

Unions and the Immigrant-Native-born Wage Gap in Canada

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Abstract

Using microdata from the Labour Force Survey from November 2017 to October 2018, this paper investigates the differences in unionization rates between native-born, old immigrants, and new immigrants in Canada. The research is also interested in investigating union effects on hourly wage gaps between native-born and immigrants. The results show that native-born employees have higher unionization rates than old immigrants and new immigrants and that old immigrants are more likely to be unionized than new immigrants. The results for wages illustrate that hourly wage gaps between immigrants and the native-born become larger if they both join a union. However, if immigrants join a union but the native-born do not, the wage gap decreases. Finally, other human capital characteristics like education level, province, and establishment size have similar effects on unionization rates and hourly wages for native-born, old immigrants, and new immigrants.

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1. Introduction

Immigrants are an important element of the Canadian labour market. However, they encounter various difficulties such as language barriers and cultural differences. The consequence is that immigrants generally earn lower wages than native-born workers with similar characteristics, especially when they first enter the Canadian labour market. In Canada, many workers belong to unions whose main purpose is to help their members obtain better wages and to guarantee that they are treated fairly. In this context, it is natural to ask to what extent immigrants benefit from being members of a union and if the wage gap compared to native-born employees is reduced if they join a union.

In Canada, there are differences between old immigrants and recent immigrants in terms of source countries and economic performances. For instance, Benjamin et al. (2012) document the fact that in the last decades, the source countries of Canadian immigrants have changed a lot. In the mid-1960s, most immigrants came from Great Britain, the United States and Western Europe. Since the 1990s, immigrants have come mainly from Asia, Latin America and Africa. In this paper, I compare the union status and the wage gap between old immigrants, new immigrants and native-born workers. My main dataset is the public use monthly microdata of one full year of the Labour Force Survey (LFS), from November 2017 to October 2018.

The paper is divided into the following sections. Section 2 provides a literature review. In section 3, I introduce my data and variables. Summary statistics are also presented in this section. Next, I present the econometric models of unionization and wages in section 4. The empirical results are discussed in section 5. Finally, the conclusion is in section 6.

2. Literature Review

Many studies have discussed the earnings levels and trends of immigrants in the host country. However, those articles did not usually discuss the impact of unions. Similarly, there have been many studies to date on the impact of unions on the wages of workers, but most of them did not focus on the immigration status of these workers. In this paper, I explore the impact of joining a union on the wage differentials between immigrants and native-born. I focus on wage gaps between immigrants and native-born as well as on the union effect on workers with different immigration status. There are a few articles that have discussed a similar topic. In this literature review, I first examine the economic conditions of immigrants regardless of union status. Secondly, I consider the effect of unions on wages regardless of immigration status. Finally, I review the literature about the influence of union status on the wages of employees with different immigration status.

2.1 Economic Condition of Immigrants

One of the earliest studies that has investigated the economic conditions of immigrants is Chiswick (1978). He investigated the earnings progress of foreign-born white men compared with native-born white men in the United States. The data that he used was the 1970 Census of Population. He found that, initially, the earnings of immigrants were lower than those of the native-born. But their earnings grew faster than those of the native-born. After 10 to 15 years, the wages of immigrants will be equal to or even higher than those of the native-born.

Another important U.S. study is Borjas (1985). He re-examined the cross-sectional empirical results on immigrant earnings, which included two main conclusions. First, the wage growth rate of immigrants is faster than that of local-born people. Second, as immigrant wages grow rapidly, their wages will exceed

those of the local-born in 10 to 15 years. Chiswick (1978) reached these conclusions which are summarized in the previous paragraph. However, Borjas (1985) came to a different conclusion using the 1970 and 1980 Public Use Samples of the U.S. Census. He concluded that the income growth of immigrants is much slower than the results obtained from cross-sectional analysis. He found that relative to the native-born, the rate of increase of immigrants' wages is overestimated in a cross-sectional analysis. Finally, he concluded that in the U.S. labour market, the wages of the earlier immigrant cohorts are higher than those of the recent immigrant cohorts.

There are also many studies about the economic integration of immigrants in Canada. Baker and Benjamin (1994) used the Public Use Microdata Files of the Canadian censuses of 1971, 1981, and 1986 to investigate the entry earnings and the rates of assimilation of immigrants. They concluded that the recent immigrants' wages when they first entered the Canadian labour market were up to 20 percent lower than those of the native-born. However, the earlier immigrants' wages did not differ much from those of the locally-born when they first entered the Canadian market. So even though recent immigrants and earlier immigrants both had low rates of assimilation, earlier immigrants assimilated faster than recent immigrants.

The aim of Bloom, Grenier and Gunderson (1995) was to compare the wages of immigrants and native-born workers. They also investigated the extent to which immigrants' wages are growing faster than those of the Canadian-born. They used pooled 1971, 1981, and 1986 Canadian census data to analyze the topic. They found that compared to Canadian-born males and females, the wages of immigrants are lower when they arrive in Canada, but that the immigrants' earnings grow faster. They also found that the initial wages of immigrants from various regions of origin are different. The initial wages of immigrants from

Europe and the United States are much higher than those of immigrants from Asia, Africa, and Latin America. But the growth rate of wages of immigrants from Asia, Africa, and Latin America are higher than those from Europe and the United States. Finally, they concluded that recent immigrants have more difficulty to integrate into the Canadian labour market than previous immigrants.

Many other authors have confirmed the deterioration of the entry earnings of recent immigrants. Aydemir and Skuterud (2005) used the 1981, 1986, 1991, 1996, and 2001 Canadian censuses to study why recent immigration entry income deteriorated. They summed up the two main reasons that led to the deterioration of successive immigration entry earnings. First, the sources of the immigrant population changed from traditional European countries to non-traditional Asian, Latin American and African countries. This led to a shift in immigrants' language skills due to differences in mother tongues. Second, a decline in the returns to experience in the foreign labour market is also one of the main reasons for the deterioration of immigrants' entry earnings. Finally, they also showed that a decline in returns to foreign education was not a main cause of the deterioration of immigrants' entry earnings. As the above main reasons have led to a decline in the entry earnings of recent immigrants, this has made it more difficult for them to assimilate relative to earlier immigrants.

In summary, both U.S. and Canadian immigrants have lower earnings than the native-born when they first enter the host country's labour market. Furthermore, the entry earnings of recent immigrants are smaller than those of earlier immigrants. So, it is more difficult for recent immigrants to assimilate into the host country than for earlier immigrants.

2.2 Effect of Unions on Wages

There are also many studies that have examined the impact of unions on wages. Some important ones are summarized here. A classic one is by Lewis (1963) who investigated the union-nonunion wage gap and reviewed the existing research on that topic in the United States. He concluded that in general, the wage gap between union and non-union members is about 10 to 15 percent. However, this gap is larger when there is a recession and smaller when there is a boom.

Mellow (1981) used two-period longitudinal data from the U.S. Current Population Survey (CPS) to analyze how much a change in union status affects the wages of employees. She reached several interesting conclusions. First, the wages of blacks only rise a little after joining a union. Second, workers joining a union must also change their occupation or industry to ensure an increase in wages. Last but not the least, after becoming a union member, the salary of employees increases by 7.5 percent. Moreover, as noted by Lewis (1963), when the economy is in a downturn, joining the union has a greater impact on employees. When the economy is booming, the influence of the union status on employees is relatively small.

There are also many empirical studies of the impact of unions on wages in Canada. Grant, Swidinsky, and Vanderkamp (1987) estimated the union non-union wage differentials using data from the Canadian unemployment insurance program and from matched income tax records of the National Revenue Department. They found that unionized employees have higher wages than non-union ones and that the wage differentials were from 12 to 14 percent in 1969 and from 13 to 16 percent in 1970.

