The Labour Market Performance of Immigrant and Canadian-born Workers by Age Groups

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Major paper presented to the Department of Economics of the University of Ottawa in partial fulfillment of the requirements of the M.A. Degree

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ECO6999

December 2015

Ottawa, Ontario

Abstract

With data from the 2011 National Household Survey, this study uses wages and employment status as labour market outcomes to examine the relative economic performances of young, middle-aged and older native-born Canadians and immigrants. Males and females are studied separately. The aim is to identify the elements that can influence individuals' labour market behaviour, as well as any differences in labour market outcomes between immigrants and Canadian-born citizens. Demographic, geographic, education, language ability, job-related and immigration characteristics are taken into account in the models. The results show that immigrants earn less than Canadian-born citizens among all age groups, and that this earnings gap is larger for middle-aged workers than for the other two age groups. Also, young and middle-aged immigrants are less likely to be employed than Canadian-born citizens, while the opposite is true for older workers. Finally, the results of a Oaxaca decomposition indicate that a higher proportion of the wage differentials between immigrants and Canadian-born citizens is explained for the middle-aged group than for the other age groups.

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1. Introduction

Canada is a geographically large country with a relatively small population density. Since Canada has been experiencing a decline in its birthrate, it needs to attract immigrants from other countries to stabilize its labour force. Therefore, immigration has become the most important component of the growth of the Canadian labour force, and Canada is now one of the major immigrant destination countries in the world. Throughout Canadian history, immigrants have influenced the economy and the society in general. More and more people are willing to immigrate to Canada not only because of its good living environment, but also because of its work environment.

According to the 2011 National Household Survey, the population of immigrants in Canada was more than 6.4 million, representing more than one in five of the total population. In the period between 2006 and 2011, more than 1.2 million immigrants arrived in Canada, and the increase due to immigration was twice greater than the natural increase of the Canadian-born population (Statistics Canada 2011). In this paper, I focus on immigrants in different age groups and compare their labour market outcomes to those of the Canadian-born citizens in the same age groups.

Using data from the 2011 National Household Survey Public Use Microdata File, the sample of this study includes respondents aged between 20 and 64 years old. Three age groups are defined as follows: the younger workers (aged 20 to 34), the middle-aged workers (aged 35 to

49), and the older workers (aged 50 to 64). Two regression analyses are presented. The first one is an ordinary least squares regression on the variables that influence a respondent's wage level, while the other regression examines such influences on a respondent's employment status. In an additional analysis, I use a Oaxaca decomposition to investigate the sources of the wage differentials between immigrants and Canadian-born citizens. I study six subgroups based on three age groups for the two genders. The regressions include demographic variables, geographic variables, education variables, language ability variables, job-related control variables and immigration variables.

The remainder of paper is organized as follows. Section 2 briefly reviews some relevant literature. In the third section I describe the data, the descriptive statistics and the methodology on my paper. The fourth section discusses the econometric models. The fifth section contains the empirical results and a discussion. The final section concludes.

2. Literature review

A large number of studies has focused on the labour market of workers of different ages. There are also many studies that have been done on the economic impact of immigration on the labour market, most of which have attempted to explain the earning differences between immigrants and native-born citizens. This review of the literature is composed of two parts: studies focusing on earning differences between different age groups, and those focusing on earning differences between immigrants and native-born citizens.

2.1 The earning difference between different age group

This section provides some elements of the literature about earning difference across different age groups. The purpose of that literature is to examine potential discrimination and other factors that affect workers of different ages in the labour market. For instance, older workers face more barriers than younger workers when looking for a job. They tend to be unemployed longer and may earn less when they find a job.

Most of the earlier studies used data from the United States. Carliner (1982) looked at older workers' wage changes over time. The main data used for that research was the U.S. National Longitudinal Survey of Older Men for six periods between 1966 and 1975. The results showed that wage rates start declining at by about one percent per year when workers reach their early fifties. Furthermore, wage rates decline at 1.6 percent per year for white men and at 2.4 percent per year for black men after age 60. In addition, wage rates for older workers with a high level of education decline more slowly than those of other older workers. Carliner concluded that relative wage rates declined with age more than the general increases in real wage levels between 1967 and 1974.

Also analyzing the United States, Wanner and McDonald (1983) showed that older workers had large declines in earnings between 1966 and 1976, a period of sizable increases in average earnings among all workers. The data were provided by the U.S. National Longitudinal Surveys of Mature Men. The authors argued that the earning differences

between younger and older workers might be associated with changing jobs. They identified three explanations as to why older workers change job. First, older workers have lower productivity since they did not upgrade their working skills. Second, older workers prefer leisure time to work time. Third, older workers accept lower levels of salary since their ability to find comparable alternative employment is quite low.

