0233***	-0.0154
Immi*experience^2	0.0003***	0.0003***	0.0004***	0.0001	0.0002	0.0002	0.0003***	0.0003
Married	0.1112***	0.0747***	0.1162***	0.1600***	0.1086***	0.1368***	0.1374***	0.0883***
A. Education								
Medium education	0.0556***	0.1067***	0.0342***	0.0222	0.0462*	-0.0320**	0.0153	0.0754***
High education	0.2783***	0.3278***	0.2742***	0.2248***	0.2271***	0.1747***	0.2081***	0.3106***
Immi*medium edu.	-0.0396***	-0.0628**	-0.0236	-0.0125	0.1683	-0.0119	-0.0383	-0.1644
Immi*high edu.	-0.1335***	-0.1479***	-0.1324***	-0.1853**	-0.0733	-0.0341	-0.1262***	-0.1307
B. Family								
Household size	-0.0113***	-0.0108***	-0.0094***	-0.0098	-0.0160	-0.0347***	-0.0189***	0.0038
Presence of child	0.0057	0.0208**	-0.0056	-0.0117	0.0329	0.0510***	0.0006	-0.0044

C.Language skill								
English only	0.2907***	0.0123	0.2597***	0.1711	0.6205	0.4466*	0.3707***	-0.0711
French only	0.1395***	-0.0124	0.2741***	0.3366	0.4971	0.3315	0.0827	-0.0990
English & French	0.2619***	0.0751	0.2987***	0.2459	0.6866	0.4421*	0.3869***	-0.0412
Study location	0.0024	0.0049	0.0052	0.0018	-0.0787	0.0465*	0.0048	-0.0394
White collar	0.2667***	0.2369***	0.2824***	0.2861***	0.2926***	0.2497***	0.2430***	0.2686***
Immi*white collar	0.0908***	0.1339***	0.0734***	0.0950	0.2608	0.0636**	0.0951***	0.2351*
D. Industry								
Manufacturing	0.1416***	0.1436***	0.1796***	0.0329	0.1360***	0.0772***	0.1521***	0.0807***
Retail trade	-0.2105***	-0.2055***	-0.1732***	-0.1957***	-0.2077***	-0.2565***	-0.1647***	-0.2491***
Health care and social assistance	-0.0576***	-0.0800***	-0.0592***	0.0011	0.0225	-0.0537***	0.0222	0.0006
Public administration	0.1446***	0.1721***	0.1491***	0.1623***	0.1309***	0.0469**	0.1328***	0.2126***
Immi*manufacturing	-0.0433***	-0.0439*	-0.0662***	0.0640	-0.0383	-0.0023	-0.0991***	-0.1567
Immi*retail trade	0.0221	-0.0852**	0.0131	0.0874	-0.0395	0.0341	-0.0160	0.2776
Immi*health care	0.0424***	-0.0574*	0.0473**	0.0650	0.2282	0.0056	0.0910***	-0.0753
Immi*public adm.	0.0135	0.0034	0.0004	-0.0049	0.0224	0.0189	0.0711	-0.0829
Constant term	5.8962	6.0141	5.9046	5.8967	5.6637	5.9389	5.8336	6.1410
R squared	0.202	0.2187	0.2108	0.2026	0.1844	0.1728	0.1803	0.2400
F-stat	1318.85	380.34	541.07	39.57	28.93	116.79	137.75	110.17
Observations	156,308	40,804	60,807	4,702	3,870	16,802	18,823	10,500

Note: Significance of a t-test of the differences is indicated as follows: *** denoting the 1% level, ** denoting the 5% level, * denoting the 10% level.