Swidinsky and Kupfeschmidt (1991) used the Labour Market Activity Survey (LMAS) to discuss the impact of unionism on both wage and nonwage benefits. They found that the wage gap between union members and non-union workers is between 13.1 and 15.5 percent. This range is consistent with previous researches. For nonwage benefits, the probability of unionized employees to have pension coverage is 22 to 25 percent higher than for non-unionized employees.

Cleveland, Gunderson and Hyatt (2003) examined the influence of unions on the specific occupation of childcare workers. They used survey data for Canadian childcare workers in licenced group childcare centers in 1991. They concluded that although childcare is a low wage job, joining a union increases wages by 15 percent and fringe benefits rise more than the basic wages. The authors also found that unions do not reduce the returns on skills that are specific to the childcare sector, which will encourage employees in childcare to improve their human capital characteristics.

According to those studies, I can conclude that there exists a wage differential between union and non-union employees. Joining a union increase employees' wages around 15 percent in both the U.S. and Canada.

2.3 Effect of Unions on Immigrant Wages

A few studies have looked at immigrants and unions at the same time. For the U.S., Funkhouser (1993) analyzed the tendency of immigrants to become union members relative to locals. He also compared the wage gap between unionized and non-unionized employees for immigrants and natives respectively. The datasets that he used are the 1983 Current Population Survey (CPS) and the 1983 Annual Earnings File (AEF). Funkhouser (1993) concluded that when immigrants and natives have the same working

experience in the United States, their unionization tendencies are very similar, so immigrants and natives have similar rates of unionization, regardless of gender. However, if the year 1968 is used as a time division point, the unionization rate of immigrant male employees who joined the U.S. labour market after 1968 is only half of that who joined before 1968. Not only immigrant male employees but also the unionization rate of local male employees also dropped by half. He also discussed the union wage differentials for immigrants and natives and found that for males, the union wage differentials are similar for immigrants and natives, but for females, the union wage differential is much lower for immigrants than for natives.

Kim and Kim (1997) studied the unionization of Asian Americans. Their purpose was to investigate whether Asian Americans are more likely to become union members than immigrants from other origins. The main data that they used was the 1996 U.S. Current Population Survey (CPS). They had three main findings. First of all, Asian Americans are more likely to be union members than whites. Secondly, unlike for the black and the white, the immigration-related variables, like length of stay in the United States and naturalization, play a more important role in determining Asian Americans' union status than the traditional explanatory variables like earnings and age. Finally, Asian immigrants from later generations are more likely to join trade unions than first-generation Asian immigrants.

Bratsberg, Ragan and Nasir (2002) studied whether naturalization makes it easier for young male immigrants to access public-sector, white-collar, and union jobs. They also analyzed the relationship between naturalization and wages. They concluded that young male immigrants who have been naturalized are more likely to get public-sector, white-collar, and union jobs. They analyzed the wages of young male immigrants using cross-sectional and longitudinal data. The cross-sectional data that they

used are the 1990 census and 1994-98 current population surveys (CPS). They found that naturalized young male immigrants have higher wages than non-naturalized ones. Using the National Longitudinal Survey of Youth (NLSY), they concluded that the growth of wages for young male immigrants with naturalization experience is faster than that of young immigrant men without naturalization experience, and even faster than that of native males.

In Canada, more and more people from different ethnic groups have immigrated and become an important part of the Canadian labour market. Verma, Reitz and Banerjee (2016) used longitudinal data from the Survey of Labour and Income Dynamics (SLID) to compare unionization rates between non-white recent immigrants, white recent immigrants and Canadian-born workers. They also studied the impact of participation in unions of those groups on wage levels. The authors combined four six-year panels to maximize their sample size. The first one covered the period from 1993 to 1998. The second panel covered the period from 1996 to 2001. The third panel covered the period from 1999 to 2004. And the fourth panel covered the period from 2002 to 2007. The first year of the survey is the year immigrants arrived. They reached four conclusions. First, in the first year of the survey, the unionization rate of recent immigrants is much lower than that of Canadian-born, especially the visible minorities. Second, the unionization rate of immigrants increases during the six-year period for each panel, but the rate for white recent immigrants increases faster than the rate for non-white recent immigrants. In the last year of the survey for each panel, the white recent immigrants even have a higher unionization rate than the Canadian-born, but the non-white recent immigrants still have a lower unionization rate. Third, for non-white recent immigrants, joining a union does not help to increase their initial salary. Fourth, joining a union increases the wage growth rate of recent white immigrants but reduces the wage growth rate of non-white recent immigrants.

Finally, they concluded that joining a union does not help non-white recent immigrants to reduce their wage differentials with white recent immigrants and the Canadian-born.

In an earlier study that is comparable to what is going to be done in this paper, Reitz and Verma (2004) used the Survey of Labour Income Dynamics (SLID) as their main data as well. Although the data has longitudinal characteristics, their analysis was a cross-sectional one. They combined panels 1 and 2 of the survey to study the union status of immigrants of different visible minorities. They explored whether joining a trade union can help ethnic minorities reduce wage differences. Reitz and Verma (2004) concluded that minority immigrants have a lower rate of membership in unions than workers belonging to the white majority. This phenomenon is more pronounced for the male immigrants than for the female immigrants. Their empirical results showed that both white and ethnic minority immigrants are more likely to join a union if they have been in Canada for a long time. However, due to the different growth rates in the unionization of white and minority immigrants, there are still union differentials and the gap is related to the recency of immigration. Last but not least, they concluded that minority immigrants joining unions can reduce the wage gap between them and the white, but it cannot be completely eliminated.

Overall, the economic situation of recent immigrants is worse than that of the early immigrants. In general, joining a union increases wages. However, for recent immigrants, whether joining a union will reduce the wage difference between them and the early immigrants and the native-born still needs further discussion. What I do in my paper is similar to what Reitz and Verma (2004) do, but with more recent data from the Labour Force Survey and with a focus on comparing recency of immigration instead of visible minorities.

3. Data

3.1 Data and Sample Restriction

I combine a whole year of public use microdata of the Labour Force Survey (LFS), from November 2017 to October 2018, which are the most recent data at the time of writing this paper. The LFS is a monthly survey which provides recent and important measures of the employment and unemployment conditions of the Canadian economy. It also provides many different characteristics of the population such as immigration status, union status, education levels, province, occupation, industry, hourly wages, and so on. In this dataset, the unit of the observation is the individual. Although I have 12 months of data, I analyze the data in a cross-sectional way because the same individuals cannot be identified across the months. I use analytic weights for summary statistics and sampling weights for regressions because some of my observations are over-sampled and some are under-sampled.

As I am only interested in employed people who received wages, those who are unemployed and not in the labour force are dropped from my dataset. Since I cannot observe the wage of the self-employed people and unpaid family workers, they are also excluded from my sample. Most people under the age of 20 are still in school, and most people over the age of 65 are retired. Therefore, my sample includes the ages 20 to 64. The employees whose hourly wage is below 10 dollars are considered to be outliers and removed, because the minimum hourly wage is higher than 10 dollars in Canada. Similarly, those whose wage is above 80 dollars per hour are also considered to be outliers and are removed. After combining a whole year of data and imposing the above restrictions, there are 280,265 observations in the male sample and 282,482 observations in the female sample, for a total of 562,747 observations.