Shapiro and Sandell (1985) studied the earning situations of middle-aged and older male workers who were displaced and subsequently found new jobs. Displaced male workers over the age of 65 earned lower wages than the younger aged displaced workers. The main data for that research were taken from the U.S. National Longitudinal Surveys of Mature Men. The results showed that the earning differences between younger displaced workers and older displaced workers can be attributed to changes in occupations. The average hourly earnings for older displaced workers were 3.5 present lower than those of the previous job because older displaced workers were more likely to change occupation than younger ones when finding a new job.

Mueller, Mutran, and Boyle (1989) provided an extensive study of age discrimination in a dual economy market. The economy is structurally divided into core and periphery economic sectors. The authors found that older workers in the United States usually receive lower wages than younger workers after successfully finding a new job. Furthermore, younger workers in the labour market discriminate against older workers in the same environment.

The data were provided by the U.S. National Longitudinal Survey of the Labor Market Experience of Mature Men 1966 and 1976. The results showed that core sector older workers lose more in their retirement benefits than periphery sector older workers. Older worker in the core sector are willing to accept lower relative wages because of the other benefits that they receive in that sector. Also, core sector workers face more age discrimination because they are a threat to younger workers in the same environment.

Some studies have evaluated other aspects of age discrimination. Johnson and Neumark (1997) proposed a new approach by comparing older workers who claim that they have experienced discrimination on the job with workers who do not report such a situation. The main data were taken from the National Longitudinal Survey of Older Men covering the period 1966 to 1980. The results showed that a wage difference between young and older men of almost seven percent was reported. In addition, workers who reported experiencing age discrimination in the workplace were much more likely to separate from their employers and less likely to remain employed.

Adams (2004) argued that the age discrimination legislation that was introduced in the 1960s increased employment for older workers in the United States. Furthermore, there was some evidence of age discrimination in the labour market. For example, younger workers are promoted more easily than older workers. The main data used for this research were taken from the annual demographic files of the CPS for the period 1964 to 1967. The author chose

this period because there was much variation in age discrimination laws. The results show that employment declined for older workers that were not covered by any age discrimination laws. He found that older workers whose age ranges were not covered by law were more likely to keep their employment status. Adams concluded that age discrimination laws could reduce discrimination between younger workers and older workers in the labor market.

Now turning to Canada, Boudarbat, Lemieux and Riddell (2006) examined the changing process of wage inequality and the wage structure from 1980 to 2000. The main data used for that research were taken from the 2001 Census. The results show that the young workers did not do well in term of earnings from 1980 to 1995. Therefore, the wage gap between young workers and older workers increased between 1980 and 1995. After 1995, the wage gap between young workers and older workers declined. In other words, the young workers improved their position in terms of earnings during the economic expansion.

In a study on Ireland, Gannon and Munley (2009) estimated the level of explained and unexplained factors that contributed to the wage gap between younger workers and older workers. Furthermore, they noted that age discrimination may occur at the hiring stage rather than through wages. The main data used for that research were taken from the living in Ireland Survey covering the period 1994 to 2001. The results show that if policy is directed at narrowing the wage gap, the employment gap still remains. In addition, Gannon and Munley concluded that supply side policy interventions should play more important roles in policy

setting.

Morissette, Picot and Lu (2013) analyzed the changing process of Canadian workers' real wages from 1981 to 2011, concentrating on gender, age, education, industry and occupation. They pointed out that there are large differences in real wages between young and older workers. This research constructs a time series of hourly wages using the Survey of Work History (SWH) of 1981, the Survey of Union Membership (SUM) of 1984, the Labour Market Activity Survey (LMAS) for the years 1986 to 1990 and the Labour Force Survey (LFS) for the years 1997 to 2011. The results show that the average wages of older worker grew roughly 20 percentage points faster than those of young workers for the year 1981 to 1998. However, experienced young workers' wages grew faster than those of older workers.

Based on the above literature, many factors can affect the earnings of workers, such as education, marital status, geography and working weeks. Previous researchers concluded that earnings differences by age exist in the workplace. They also found that age discrimination may occur at the hiring stage rather than through wages.

2.2 The earning difference between Immigrants and Native-born citizens

There exists a substantial literature on the effect of immigration on earnings. Many immigrants when they arrive are constrained to look for work below their level of education and to receive low wages. Even when they do work that is related to their professional level,

immigrants still receive lower wages than comparable native-born citizens. The earning difference between immigrants and native-born citizens remains for a long time after the immigrants arrive.