Table A4. Full OLS regression results for the wage equation in 2011

Variables	Canada	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Atlantic provinces
Immigrant	-0.2550***	-0.2553***	-0.1804***	-0.3793**	-0.3633	-0.4008***	-0.1434**	-0.2528
Female	-0.3273***	-0.3135***	-0.2930***	-0.3159***	-0.3869***	-0.3919***	-0.3466***	-0.3597***
Immi*female	0.0635***	0.0527**	0.0675***	0.0231	-0.0641	0.0145	0.0305	0.1232
Years since migration	0.0218***	0.0203***	0.0248***	0.0275***	0.0228*	0.0191***	0.0166***	-0.0076
Years since migration^2	-0.0002***	-0.0002***	-0.0003***	-0.0004***	-0.0004	-0.0002***	-0.0001**	0.0001
Experience	0.0463***	0.0487***	0.0509***	0.0323***	0.0315***	0.0418***	0.0444***	0.0380***
Experience^2	-0.0008***	-0.0008***	-0.0009***	-0.0005***	-0.0006***	-0.0007***	-0.0008***	-0.0006***
Immi*experience	-0.0182***	-0.0234***	-0.0241***	-0.0140	0.0005	-0.0003	-0.0196***	0.0203
Immi*experience^2	0.0002***	0.0004***	0.0003***	0.0002	0.0000	-0.0001	0.0002*	-0.0003
Married	0.1138***	0.0404***	0.1377***	0.1167***	0.1073***	0.1274***	0.1246***	0.1165***
A. Education								
Medium education	0.0569***	0.1364***	0.0653***	-0.0437	-0.0153	-0.0170	0.0016	0.0208
High education	0.3641***	0.4360***	0.3877***	0.2472***	0.2874***	0.2550***	0.2488***	0.3666***
Immi*medium edu.	-0.0829***	-0.0469	-0.1087***	0.0129	-0.0650	-0.0879*	-0.0442	0.0407
Immi*high edu.	-0.1736***	-0.1435***	-0.1816***	-0.0898	-0.1358	-0.1680***	-0.1809***	-0.0991
B. Family								
Household size	-0.0120***	-0.0002	-0.0182***	-0.0202*	-0.0230*	-0.0081	-0.0200***	-0.0011
Presence of child	0.0069	-0.0124	0.0238***	0.0469	0.0102	0.0135	0.0052	0.0024
C. Language skill								
English only	0.1796***	0.1083	0.0783	0.1209	-0.1823	0.1866	0.3062***	0.1824***
French only	0.0093	0.1286	0.0257	0.3002	0.3911	-0.0649	0.4976	0.1703
English & French	0.1404***	0.2143	0.1320***	0.1423	-0.0668	0.2040	0.3552***	0.1920***
Study location	0.0373***	0.0413**	0.0464***	0.1439***	0.1017	0.0354	0.0129	-0.0097

White collar	0.1859***	0.1544***	0.2239***	0.2159***	0.1155***	0.1206***	0.2034***	0.1995***
Immi*white collar	0.1685***	0.2180***	0.1342***	0.1699**	0.2327*	0.1828***	0.1420***	0.0892
D. Industry								
Manufacturing	0.0746***	0.0874***	0.0965***	0.0350	0.0790	0.0578**	0.1300***	0.0616**
Retail trade	-0.2033***	-0.1686***	-0.1807***	-0.1305***	-0.1583***	-0.2582***	-0.2155***	-0.2258***
Health care and social assistance	-0.0614***	-0.0447***	-0.0701***	-0.0132	0.0651*	-0.0624***	-0.0652***	-0.0181
Public administration	0.0726***	0.1006***	0.0977***	0.0852***	0.0694**	-0.0401*	0.0735***	0.0679***
Immi*manufacturing	-0.0473***	-0.0700**	-0.0407**	0.1109	-0.1200	-0.0528	-0.1571***	-0.3040
Immi*retail trade	0.0316*	-0.0931**	0.0561**	0.0519	-0.1890	-0.0499	0.0586	-0.1371
Immi*health care	0.0038	-0.0965***	0.0095	-0.1285	0.1504	0.0146	0.1296***	-0.2816 *
Immi*public adm.	0.0085	-0.0889**	0.0115	-0.0315	-0.2291	0.0088	0.0041	-0.0388
Constant term	6.1326	5.9413	6.0937	6.1655	6.7410	6.4897	6.1105	6.0925
R squared	0.1993	0.222	0.208	0.1977	0.1619	0.1701	0.1751	0.2174
F-stat	1139.09	343.26	479.00	32.79	21.76	98.49	110.88	86.69
Observations	137,280	36,115	54,749	3,889	3,296	14,445	15,707	9,079

Note: Significance of a t-test of the differences is indicated as follows: *** denoting the 1% level, ** denoting the 5% level, * denoting the 10% level.