3.2 Variables

3.2.1 Dependent Variable

There are two types of regressions which have a different dependent variable in this article. My first dependent variable is union status, and my second dependent variable is the hourly wage. The LFS provides information on the union status and on the hourly wage that can be used as dependent variables. The union variable is a binary variable that is equal to one if someone is a union member or covered by a union contract, and zero otherwise. As in other studies, I use the log of the hourly wage because of the transformation of the skewed distribution of the hourly wage to approximate a normal distribution.

3.2.2 Independent Variables

There are two different types of regressions in total, one on union status and the other on the log of hourly wage. And wage regression is explained by two different models, one with immigration status as an independent variable, and the other with separate regressions by immigration status. Some explanatory variables in these regressions are the same. There are also different explanatory variables between them. Those independent variables are similar to those used in the literature and are mainly related to the human capital of the individuals.

3.2.2.1 Independent Variables that are the Same in the Union and Wage Regressions

Immigration status is the key independent variable in the union regression and the first wage regression. Three groups are identified in the LFS data: immigrants who landed 10 or less years previously (recent immigrants), immigrants who landed more than 10 years previously (old immigrants), and non-immigrants. I create three dummy variables for Immigration status with the non-immigrants as the reference category.

Several control variables are included in my models: age, education level, province, marital status, occupation, industry, establishment size, and survey month. For age, there are five groups: 20 to 29 years old, 30 to 39 years old, 40 to 49 years old, 50 to 59 years old, and 60 to 64. Since the ages in the sample stop at 64, the last group includes only five ages. Here, employees between the ages of 20 and 29 are used as the reference group. For the marital status, there is only one dummy variable for people who are married or living common-law, with everyone else considered to be single.

According to Funkhouser (1993), the education level is expected to have a negative impact on union status for males but a positive impact for females. So, education level is also an important determinant of unionization and of hourly wage. I divide the highest level of education into seven groups, of which lower education is the reference group with 0 to 8 years of schooling. The other six groups of education levels are some high school, high school graduate, some postsecondary, postsecondary certificate or diploma, bachelor's degree, and above bachelor's degree.

As the laws regarding unions and the labour market conditions may vary by province, the province is one important independent variable. However, instead of using all ten provinces, I combine some small provinces together because the populations of these provinces are small. As a result, there are six regional dummies in my paper, which are Atlantic (which includes Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick), Quebec, Ontario, Prairies (which includes Manitoba and Saskatchewan), Alberta, and British Columbia. I use Ontario as my reference group.

Similarly, as union status and wages may vary by industry and occupation, these two independent variables are very important as well. According to the LFS data, there are 21 groups for the industry of

respondents' main jobs. I reclassified the industries into ten groups based on the North American Industry Classification System Canada (NAICS). I group "agriculture," "forestry and logging and support activities for forestry," "fishing, hunting and trapping" and "mining, quarrying, and oil and gas extraction" into primary. I combine "utilities" and "transportation and warehousing" into one group. The construction industry is a separate group. I combine manufacturing of durable goods and non-durable goods into one group called manufacturing. Wholesale trade and retail trade are classified as trade industry. "Finance and insurance" and "real estate and rental and leasing" are classified as the finance industry. "Educational services," "health care and social assistance" and "public administration" are three separate industries. The last industry group is service, which includes "professional, scientific and technical services," "business, building, and other support services," "information, culture and recreation," "accommodation and food services" and "other services". The reference group for industry is manufacturing.

For occupation, there are ten groups in the LFS data which are based on the National Occupational Classification (NOC) system. I create ten dummy variables and my reference group includes the occupations in manufacturing and utilities. The other nine occupational categories are "management," "business, finance and administration," "natural and applied sciences and related occupations," "health," "occupations in education, law and social, community and government," "occupations in art, culture, recreation and sport," "sales and service," "trades, transport and equipment operators and related occupations" and "natural resources, agriculture, and related production occupations".

The expected impact of establishment size is that employees in large establishment size firms are more likely to be unionized and receive higher wages. In the LFS, there are four categories for establishment size. They are less than 20 employees, 20 to 29 employees, 100 to 500 employees, and more than 500 employees. According to this classification, I create four dummy variables, namely small size, medium size, big size, and large size. Small size is my reference group.

Finally, I create twelve dummy variables for the survey month which may account for potential seasonal variations in unionization and in wages. January is used as a reference group.

3.2.2.2 Independent Variables that are Different Between the Union and Wage Regressions

When I regress the hourly wage, union status is included as an independent variable. There is a union dummy variable which is equal to 1 if the employee is a union member or covered by a union contract. Otherwise, the union variable is equal to 0.

Although immigration status is the key independent variable in the union regression and the first wage regression, in the second set of wage regressions, I estimate equation for the native-born, old immigrants and new immigrants separately. So, the immigrant status is not included in this set of wage regressions.

Another important independent variable that I add in the first wage regression is the interaction of union and immigrant. The purpose of adding an interaction is to see if the wage effect of unions differs between immigrants and the native-born. There will be a third effect of immigration status and union status which is not additive if someone satisfies the immigration and union conditions simultaneously. As there are two types immigrants, new immigrant and old immigrant, I have two interactions. If a new immigrant is a

union member or covered by a union contract, the interaction of new immigrant and union is equal to 1, otherwise, it is equal to 0. If an old immigrant is a union member or covered by a union contract, the interaction of old immigrant and union is equal to 1, otherwise, it is equal to 0.

3.3 Descriptive Statistics

3.3.1 Mean Values for Selected Variables

Table 1 shows the mean values for some selected variables used in this paper. The proportions of new immigrants and old immigrants are smaller than those of the non-immigrants, among which new immigrants are 8.1 percent of the population, while 16.2 are old immigrants and the remaining 75.7 percent are native-born. For males, the proportion of new immigrants is slightly higher than that of females (8.5 percent versus 7.7 percent). But the proportion of old immigrants is slightly lower for males than for females (15.6 percent versus 16.7 percent) for male. Table 1 also illustrates that 31.7 percent of the workers belong to a union or are covered by a union contract. The female union member proportion is 34.0 percent, which is higher than that of the males (29.4 percent).

The rest of the selected controls are education level, province, and establishment size. I find that males and females have the highest proportion in the group of postsecondary certificate or diploma, both accounting for 37.8 percent. Employees with a bachelor's degree account for 22.4 percent, ranking the second highest. The number of employees with only 0 to 8 years of educational experience and some high school education accounted for the smallest proportions, 1.1 percent and 4.6 percent respectively. There are 6.1 percent and 9.6 percent employees with some postsecondary education and above bachelor's degree respectively. And the proportion of employees with high school education is 18.4 percent. In general, females have more education than males. Females are more likely to achieve high education levels

than males. The proportion of females with a degree above a bachelor's is 10.2 percent which is higher than that of males (9 percent). The proportion of females with a bachelor's degree is 25.6 percent, compared to 19.2 percent for males. The proportions in the group of postsecondary certificate or diploma for males and females are the same (37.8 percent). I also find that most of the respondents are from Ontario and Quebec, accounting for 38.6 percent and 23.7 percent respectively. The proportions of people from British Columbia and Alberta are moderate, at about 12.5 percent. Although I combine Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick into Atlantic, and Manitoba and Saskatchewan into Prairies, the proportion of people coming from these two places is still very small, at only about 6.5 percent. Among the establishment sizes, the largest proportion of employees are engaged in establishments with 20 to 99 employees and in establishments with less than 20 employees, with 33.7 percent and 31.1 percent respectively. The proportions in the rest of the establishment sizes are relatively moderate, being 21 percent for the establishments with 100 to 500 employees and 14.2 percent for the establishments with more than 500 employees.