Chiswick (1978) was the first to study the effects of Americanization on the earnings of Foreign-born men in the United States. He proposed a standard human capital earnings regression to compare wage difference between immigrants and native-born citizens. The data used for that research were taken from the U.S. Census of 1970. The research found that years of schooling and marital status differences can lead to the wage differences between immigrants and native-born citizens. The results also found that more time spent in urban areas and more labour markets experience increases immigrants' earnings. Chiswick concluded that immigrants' earning would increase with landing time.

Baker and Benjamin (1994) similarly examined the earnings of Canadian immigrants. They also compared the differences between the Canadian and U.S. immigration experiences. The data was taken from the Canadian censuses of 1971, 1981 and 1986. The result shows that the new immigrants' earnings were lower than those of previous ones. Baker and Benjamin concluded that the entry effect is large and the assimilation is fairly small for the new immigrants.

Green and Worswick (2004) highlighted that the changes in immigrants' earning patterns and

skills follow those of natives in the host economy. They compared the differences in earning profiles between native-born workers and immigrants in the 1980s and 1990s. The research is based on immigrants' administrative data, tax data and the Survey of Consumer Finances for the years 1981, 1982, and 1984-1997. The results indicate that changes in the native earning patterns in the Canadian labour market effect immigrants' earning. The authors argued that it is highly important to analyze the earnings of immigrants in the context of the life-cycle model of human capital. Thus, the results show that immigrants' earnings declined in the 1980s and 1990s due to declines in immigrant skill levels.

Skuterud and Aydemir (2005) studied the causes of immigrant wage disparities based on observable human capital characteristics. They found that immigrants are more likely to live in large cities and major geographic regions in Canada, such as Montreal, Toronto, and Vancouver. The data come from the Workplace and Employee Survey (WES) and were collected from 1991 to 2001. They exploit the rich source of information offered by employer-employee data. The results indicate that the wage gap between native-born citizens and immigrants was explained by job characteristics, establishment characteristics, region of birth and years since migration. The research was done for immigrant men and women. For immigrant men, the authors found that they need to have higher education levels and more labour market experience to get similar jobs in the same establishments as native born men. Immigrant women face large wage disadvantages, but they are not explained by lower returns on human capital and by the types of jobs that they do.

Ferrer and Riddell (2008) examined the changes of the returns to the human capital of immigrants and native-born citizens as time changes in the Canadian labour market. The main data used for that research come from the 1981, 1986, 1991 and 1996 censuses. The results show that both the immigrants and native-born citizens with a university bachelor's degree earn 15-20 percent more than individuals with a high school diploma. Furthermore, labour market experience in the immigration country is valued more than the one in the origin country. Ferrer and Riddell conclude that immigrants have lower returns to years of schooling and experience than native-born citizens.

The purpose of the study by Skuterud and Su (2010) is to explain immigrants' and native-born employees' differences in the job types and the labour force dynamics in Canada. The authors found that similarly aged and educated immigrants had lower average wages than native born workers because the quality of immigrants' jobs was lower than those of the native born workers. It is important to emphasize that high wages were determined by the quality of the workers' skills and their usage in the workplace. The main data used for that research were taken from the Canadian Labour Force Survey (LFS) from January 2006 to December 2008. The research concluded that the 1.5 percent decrease in the earnings of immigrants, in comparison with the native-born workers, occurred because of the inferior quality of their work.

Sweetman and Warman (2013) found that immigrants' earnings and employment outcomes

are correlated to immigration policy since that policy can control for the number and categories of immigrants. The main data used for that research was taken from the Longitudinal Survey of Immigrants to Canada (LSIC) for 2000 to 2001. The research shows that earnings and employment outcomes are different across immigration classes. For example, privately sponsored refugees have very good earning in the short run. In addition, the earnings advantage of economic immigrants is much better than that of the other immigration classes in the short run.

Li and Sweetman (2014) highlighted that the quality of education in different receiving countries is important. They use years of schooling to measure quantity of education attained and test scores to measure quality of education achievement. The main data used for that research were taken from pooled Canadian Censuses of 1986, 1991, 1996, and 2001 with quality measures. The quality measures include educational outcomes for 87 countries. The research concludes that the quality of education in the source country and the return to education in the receiving country are related positively, especially for men and women without children. Also, the education quality measure does not affect immigrants who arrived at a young age.

To summarize, different studies have addressed immigrants' labour market performances. There is a large wage gap between immigrants and native-born citizens. According to the previous research, factors like years since immigration, place of birth and language ability

can influence the earnings of immigrants. There are three issues that I want to study in this paper. First, I want to study the degree of age discrimination based on wage differences that older immigrants faced compared to older native-born citizens. Second, I want to study whether older immigrants face the same inequality in the job market as younger immigrants. Third, I want to use the Oaxaca (1973) method to decompose the earnings differentials between immigrants and native-born citizens by age group into explained and unexplained components.

3. Data and descriptive statistics

3.1 Data

I use the 2011 National Household Survey (NHS) Public Use Microdata File (PUMF) to examine earnings discrepancies between different age groups and between immigrants and native-born individuals. The data file contains a total of 887,012 records representing 2.7% of the underlying population. It is cross-sectional data, and the unit of observation is the individual. The population of interest contains Canadian citizens by birth, landed immigrants, and non-permanent residents. The NHS provides information on gender, marital status, education, income, immigration status, and many other population features.

3.2 Sample

Some restrictions on the sample are applied to the data used in this paper. First, the analysis focuses on individuals aged 20 to 64 who are either Canadian citizen by birth or are

immigrants. The higher age limit is 64 because the standard age for receiving the pension is 65, and most workers retire at that age. Secondly, I drop those individuals who are self-employed, unpaid family workers for both regression and those whose annual wages are less than $500 and more than $200,000 for the wage regression. The very large and very small earnings are considered as outliers. Finally, given the purpose of my research I divide the sample into three categories based on age: individuals aged 20 to 34 are the younger workers; individuals aged 25 to 49 are the middle aged workers; and individuals aged 50 to 64 are the older workers. After the restrictions, the final sample contains 384,171 observations, out of which 304,182 are native-born Canadians and 79,989 are immigrants.

The samples for the wage regression and employment regression are different. The employment regression focuses on employment status and includes individuals who either worked part time or full time during part of the year, or who did not work at all. All the 384,171 observations were used for this regression. The wage regression focuses on individuals who have a job. Only 355,374 observations were used for this regression.

3.3 Variables

The dependent variable for the wage regression is the natural logarithm of gross wages and salaries before deducting income tax, pensions and employment insurance in 2010. The sample includes only employed individuals. The dependent variable for the employment regression is the employment status during the reference week. The value 1 is for those who

had a job and the value 0 is for those who did not have a job. This employment dummy variable is taken from the information on labour market activity. The independent variables are categorized into six groups: demographic, geographic, education, language ability, job-related control variables and immigration.

The demographic variables include marital status and presence of children. Marital status is specified based on two categories: Legally married and not married (including living common law). The reference category is the not married. Apart from marital status, the presence of children might influence wages and employment status. To determine the impact of children, three dummy variables are defined: No children, Children aged 0 to 5, and Children aged 6 to 14. The reference category is the individual without any children. In general, the variables that are related to family are expected to influence the labour market outcomes, because married employees have less working time compared to unmarried ones since they might need to take care of children, especially the female employees.

The geographic variables include region and census metropolitan area (CMA). Region is divided into six categories based on the province where individuals live. I did not include Northern Canada since these regions only have a small number of residents. For the same reason, Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick are combined together to define the Atlantic Provinces, Manitoba and Saskatchewan are combined together and define the Prairies. The remaining provinces, Quebec, Ontario,

Alberta and British Columbia, are defined separately. Ontario is chosen to be the reference group. Over 80 percent of the immigrants live in Toronto, Montreal or Vancouver. As a result, I divide CMAs into five groups with other CMAs as the reference group. I put Toronto, Montreal and Vancouver separately and other small CMA together. I also combine the regions that do not belong to a CMA in one group.

The education variable is divided into five categories. Table 1 shows that there are 13 educational attainment levels in the codebook that are combined into five categories: No Certificate, High school diploma, Postsecondary below Bachelor degree, Bachelor degree, and Postsecondary above Bachelor degree.

Table 1 Groupings of education categories

Variables	**Highest certificate, degree or diploma**
No certificate, diploma or degree	No certificate, diploma or degree
High school diploma	High school diploma or equivalent
	Trades certificate or diploma (other than apprenticeship)
	Registered Apprenticeship certificate
Postsecondary below Bachelor degree	College, CEGEP or other non-university certificate or diploma from a program of 3 months to less than 1 year
	College, CEGEP or other non-university certificate or diploma from a program of 1 year to 2 years
	College, CEGEP or other non-university certificate or diploma from a program of more than 2 years
	University certificate or diploma below bachelor level
Bachelor degree	Bachelor degree
Postsecondary above Bachelor degree	University certificate or diploma above bachelor level
	Degree in medicine, dentistry, veterinary, medicine or optometry
	Master's degree
	Earned doctorate degree

Language ability is divided into two categories based on the ability of individuals to conduct

a conversation in one or both of the official languages. The individuals who can conduct conversations in one or both official languages in Canada are expected to be more successful in the labour market. The individuals who speak at least one of the Canadian official languages have a value that is equal to 1 for this variable, and those who can speak neither have a value that is equal to 0.