3.3.2 Unionization Proportion by Immigrant Status

Table 2 shows the unionization rate among recent immigrants, old immigrants, and native-born by gender. From a gender perspective, women are more likely than men to join a union or be covered by a union contract. Among the new immigrants, women who joined a union or are covered by a union contract account for 25.8 percent of the total, and men account for 24.5 percent of the total. The proportion of female old immigrants joining a union is also larger than that of male old immigrants (34.6 percent versus 28.6 percent). For non-immigrants, the proportion of females who are a union member or covered by union contract is 38.9 percent, which is also higher than that of males (32.8 percent).

4. Econometric Models

In this section, using ordinary least square regressions (OLS), I first regress union status on immigration status for males and females separately. I have three specifications where the different variables are added sequentially. Then, I regress the log of the hourly wage on immigration status and union status for males and females by ordinary least square regressions (OLS); there are four specifications where the controls are added sequentially as well. Finally, I regress the log of the hourly wage on union status separately for native-born, old immigrants and new immigrants.

4.1 Union Regression

In the union regression, union status is a binary variable that I estimate by OLS. So, this is a linear probability model. And I use robust standard errors because that kind of model may have heteroscedasticity. Other estimation methods for that kind of model are probit and logit. I also estimated the union status models with logit to check the results. They are similar to ordinary least square regressions in terms of signs and significance of coefficients.

In the first specification, I regress union status on immigration status without any other variables, for both men and women, to get the gross difference in unionization rate. This model is as follows:

$$Unionization_i = \beta_0 + \beta_1 newimm_i + \beta_2 oldimm_i + \varepsilon_i \quad (1)$$

where $Unionization_i$ is unionization rate of individual i . $newimm_i$ and $oldimm_i$ represent new immigrants and old immigrants respectively. If someone is a recent immigrant, $newimm_i$ is equal to 1, otherwise it is equal to 0. If he or she is an old immigrant, $oldimm_i$ is equal to 1, otherwise it is equal to 0. If someone is a native-born, both $newimm_i$ and $oldimm_i$ are equal to 0. Here, native-born is my reference group.

In the second specification, I add age, education level, province, marital status, establishment size, and survey month. Therefore, my model can be expressed as one regression which is estimated separately for men and women and become as follows:

$$Unionization_i = \beta_0 + \beta_1 newimm_i + \beta_2 oldimm_i + age'_i \phi + educ'_i \theta + prov'_i \eta + marital'_i \gamma + size'_i \delta + month'_i \lambda + \varepsilon_i \quad (2)$$

where age'_i is a vector of four dummy variables, with the ages of 20 and 29 being the reference group. The variable $educ'_i$ is also a vector which represents six education levels with low education level as the reference group. The variable $prov'_i$ represents a vector of five provinces dummies with Ontario as the reference group. The variable $marital'_i$ is a binary variable that is equal to one if the individual is married or living common law, and zero otherwise. The variable $size'_i$ stands for three different establishment size variables, with the small establishment size being the reference group. The variable $month'_i$ is a vector of eleven dummies representing the survey month, where the reference is January.

Industries and occupations may not be exogenous and were excluded from the previous specification. In the third specification, the industries and occupations are added. The following expression shows the richest regression of unionization rate, for both males and females:

$$Unionization_i = \beta_0 + \beta_1 newimm_i + \beta_2 oldimm_i + age'_i \phi + educ'_i \theta + prov'_i \eta + marital'_i \gamma + size'_i \delta + month'_i \lambda + industry'_i \psi + occupation'_i \zeta + \varepsilon_i \quad (3)$$

where $industry'_i$ is a vector of nine industry dummy variables, with the reference group being manufacturing. The variable $occupation'_i$ is another vector of nine occupation dummy variables, with the reference group being the manufacturing occupations.

4.2 Wage Regression with Immigration Status

In the first specification of the wage regression, the log of the wage is regressed on immigration status only without any other variables, for both men and women, to get the gross wage gaps. This model is as follows:

$$\ln wage_i = \alpha_0 + \alpha_1 new_imm_i + \alpha_2 old_imm_i + \varepsilon_i \quad (4)$$

where $\ln wage_i$ is the log of hourly wage of individual i , and $newimm_i$ and $oldimm_i$ have the same meanings as in the previous models.

In the second specification, I add union, interaction of new immigrant and union, and interaction of old immigrant and union. For men and women, the model become as follows:

$$\begin{aligned} \ln wage_i = \alpha_0 + \alpha_1 new_imm_i + \alpha_2 old_imm_i + \alpha_3 union_i + \alpha_4 new_imm * union_i + \\ \alpha_5 old_imm * union_i + \varepsilon_i \end{aligned} \quad (5)$$

$union_i$ is a binary variable that is equal to one if the individual is a union member or covered by union contract, and that is equal to zero otherwise. If a new immigrant is also a union member or covered by union contract, the interaction of new immigrant and union, $new_imm * union_i$ is equal to one, otherwise, it is equal to zero. Similarly, $old_imm * union_i$ is equal to one if an old immigrant is also a union member or covered by union contract; otherwise, it is equal to zero. The reference group is non-union native-born.

In the third specification, I add age, education level, province, marital status, establishment size, and survey month to the wage regression. For both men and women, the third model of wage regression is as follows:

$$\begin{aligned}
\ln wage_i = & \alpha_0 + \alpha_1 new_imm_i + \alpha_2 old_imm_i + \alpha_3 union_i + \alpha_4 new_imm * union_i + \\
& \alpha_5 old_imm * union_i + age_i \phi + educ_i \theta + prov_i \eta + marital_i \gamma + size_i \delta + \\
& month_i \lambda + \varepsilon_i
\end{aligned} \tag{6}$$

where age_i , $educ_i$, $prov_i$, $marital_i$, $size_i$, and $month_i$ have the same meanings and reference groups as in the previous models.

In the last specification, as I did in the union regression, industry and occupation are added to the previous model. The following expression show the richest regression for the wage, for both males and females:

$$\begin{aligned}
\ln wage_i = & \alpha_0 + \alpha_1 new_imm_i + \alpha_2 old_imm_i + \alpha_3 union_i + \alpha_4 new_imm * union_i + \\
& \alpha_5 old_imm * union_i + age_i \phi + educ_i \theta + prov_i \eta + marital_i \gamma + size_i \delta + \\
& month_i \lambda + industry_i \psi + occupation_i \zeta + \varepsilon_i
\end{aligned} \tag{7}$$

where $industry_i$ and $occupation_i$ have the same meanings and reference groups as in the previous models.

4.3 Separate Wage Regressions by Immigration Status

As hourly wage is regressed for the native, new immigrant and the old immigrant separately, the immigration status is not included in this model. Whether it is a native-born, new immigrant or an old immigrant, the equation is as follows, for both males and females:

$$\begin{aligned}
\ln wage_i = & \rho_0 + \rho_1 union_i + \xi female_i + age_i \phi + educ_i \theta + prov_i \eta + \gamma marital_i + \\
& size_i \delta + month_i \lambda + \varepsilon_i
\end{aligned} \tag{8}$$

where $union_i$ has the same meaning and reference group as in model (5). $female_i$ is a binary variable that equals to 1 if the individual is a female, and 0 otherwise. And age_i , $educ_i$, $prov_i$, $marital_i$, $size_i$, and $month_i$ have the same meanings and reference groups as in the previous models.

In the next regression, industry and occupation are added. The following expression shows the richest regression of wage for the native-born, new immigrant and the old immigrant:

$$lnwage_i = \rho_0 + \rho_1 union_i + \xi female_i + age_i \phi + educ_i \theta + prov_i \eta + \gamma marital_i + size_i \delta + month_i \lambda + industry_i \psi + occupation_i \zeta + \varepsilon_i \quad (9)$$

where $industry_i$ and $occupation_i$ have the same meanings and reference groups as in the previous models.