The job-related variables include weeks' worked and full-time or part-time status in 2010. I take the natural logarithm of weeks' worked in the regression. These variables are related to wages for all workers in the sample.

The immigration variables include years since migration and place of birth. Years since migration represent the number of years that immigrants have been in Canada. Chiswick (1978) suggested that the longer the immigrants stay in a country, the more experience and country-specific skills they can gain. Year since migration is defined as a continuous variable in the regression and is calculated as the difference between 2010 and the exact year of migration.

Places of birth are classified by continent. Here I dropped the few immigrants who were born in Canada and the native-born Canadians who were born in a foreign country. I also dropped "Oceania" and "others" in the regression since these places only have a small number of immigrants. Table 2 presents the groupings of the different places of birth. Canada is chosen

to be the reference group. Within the table, the large immigration countries of the United States, the United Kingdom, China, India and the Philippines are listed separately, while the other countries are grouped.

Table 2 Groupings of places of birth

Variables	Place of birth
United States	United States
Other America	Central America
	Jamaica
	Other Caribbean and Bermuda
	South America
United Kingdom	United Kingdom
Other Europe	Germany
	Other Northern and Western Europe
	Poland
	Other Eastern Europe
	Italy
	Portugal
	Other Southern Europe
Africa	Eastern Africa
	Northern Africa
	Other Africa
China	China
Philippines	Philippines
India	India
Other Asia	West Central Asia and the Middle East
	Hong Kong, Special Administrative Region
	Other Eastern Asia
	Other Southern Asia
	Pakistan
	Other Southern Asia

3.4 Descriptive statistics

Table 3 provides the mean values of the variables for all individuals. They are cross-tabulated by gender and immigrant status. The proportion of immigrants is 20.3%. The average

earnings for female immigrants are about $37,200 and for Canadian-born citizens are about $ 38,700, indicating that Canadian-born women earn 4.2% more than immigrant women. The average earnings for male immigrants are $50,200 and for Canadian-born citizens they are $52,000, with Canadian-born men earning 3.5% more than immigrant men.

Table 3

Means of the variables for both genders crossed by immigration status

Summary statistics:				
Variables	**Female**		**Male**	
	Immigrant	**Canadian born**	**Immigrant**	**Canadian born**
A. Earnings				
Wages	37,213	38,776	50,179	52,016
Lnwages	10.175	10.228	10.499	10.552
Demographic variables				
B. Marital status				
Legally married	0.643	0.438	0.688	0.434
C. Presence of children				
No Children	0.520	0.524	0.480	0.512
Children aged 0 to 5	0.018	0.024	0.029	0.029
Children aged 6 to 14	0.255	0.199	0.260	0.181
Geographical variables				
D. Province/Regions				
Atlantic	0.004	0.086	0.006	0.085
Quebec	0.135	0.273	0.151	0.277
Ontario	0.558	0.343	0.545	0.334
Prairies	0.028	0.071	0.031	0.069
Alberta	0.096	0.112	0.104	0.120
British Columbia	0.179	0.114	0.163	0.115
E. Census Metropolitan Area				
Montreal	0.129	0.123	0.143	0.117
Toronto	0.449	0.107	0.433	0.102
Vancouver	0.156	0.051	0.144	0.051
Small CMA	0.221	0.373	0.235	0.371
Non-CMA regions	0.045	0.346	0.046	0.358
Education variables				
F. Education attainment				
No certificate, diploma or degree	0.085	0.068	0.097	0.113

High school diploma	0.205	0.249	0.204	0.263
Postsecondary below Bachelor degree	0.337	0.407	0.315	0.423
Bachelor degree	0.236	0.196	0.214	0.141
Postsecondary above Bachelor degree	0.137	0.080	0.170	0.060
Language ability variables				
G. Knowledge of official language				
English or French	0.966	1.000	0.970	1.000
Neither	0.034	0.000	0.030	0.000
Job-related control variables				
H. Full time or Part time status				
Full time	0.787	0.766	0.903	0.902
I. Number of weeks worked				
Weeks worked	43.007	43.611	44.403	44.325
Ln weeks worked	3.672	3.695	3.723	3.724
Immigration variables				
J. Year since migration				
Year since migration	19.749	0.000	19.382	0.000
K. Place of birth				
United States	0.031	0.000	0.026	0.000
Other America	0.138	0.000	0.126	0.000
United Kingdom	0.063	0.000	0.065	0.000
Other Europe	0.182	0.000	0.187	0.000
Africa	0.065	0.000	0.083	0.000
China	0.088	0.000	0.080	0.000
Philippines	0.112	0.000	0.081	0.000
India	0.094	0.000	0.097	0.000
Other Asia	0.220	0.000	0.247	0.000
Observations	36,099	142,184	36,164	140,927

Notes: All values are weighted by NHS provided weights.

Table 3 also shows that over two-thirds of immigrants are legally married. For Canadian-born citizens that figure is 25.4 percentage points lower for males and 20.4 percentage points lower for females. The proportion of males and females who work in full-time jobs are 90.3% and 77.7% respectively. Women are more likely to have part-time jobs than men for both the immigrants and the Canadian-born citizens. Half of the women have at least one child. For both genders, 55.1% of immigrants reside in Ontario, and almost 31.4% of them live in

Quebec or British Columbia. In contrast, 27.5% of the Canadian-born citizens live in Quebec, 11.5% of them live in British Columbia, 34.4% reside in Ontario, while the remainders live in the other provinces. Toronto and Vancouver are the major metropolitan areas where 57.7% of immigrants live. Almost half of the immigrants in the sample come from Asia, especially China, the Philippines and India. Europe is the second largest immigration area, accounting for almost 24.5% of immigrants. A small numbers of immigrants come from the U.S.

Language ability and educational attainment can be used to measure the individuals' ability in the labour market. For language ability, almost 97% of immigrants and a full 100% of Canadian-born citizens can speak at least one official language. For educational attainment, a high proportion of immigrant women have educational attainment above a bachelor's degree. In contrast, only 8% of Canadian-born women attained post-secondary education above Bachelors' degree level, and 19.6% of them obtained Bachelors' degree. There are 40.7% and 24.9% of women who attained postsecondary education below Bachelor degree and high school diploma, respectively. For males, the pattern of educational attainment for immigrants compared to Canadian-born is similar. Therefore, we can conclude that the education level of immigrants is higher than that of Canadian-born citizens.

Table 4 and Table 5 present some descriptive statistics for the wages by age group, for females and males respectively. For both immigrants and Canadian-born citizens, males have higher median wages than females and the wage gaps between Canadian-born citizens and

immigrants are larger for males than for females. Middle-aged workers have the highest wages and wage gaps compared to other age groups. For females, the wage gap between middle-aged immigrants and middle-aged Canadian-born citizens is $ 5,407. For males, the wage gap between middle-aged immigrants and middle-aged Canadian-born citizens is $ 7,288. Young workers have the lowest wages and wage gaps compared to other age group. For females, the wage gap between young immigrants and young Canadian-born citizens is $ 900. For males, the wage gap between young immigrants and young Canadian-born citizens is $ 2,224. The wage gap is lower for young workers than for the other age groups. The results suggest that it is easier for young immigrants receive a wage that is close to the one of Canadian-born citizens.

Table 4 Descriptive statistics for female wages

Variables	Young		Middle-aged		Older	
	Immigrants	Canadian born	Immigrants	Canadian born	Immigrants	Canadian born
Number of individuals	9,366	55,573	15,388	49,901	11,345	40,710
Group median wage	$27,384	$28,284	$40,227	$45,634	$41,240	$43,664
Difference	$900		$5,407		$2,424	

Table 5 Descriptive statistics for male wages

Variables	Young		Middle-aged		Older	
	Immigrants	Canadian born	Immigrants	Canadian born	Immigrants	Canadian born
Number of individuals	9,150	53,494	15,343	48,207	11,671	39,226
Group median wage	$34,781	$37,005	$55,165	$62,453	$55,697	$59,662
Difference	$2,224		$7,288		$3,965	

Table 6 and Table 7 present descriptive statistics for employment status, for females and

males respectively. The employment rate follows the same pattern as the wages. For both immigrants and Canadian-born citizens, males have a higher employment rate than females. Additionally, middle-aged workers have the highest employment rate. For immigrants, the employment rate is 92.9% for middle-aged males, compared to 90.0% of the middle-aged females. For Canadian-born citizens, the employment rate is 93.9% for middle-aged males, compared to 92.8% of the middle-aged females. For both genders, the difference between immigrants and Canadian-born citizens for young and middle-aged is the same. For females, the different between immigrants and Canadian-born citizens for young and middle-aged find individuals is 2.8 percentage points. There is no different between older immigrants and older Canadian-born citizens. For males, the different between immigrants and Canadian-born citizens for young and middle-aged males is very small at 0.3 percentage points. The same difference among -2.5 percentage points (meaning that the immigrants perform better) among the older workers. The gap between Canadian-born citizens and immigrants decreases as age increases.