5. Results

There are two types regression in this paper: one unionization rate regression, and one hourly wage regression which is estimated first for the whole sample and then separately by immigrant status.

5.1 Results of Regressions on Unionization Rate

Table 3 shows the regression results for the unionization rate with different sets of controls. The results are presented for males and females separately. In columns (1) and (4), unionization rates are regressed on immigrant status only. In columns (2) and (5), age, education level, province, marital status, establishment size, and survey month are added. In columns (3) and (6), occupation and industry controls are added.

Regardless of gender, immigrants have statistically significant lower unionization rates than native-born. However, the unionization rate gap is smaller between the old immigrants and the native-born than

between the new immigrants and the native-born (6.2 percentage points vs 9.8 percentage points for male; 5.4 percentage points vs 14.9 percentage points for female). When the regression includes all other controls except industry and occupation, in column (2) and (5), the coefficients do not change much. However, when I add industry and occupation, the negative coefficients become smaller. The difference is especially important for recent immigrant females. When unionization is regressed on immigrant status and other human capital except industry and occupation, the unionization rate of recent immigrant females is significantly 14 percentage point lower than that of native-born females. After industry and occupation are added, the unionization rate of recent immigrant female becomes only 7.5 percentage point lower than that of the native-born females. This suggests that the distribution by industry and occupation is a major reason of the lower unionization rate of immigrants. Immigrants are not much different from the native born in terms of the other variables in the regressions.

Table 3 also presents the effects of different education levels on unionization. In general, the unionization rates of male employees with more than 8 years of education are lower than those of the reference group with 0 to 8 years of education, with the exception of employees with a postsecondary certificate or diploma. In contrast, for females, education has a positive effect on their union status. For instance, the unionization rates of employees with bachelor's degrees are 13.9 percentage point higher than those of the reference group. And employees with degrees above bachelor have a 14.5 percentage point higher union status than those in the reference group. So, education levels have a negative relationship with union status for males but a positive relationship for females which is consistent with Funkhouser (1993)'s finding.

The unionization rates also vary by province. The unionization rates of all the provinces are higher than those of Ontario, except for men in Alberta. The male unionization rate in Alberta is 2.5 percentage points

lower than that of Ontario. The unionization rates are particularly high in Quebec. The male unionization rate in Quebec is 12.1 percentage point higher than that in Ontario, and the female unionization rate in Quebec is 9 percentage points higher than that in Ontario. The regression results can be compared with the data of Table 4 (Statistics Canada, 2019). In 2017, the male union coverage rate in Alberta is 21.3 percent, which is lower than the one in Ontario (25.4 percent). And in 2018, the male union coverage in Alberta is also lower than in Ontario (20.4 percent vs 24.5 percent). However, the other provinces union coverage rates for males and females are all higher than those in Ontario (except the male union coverage rate in Prince Edward Island in 2017). The union coverage rates for employees in Quebec are particularly high, at about 38 percent, which is much higher than in Ontario.

Table 3 also shows that, the larger the establishment size of the firm, the greater the unionization rate of employees, which is consistent with Schnabel's (2013) finding. The male unionization rate in the establishments with less than 20 employees is 12.4 percentage points lower than the one in the establishments with 20 to 99 employees, 21.9 percentage points lower than that in the establishments with 100 to 500 employees, and 32.6 percentage point lower than that in the establishment with more than 500 employees. The female unionization rate in the establishments with less than 20 employees is 21.1 percentage point lower than the one in establishments with 20 to 99 employees, 28.7 percentage point lower than the one in establishments with 100 to 500 employees, and 43 percentage point lower than the one in establishments with more than 500 employees.

5.2 Results of the Wage Regressions

Table 5 shows the regression results for hourly wages by gender with various sets of controls. In columns (1) and (5), the log of hourly wage is regressed on immigrant status only. In columns (2) and (6), I add

union status and the interactions between immigration and union status. In columns (3) and (7), age, education level, province, marital status, establishment size, and survey month are added. Finally, occupation and industry controls are added in columns (4) and (8).

From column (1) and (5), I can observe that new immigrant males and females both have lower hourly wage than the native-born (13.7 percent lower for males and 20.6 percent lower for female). The hourly wage for old immigrant females is 3.1 percent lower than that of native-born. However, the hourly wage for old immigrant males is 0.9 percent higher than that of native-born. This result is consistent with the conclusion made by Chiswick (1978) and many others that immigrants who have been in the host country for a long time have higher wages than recent immigrants and sometimes than native-born. However, after adding age, education level, province, marital status, establishment size, and survey month controls, the hourly wages of old immigrant males are 10.3 percent lower than those of native-born males. A likely explanation is that the immigrants have higher levels of education than the native-born, and high education levels bring high wages. When the education levels are controlled for, the wages of old immigrants become lower than those of native-born.

After adding union status and the interaction between immigration and union status, columns (2) and (6) show that for male or female old immigrants, new immigrants and the native-born, joining a union has a positive impact on wages. But the extent of the impact is smaller for immigrants. Reitz and Verma (2004) found that joining union has a positive effect on employees and this is consistent with my result. Because they focused on racial minorities instead of immigration status, they also concluded that the wage impact of union membership for some racial minorities is higher than that for European-origin workers. For native-born males, union members' hourly wages are 16 percent higher than those of non-union employees.

And the hourly wages for union native-born females are 28.1 percent higher than non-union native-born females. Doiron and Riddell (1994) also found that the union impact for females is higher than for males. The negative signs of the interactions between immigration status and union status mean that the positive effect of union on hourly wage is smaller for immigrants than for native-born. For males, the wage impact of union membership is 10.8 percent lower for new immigrants than for the native-born, and it is 4.2 percent lower for old immigrants than for native-born. For females, the wage impact of union is 5.2 percent lower for new immigrants than for native-born, and it is 5.9 percent lower for old immigrants than for native-born. So, the hourly wage for union new immigrant males is 5.2 (16 - 10.8) percent higher than non-union new immigrant males. And for new immigrant females, union members' hourly wages are 22.9 (28.1 - 5.2) percent higher than those of non-union employees. Similarly, the hourly wage for union old immigrant males are 11.8 (16 - 4.2) percent higher than non-union old immigrant males. And for old immigrant females, union members' hourly wages are 22.2 (28.1 - 5.9) percent higher than non-union employees.

However, after adding human capital controls, the impact of unions on wages becomes smaller and the union impact differences between native-born and old immigrants and new immigrants become smaller as well. From columns (4) and (8), I can observe that native-born males with union membership have 9.2 percent higher hourly wage than non-union native-born males. Similarly, the hourly wages for union native-born females become 9.9 percent higher than those of non-union native-born females. The impact difference of union between native-born and old immigrants becomes no more than one percentage. The hourly wage for union old immigrant males is 8.2 (9.2 - 1) percent higher than non-union old immigrant males; the hourly wage for union old immigrant females are 9.5 (9.9 - 0.4) percent higher than non-union old immigrant females (insignificant difference). And the union impact on wages for new immigrants

becomes about 5 percent less than the union impact for the native-born. The hourly wage for union new immigrant males is 3.2 (9.2 - 6) percent higher than non-union new immigrant males; the hourly wage for union new immigrant females are 8.2 (9.9 - 1.7) percent higher than non-union new immigrant females.