Table 6 Descriptive statistics for female's employment status

Variables	Young		Middle-aged		Older	
	Immigrants	Canadian born	Immigrants	Canadian born	Immigrants	Canadian born
Number of individuals	10,290	54,605	16,900	53,375	12,503	43,847
Number of individuals with job	8,489	46,571	15,214	49,556	11,065	38,822
Employment rate	82.5%	85.3%	90.0%	92.8%	88.5%	88.5%
Difference	2.8%		2.8%		0%	

Table 7 Descriptive statistics for male's employment status

Variables	Young		Middle-aged		Older	
	Immigrants	Canadian born	Immigrants	Canadian born	Immigrants	Canadian born
Number of individuals	10,101	56,729	16,991	52,129	13,204	43,497
Number of individuals with job	8,631	48,633	15,778	48,559	11,934	38,234
Employment rate	85.4%	85.7%	92.9%	93.2%	90.4 %	87.9%
Difference	0.3%		0.3%		-2.5%	

4. Econometric models

I estimate two models in this paper for males and females separately. The first econometric model is used to estimate wage differentials between immigrants and Canadian-born citizens, for different age group separately. The wage model takes the following form:

$$\text{lnwage} = \alpha_0 + \alpha_1 X_w + \mathcal{E}$$

Where lnwage is natural logarithm of wages and salaries, and X_w is a vector of independent variables, which includes the variables discussed above of marital status, presence of children, region, education, language ability, full time or part time employment status, weeks worked, years since migration and place of birth. α_0 is a constant and α_1 is a vector of corresponding coefficients. $\mathcal{E}$ is an error term that includes all the other factors that affect the natural logarithm of wages and salaries.

In the second model, I estimate the probability of being employed for immigrants and Canadian born citizens, for different age group separately. I use the linear probability model since the dependent variable is a dummy variable. The employment status model takes the following form:

$$\text{Employment} = \beta_0 + \beta_1 X_e + \mu$$

where Employment is a dummy variable taking the value of one if an individual is employed and the value of zero if not employed. X_e is a vector of independent variables, which includes marital status, presence of children, region, education, language ability, years since migration and place of birth. β_0 is a constant and β_1 is a vector of corresponding coefficients. μ is an error term which includes all the other factors that affect employment status.

In an additional analysis, I estimate the causes of the wage gap between immigrants and Canadian-born citizens through a Oaxaca decomposition, based on the wage regressions for different age group separately. Two separate regressions are run for immigrants and Canadian-born citizens:

$$\text{lnwage}_{wi} = \gamma_{wi} + \alpha_{wi}\text{X}_{wi} + \varepsilon_{wi}$$

$$\text{lnwage}_{wc} = \gamma_{wc} + \alpha_{wc}\text{X}_{wc} + \varepsilon_{wc}$$

Where X_{wi} is the matrix of explanatory variables for immigrants. X_{wc} is the matrix of explanatory variables for Canadian-born citizens. Both X_{wi} and X_{wc} has the same vector of independent variables as X_w, with the exception of the immigration variables. The Oaxaca decomposition for the average natural logarithmic wage differential between immigrants and Canadian-born citizens is written as follows:

$$\overline{Lnwage_{wi}} - \overline{Lnwage_{wc}} = [(\widehat{\gamma_{wi}} - \widehat{\gamma_{wc}}) + (\widehat{\alpha_{wi}} - \widehat{\alpha_{wc}})\,\overline{X_{wc}}] + \widehat{\alpha_{wi}}(\overline{X_{wi}} - \overline{X_{wc}})$$

The bars above the variables represent their average sample values. The wage differentials between immigrants and Canadian-born citizens are decomposed between an unexplained

component $[(\widehat{\gamma_{wi}} - \widehat{\gamma_{wc}}) + (\widehat{\alpha_{wi}} - \widehat{\alpha_{wc}})\,\overline{X_{wc}}]$ and an explained component $\widehat{\alpha_{wi}}(\overline{X_{wi}} - \overline{X_{wc}})$. The unexplained component represents the effects of the differences in the regression coefficients between immigrants and Canadian-born citizens on the wage differential. The explained component represents the differences in characteristics between immigrants and Canadian-born citizens in the explanation of wage differential.