Next, the differences in hourly wages between immigrants and native-born after joining the union can be found through all columns except (1) and (5). From columns (2) and (6), I get the result without any human capital controls. For male new immigrants, non-union male new immigrants' hourly wages are 9.8 percent lower than those of non-union male native-born. As the hourly wages for union new immigrant males are 5.2 percent higher than those of non-union new immigrant males, if male new immigrants join the union but male native-born do not, the hourly wage gap becomes 4.6 (9.8 - 5.2) percent. However, if both male new immigrants and native-born join the union, their wage gap becomes larger. Because the hourly wages gap between male new immigrants and native-born is 9.8 percent, and the wage impact of union is 10.8 percent lower for male new immigrants than for male native-born. The total hourly wage gap become 20.6 (9.8 + 10.8) percent if both male new immigrants and male native-born join union. For female new immigrants, the hourly wages of joining a union change even more. The hourly wages of female new immigrants before joining the union are 15.3 percent lower than those of non-union female native-born. After the female new immigrants join the union, their hourly wages are 22.9 percent higher than those of non-union female new immigrants. So, the hourly wages of female new immigrants are 7.6 (22.9 - 15.3) percent higher than that of non-union female native-born. However, the hourly wages of union female new immigrants are 20.5 (15.3 + 5.2) percent lower than those of union female native-born. Because the wage impact of union is 5.2 percent lower for new immigrants than for native-born, this should be added to the initial wage gap between female non-union native-born and immigrants. For old immigrants, non-union males and females have higher hourly wages than non-union male native-born (2.9 percent higher

for males, 0.2 percent higher for females). After old immigrants join a union, their hourly wages are much higher than the non-union native-born. As the hourly wage for union old immigrant males are 11.8 percent higher than non-union old immigrant males and for old immigrant females, union members' hourly wages are 22.2 percent higher than non-union employees. So, union old immigrant males' wages are 14.7 (2.9 + 11.8) higher than those of non-union male native-born, and union old immigrant females' wages are 22.4 (0.2 + 22.2) higher than non-union female native-born's. But the wage gaps between unionized old immigrants and native-born become totally different. As the wage impacts of union are lower for old immigrants than for native-born (4.2 percent lower for males, 5.9 percent lower for females), unionized old immigrants' wages are 1.3 (4.2 - 2.9) percent lower than those of native-born for males and 5.7 (5.9 - 0.2) percent lower for females. So, I can conclude that joining a union for immigrants can decrease their wage gaps with non-unionized native-born but increase their wage gaps with unionized native-born.

Looking at the other variables, Table 5 shows that higher education levels bring higher wages. Controlling for other human capital characteristics, males with degrees above bachelor have 30.6 percent higher hourly wages than those of males with 0 to 8 years education. For females, the hourly wages of the employees with degrees above bachelor are significantly 35.8 percent higher than those of the employees with 0 to 8 years education.

The wage differentials of employees in different provinces are not particularly large relative to the effect of education. The wages for male employees in the Atlantic provinces are 14.5 percent lower than those in Ontario, and female employees in those provinces are 13.6 percent lower than female employees in Ontario. The wages for employees in Quebec are also lower than those in Ontario as well (8.4 percent lower for males, 8.8 percent lower for females). However, in Alberta, the male wages are 16.5 percent

higher than those of the males in Ontario, and the female wages are 10.7 percent higher than those of the females in Ontario. The wage differences of employees in other provinces and employees in Ontario are very small, less than 10 percent.

Finally, I find that the larger the size of the establishment in which employees work, the higher their hourly wages. For males, their hourly wages are 23.8 percent higher if they work for the establishments with more than 500 employees instead of the establishments with less than 20 employees. And the hourly wages of females are 26.2 percent higher for the establishments with more than 500 employees than for the establishments with less than 20 employees.

5.3 Result of Separate Wage Regressions by Immigration Status

Table 6 shows the regression results of hourly wage separately for the native-born, the old immigrants and the new immigrants. Males and Females are pooled in this table. Column (1) and (2) present the regression results for native-born, column (3) and (4) are the regression results for old immigrants, and column (5) and (6) are the regression results for new immigrants. For each group, the left column includes controls without industry and occupation, and the right column includes all the controls. The addition of the controls does not change the results of hourly wage very much.

From this table, I can find that joining a union increases wage for all the groups. Moreover, the degrees of influence on the wages of native-born, old immigrant and new immigrant are very close after joining the union. After adding all the controls, the wages of union native-born are 9.2 percent higher than those of non-union native-born. For old immigrants, the wage of an individual with union membership is 9.9 percent higher than the one of an individual without union membership. Similarly, union new immigrants'

wages are 8.5 percent higher than non-union new immigrants. This finding is consistent with the results of Table 5.

The conclusion that highly educated people have higher returns can also be derived from this table. This is true whether they are native-born, old immigrants or new immigrants. After adding all human controls, the hourly wages of native-born with a degree above bachelor is 37.7 percent higher than that of native-born with only 0 to 8 years education. For old immigrants with degree above bachelor, it is 27.2 percent higher, and for new immigrants, it is 20.3 percent. Consequently, the new immigrants benefit less from high levels of education than the other two groups. This is perhaps because degrees received in foreign countries are less valued in the Canadian labour market than degrees received in Canada.

For all the three groups of native-born, old immigrants and new immigrants, the wage gaps between different provinces are less than 15 percent compared to the reference group of Ontario after adding all human capital controls. Employees in Alberta have relative higher hourly wages. For the native-born, workers' wages in Alberta are 13.5 percent higher than those in Ontario. For old immigrants, workers' wages in Alberta are 9.7 percent higher than those in Ontario. And for new immigrants, workers' wages in Alberta are 5.4 percent higher than those in Ontario. Therefore, the new immigrants benefit less from living in Alberta than the other two groups. However, the wages in Atlantic Canada and in Quebec are lower than those in Ontario. Immigrant employees in Prairies also have relatively lower hourly wages than those in Ontario (6.9 percent lower for old immigrants, 10.9 percent lower for new immigrants).

Finally, from Table 6, the bigger the establishment size, the higher the hourly wages of the employees. This is true whether the employees are native-born, old immigrants or new immigrants. After adding all

the controls, the hourly wages of native-born who work in a large size firm are 18.8 percent higher than those in a small size firm. For old immigrants, employees working in a large size firm have 22 percent higher hourly wages than that in a small size firm. And for new immigrants, the hourly wages for employees in a large size firm are 19.4 percent higher than that in a small size firm. The effect of establishment size is about the same for all the three groups.

6. Conclusion

This paper uses microdata from the Labour Force Survey from November 2017 to October 2018 to compare the unionization rates among native-born, old immigrants and new immigrants, and to examine whether joining a union will affect the wage differences between immigrants and native-born. There are two types of linear regressions that are estimated by OLS. The first is on union status. The second one is on log hourly wage. Various characteristics that may influence union status and hourly wage are added sequentially in each regression as control variables.

Several interesting conclusions are found through this empirical research. For unionization rates among people with different immigration status, both old immigrants' and new immigrants' unionization rates are lower than those of the native-born, the unionization rate of the new immigrants being the lowest. Regardless of the immigration status, education has a negative effect on unionization rate of males but a positive effect on that of females. The larger the size of the firm, the larger the unionization rate. The unionization rates are the lowest in Ontario and in Alberta and the highest in Quebec.

For hourly wages among people with different immigration status, I find that new immigrants' wages are lower than those of the native-born. However, immigrants who landed Canada more than 10 years have

higher hourly wages than native-born. Joining the union has positive effects on all employees no matter the immigration status. However, the positive union effect on wage is smaller for immigrants than for native-born. As a whole, joining a union can reduce the wage gaps between union immigrants and non-union native-born but raise the wage gaps between union immigrants and union native-born. Finally, for all employees, no matter their immigration status, higher education level leads to higher wages. Employees in Alberta have relatively higher hourly wages than in other provinces and those in large establishments have higher hourly wages than those in small establishment.

Finally, this paper has the potential problem of the endogeneity of the union status in the wage equations. Robinson (1989) concluded that people may choose their union status themselves when they choose the particular firms and sectors to work for. That is the problem of self-selection which would affect the OLS estimates in this paper.

Tables

Table 1. Summary Statistics: Means and standard deviations in brackets of some selected variables for male, female, and total

Variable	Male	Female	Total
A. Immigration Status			
New Immigrant	0.085	0.077	0.081
Old Immigrant	0.156	0.167	0.162
Non-immigrant	0.759	0.756	0.757
B. Union Status			
Union	0.294	0.340	0.317
C. Education Level			
0 to 8 years	0.015	0.008	0.011
Some High School	0.059	0.033	0.046
High School	0.204	0.164	0.184
Some Postsecondary	0.064	0.058	0.061
Postsecondary Certificate or Diploma	0.378	0.378	0.378
Bachelor's Degree	0.192	0.256	0.224
Above Bachelor's Degree	0.090	0.102	0.096
D. Region			
Atlantic	0.060	0.064	0.062
Quebec	0.241	0.233	0.237
Ontario	0.381	0.391	0.386
Prairies	0.065	0.064	0.064
Alberta	0.126	0.119	0.123
British Columbia	0.127	0.130	0.128
E. Establishment Size			
Less than 20 employees	0.299	0.322	0.311
20 to 99 employees	0.341	0.332	0.337
100 to 500 employees	0.222	0.198	0.210
More than 500 employees	0.137	0.147	0.142
F. Earnings			
Hourly wage	29.252 (13.592)	25.578 (12.1)	27.429 (13.004)
Observations	280,265	282,482	562,747

Notes. Both samples are restricted to population between 20 to 64 years old. Self-employed workers are removed

Source: Labour Force Survey, October 2017 to November 2018.

Table 2. Percent Unionized, by Immigration Status and Gender

	Male	Female
	Percent	Percent
New Immigrant	24.45	25.79
(<i>N</i>)	(4,669)	(4,544)
Old Immigrant	28.57	34.6
(<i>N</i>)	(8,090)	(10,279)
Non-Immigrant	32.81	38.89
(<i>N</i>)	(76,390)	(91,444)
Total	31.81	37.62
(<i>N</i>)	(89,149)	(106,267)

Source: Labour Force Survey, October 2017 to November 2018.

Table 3. OLS Regression Results of Unionization Rate

Variables	Male (N = 280,265)			Female (N = 282,482)		
	(1)	(2)	(3)	(4)	(5)	(6)
Immigration Status (Reference: Non-Immigrant)						
New Immigrant	-0.098*** (0.00414)	-0.077*** (0.00414)	-0.043*** (0.00393)	-0.149*** (0.00424)	-0.140*** (0.00422)	-0.075*** (0.00391)
Old Immigrant	-0.062*** (0.00341)	-0.066*** (0.00344)	-0.038*** (0.00318)	-0.054*** (0.00354)	-0.072*** (0.00348)	-0.039*** (0.00308)
Education Level (Reference: 0 to 8 years)						
Some High School		-0.021** (0.0102)	-0.020** (0.00996)		0.002 (0.0126)	0.018 (0.0128)
High School		-0.002 (0.00968)	0.012 (0.00940)		0.011 (0.0118)	0.016 (0.0120)
Some Postsecondary		-0.011 (0.0103)	0.004 (0.0100)		0.025** (0.0123)	0.007 (0.0124)
Postsecondary Certificate or Diploma		0.050*** (0.00958)	0.040*** (0.00930)		0.107*** (0.0117)	0.022* (0.0119)
Bachelor's Degree		-0.034*** (0.00979)	-0.017* (0.00955)		0.139*** (0.0118)	0.023* (0.0120)
Above Bachelor's Degree		-0.013 (0.0103)	-0.047*** (0.00991)		0.145*** (0.0123)	-0.016 (0.0124)
Region (Reference: Ontario)						
Atlantic		0.0421*** (0.00307)	0.019*** (0.00280)		0.079*** (0.00302)	0.040*** (0.00264)
Quebec		0.121*** (0.00336)	0.120*** (0.00304)		0.090*** (0.00332)	0.082*** (0.00286)
Prairies		0.070*** (0.00283)	0.042*** (0.00264)		0.140*** (0.00289)	0.092*** (0.00260)
Alberta		-0.025*** (0.00334)	-0.036*** (0.00312)		0.037*** (0.00357)	0.020*** (0.00312)
British Columbia		0.050*** (0.00352)	0.040*** (0.00330)		0.076*** (0.00357)	0.059*** (0.00314)
Establishment Size (Reference: Less than 20 employees)						
20 to 99 employees		0.124*** (0.00254)	0.108*** (0.00236)		0.211*** (0.00251)	0.138*** (0.00226)
100 to 500 employees		0.219*** (0.00310)	0.193*** (0.00290)		0.287*** (0.00325)	0.223*** (0.00292)
More than 500 employees		0.326*** (0.00393)	0.251*** (0.00359)		0.430*** (0.00383)	0.285*** (0.00347)
Age Controls	No	Yes	Yes	No	Yes	Yes
Marital Status Control	No	Yes	Yes	No	Yes	Yes
Survey Month Controls	No	Yes	Yes	No	Yes	Yes
Industry Controls	No	No	Yes	No	No	Yes
Occupation Controls	No	No	Yes	No	No	Yes
Constant	0.312*** (0.00131)	0.0662*** (0.0106)	0.130*** (0.0108)	0.360*** (0.00136)	-0.0569*** (0.0126)	-0.00683 (0.0136)
R-squared	0.005	0.094	0.245	0.008	0.150	0.358

Notes: Robust standard errors in parentheses. All regressions are weighted. * significant at 10percent. ** significant at 5percent, *** significant at 1percent.

Table 4. Union coverage rate (by a collective agreement)

	Males		Females	
	15 years and over		15 years and over	
Geography	2017	2018	2017	2018
Canada	28.7	27.9	32.2	32.3
Newfoundland and Labrador	37	36	40.2	38.6
Prince Edward Island	24.5	25.3	37.8	38.1
Nova Scotia	26.7	26.1	33.6	33.3
New Brunswick	25.7	25.9	32.2	33.6
Quebec	38	37.8	38.7	39
Ontario	25.4	24.5	28.2	28.1
Manitoba	31	30.4	38.1	38
Saskatchewan	27.8	28	38.3	39.2
Alberta	21.3	20.4	29.1	29
British Columbia	28.1	26.7	31.3	31.4

Source: Statistics Canada. (2019, March 15). Table 14-10-0129-01 Union status by geography
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410012901>

Table 5. OLS Regression Results for Hourly Wage with Immigration Status. By Gender

Variables	Male (N = 280,265)				Female (N = 282,482)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Immigration Status (Reference: Non-Immigrant)								
New Immigrant	-0.137*** (0.00465)	-0.098*** (0.00550)	-0.235*** (0.00497)	-0.183*** (0.00425)	-0.206*** (0.00427)	-0.153*** (0.00483)	-0.266*** (0.00450)	-0.197*** (0.00401)
Old Immigrant	0.009** (0.00365)	0.029*** (0.00443)	-0.103*** (0.00389)	-0.090*** (0.00345)	-0.031*** (0.00335)	0.002 (0.00410)	-0.112*** (0.00361)	-0.087*** (0.00320)
Union Status								
New Immigrant*Union		-0.108*** (0.00992)	-0.086*** (0.00922)	-0.060*** (0.00789)		-0.052*** (0.00971)	-0.012 (0.00890)	-0.017** (0.00797)
Old Immigrant*Union		-0.042*** (0.00742)	-0.026*** (0.00675)	-0.010* (0.00585)		-0.059*** (0.00666)	-0.011* (0.00589)	-0.004 (0.00526)
Education Level (Reference: 0 to 8 years)								
Some High School			0.027*** (0.00817)	0.035*** (0.00730)			0.042*** (0.00908)	0.021** (0.00829)
High School			0.076*** (0.00777)	0.077*** (0.00692)			0.144*** (0.00838)	0.074*** (0.00773)
Some Postsecondary			0.084*** (0.00832)	0.081*** (0.00743)			0.169*** (0.00885)	0.078*** (0.00815)
Postsecondary Certificate or Diploma			0.217*** (0.00765)	0.164*** (0.00684)			0.283*** (0.00829)	0.130*** (0.00772)
Bachelor's Degree			0.364*** (0.00798)	0.244*** (0.00723)			0.484*** (0.00845)	0.273*** (0.00789)
Above Bachelor's Degree			0.467*** (0.00856)	0.306*** (0.00787)			0.608*** (0.00891)	0.358*** (0.00835)
Region (Reference: Ontario)								
Atlantic			-0.145*** (0.00273)	-0.136*** (0.00241)			-0.136*** (0.00248)	-0.123*** (0.00218)
Quebec			-0.084*** (0.00282)	-0.074*** (0.00251)			-0.088*** (0.00259)	-0.079*** (0.00231)
Prairies			0.008*** (0.00256)	0.006*** (0.00229)			-0.034*** (0.00237)	-0.038*** (0.00211)
Alberta			0.165*** (0.00321)	0.142*** (0.00289)			0.107*** (0.00302)	0.098*** (0.00271)
British Columbia			0.057*** (0.00327)	0.051*** (0.00292)			0.0002 (0.00304)	0.004 (0.00270)
Establishment Size (Reference: Less than 20 employees)								
20 to 99 employees			0.060*** (0.00248)	0.059*** (0.00223)			0.076*** (0.00226)	0.064*** (0.00204)
100 to 500 employees			0.136*** (0.00290)	0.110*** (0.00265)			0.148*** (0.00279)	0.127*** (0.00254)
More than 500 employees			0.238*** (0.00347)	0.186*** (0.00322)			0.262*** (0.00327)	0.205*** (0.00299)
Age Controls	No	No	Yes	Yes	No	No	Yes	Yes
Marital Status Control	No	No	Yes	Yes	No	No	Yes	Yes
Survey Month Controls	No	No	Yes	Yes	No	No	Yes	Yes

	No	No	No	Yes	No	No	No	Yes
Industry Controls								
Occupation Controls	No	No	No	Yes	No	No	No	Yes
Constant	3.284*** (0.00129)	3.235*** (0.00164)	2.728*** (0.00876)	2.700*** (0.00815)	3.163*** (0.00126)	3.062*** (0.00161)	2.524*** (0.00917)	2.521*** (0.00904)
R-squared	0.007	0.030	0.303	0.452	0.016	0.100	0.364	0.501

Notes: Robust standard errors in parentheses. All regressions are weighted. * significant at 10percent. ** significant at 5percent, *** significant at 1percent.

Table 6. OLS Regression Results of Hourly Wage. By Immigration Status

	Native-Born (N = 468,006)		Old Immigrant (N = 58,028)		New Immigrant (N = 36,713)	
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Union	0.117*** (0.00164)	0.092*** (0.00170)	0.103*** (0.00448)	0.099*** (0.00465)	0.088*** (0.00670)	0.085*** (0.00636)
Female	-0.165*** (0.00147)	-0.129*** (0.00163)	-0.167*** (0.00400)	-0.131*** (0.00400)	-0.182*** (0.00539)	-0.129*** (0.00522)
Education Level (Reference: 0 to 8 years)						
Some High School	0.037*** (0.00717)	0.038*** (0.00638)	0.037** (0.0151)	0.037*** (0.0136)	-0.028 (0.0206)	-0.017 (0.0176)
High School	0.105*** (0.00686)	0.092*** (0.00609)	0.078*** (0.0126)	0.041*** (0.0116)	0.063*** (0.0185)	0.055*** (0.0153)
Some Postsecondary	0.119*** (0.00720)	0.098*** (0.00641)	0.107*** (0.0147)	0.040*** (0.0134)	0.038* (0.0197)	0.033** (0.0166)
Postsecondary Certificate or Diploma	0.247*** (0.00679)	0.171*** (0.00604)	0.238*** (0.0124)	0.115*** (0.0115)	0.156*** (0.0178)	0.079*** (0.0148)
Bachelor's Degree	0.440*** (0.00701)	0.304*** (0.00631)	0.392*** (0.0127)	0.197*** (0.0118)	0.276*** (0.0179)	0.131*** (0.0150)
Above Bachelor's Degree	0.546*** (0.00743)	0.377*** (0.00678)	0.527*** (0.0135)	0.272*** (0.0127)	0.407*** (0.0186)	0.203*** (0.0158)
Region (Reference: Ontario)						
Atlantic	-0.144*** (0.00194)	-0.133*** (0.00172)	-0.019** (0.00933)	-0.060*** (0.00842)	0.022** (0.0110)	-0.012 (0.00941)
Quebec	-0.078*** (0.00205)	-0.071*** (0.00184)	-0.106*** (0.00609)	-0.088*** (0.00545)	-0.121*** (0.00841)	-0.104*** (0.00726)
Prairies	0.018*** (0.00194)	0.007*** (0.00175)	-0.092*** (0.00515)	-0.069*** (0.00458)	-0.157*** (0.00601)	-0.109*** (0.00512)
Alberta	0.158*** (0.00248)	0.135*** (0.00226)	0.099*** (0.00611)	0.097*** (0.00539)	0.034*** (0.00760)	0.054*** (0.00638)
British Columbia	0.038*** (0.00249)	0.033*** (0.00223)	0.004 (0.00563)	0.015*** (0.00506)	0.009 (0.00836)	0.013* (0.00722)
Establishment Size (Reference: Less than 20 employees)						
20 to 99 employees	0.064*** (0.00181)	0.059*** (0.00164)	0.092*** (0.00518)	0.073*** (0.00461)	0.077*** (0.00635)	0.065*** (0.00558)
100 to 500 employees	0.136*** (0.00218)	0.115*** (0.00201)	0.152*** (0.00570)	0.115*** (0.00521)	0.184*** (0.00784)	0.148*** (0.00688)
More than 500 employees	0.239*** (0.00257)	0.188*** (0.00240)	0.293*** (0.00659)	0.220*** (0.00605)	0.267*** (0.0103)	0.194*** (0.00913)
Age Controls	Yes	Yes	Yes	Yes	Yes	Yes
Marital Status Control	Yes	Yes	Yes	Yes	Yes	Yes
Survey Month Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Controls	No	Yes	No	Yes	No	Yes
Occupation Controls	No	Yes	No	Yes	No	Yes
Constant	2.683*** (0.00746)	2.701*** (0.00705)	2.705*** (0.0154)	2.635*** (0.0146)	2.713*** (0.0214)	2.618*** (0.0185)
R-squared	0.364	0.491	0.286	0.451	0.259	0.459

Notes: Robust standard errors in parentheses. All regressions are weighted. * significant at 10percent. ** significant at 5percent, *** significant at 1 percent.

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