5. Regression analysis

5.1 Wage regressions

Table 8 shows the ordinary least squares regression result on log wages, for each of the three age groups, for males and females respectively. It also includes robust standard errors.

Table 8

OLS results of lnwage for three age groups and for females and males.

	Female			Male		
	Young	**Middle-aged**	**Older**	**Young**	**Middle-aged**	**Older**
Wages and salaries per year (log value)						
Demographic variables						
A. Marital status (Reference: Not married)						
Legally married	0.204***	0.047***	0.030***	0.304***	0.165***	0.138***
	(0.008)	(0.006)	(0.007)	(0.008)	(0.007)	(0.008)
B. Presence of child (Reference: No children)						
Children aged 0 to 5	-0.094***	-0.114***	1.317***	0.136***	0.016	-0.136
	(0.018)	(0.024)	(0.025)	(0.014)	(0.014)	(0.106)
Children aged 6 to 14	-0.016	-0.024***	0.006	0.054***	0.061***	0.035***
	(0.010)	(0.006)	(0.016)	(0.012)	(0.006)	(0.013)
Geographical variables						
C. Province/Regions (Reference: Ontario)						
Atlantic	-0.065***	-0.127***	-0.171***	-0.062***	-0.183***	-0.153***
	(0.015)	(0.012)	(0.014)	(0.015)	(0.014)	(0.016)
Quebec	0.018	-0.090***	-0.116***	0.007	-0.128***	-0.125***
	(0.012)	(0.011)	(0.011)	(0.011)	(0.010)	(0.012)

Prairies	0.053***	-0.021	-0.028	0.106***	-0.065***	-0.016
	(0.014)	(0.015)	(0.014)	(0.014)	(0.013)	(0.015)
Alberta	0.187***	0.117***	0.108***	0.302***	0.176***	0.184***
	(0.012)	(0.012)	(0.013)	(0.011)	(0.011)	(0.013)
British Columbia	0.009	-0.004	-0.003	0.080***	-0.018	0.032***
	(0.017)	(0.015)	(0.016)	(0.015)	(0.015)	(0.016)
D. Census Metropolitan Area (Reference: Small CMA)						
Montreal	-0.016	0.026***	0.027***	-0.003***	0.042***	0.037***
	(0.013)	(0.012)	(0.013)	(0.012)	(0.012)	(0.014)
Toronto	0.062***	0.059***	0.059***	0.073***	0.024***	0.037***
	(0.012)	(0.010)	(0.012)	(0.011)	(0.010)	(0.013)
Vancouver	0.052***	0.015***	0.006	0.011	0.056***	-0.007
	(0.020)	(0.019)	(0.020)	(0.018)	(0.018)	(0.020)
Non-CMA regions	-0.028***	-0.102***	-0.110***	0.050***	-0.045***	-0.071***
	(0.009)	(0.008)	(0.009)	(0.008)	(0.008)	(0.009)
Education variables						
E. Education attainment (Reference: High school diploma)						
No certificate, diploma or degree	-0.136***	-0.206***	-0.208***	-0.077***	-0.116***	-0.127***
	(0.018)	(0.014)	(0.012)	(0.013)	(0.013)	(0.012)
Postsecondary below Bachelor degree	0.214***	0.185***	0.173***	0.218***	0.158***	0.131***
	(0.009)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)
Bachelor degree	0.446***	0.514***	0.462***	0.316***	0.395***	0.364***
	(0.009)	(0.009)	(0.011)	(0.010)	(0.009)	(0.012)
Post secondary above Bachelor degree	0.542***	0.620***	0.633***	0.376***	0.490***	0.457***
	(0.013)	(0.012)	(0.013)	(0.015)	(0.011)	(0.013)
Language ability variables						
F. Knowledge of official language (Reference: Neither)						
English or French	0.027	0.093***	0.096***	0.091	0.105***	0.148***
	(0.076)	(0.041)	(0.034)	(0.067)	(0.044)	(0.036)
Job-related control variables						
G. Full time or Part time status						
Full time	0.749	0.781	0.799	0.855	0.964	0.998
	(0.008)	(0.010)	(0.010)	(0.010)	(0.020)	(0.018)
H. Number of weeks worked						
Ln weeks worked	0.734***	0.771***	0.736***	0.798***	0.764***	0.704***
	(0.008)	(0.012)	(0.012)	(0.009)	(0.015)	(0.013)
Immigration variables						
I. Year since migration						
Year since migration	0.019***	0.013***	0.008***	0.014***	0.012***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
J. Place of birth (Reference: Canada)						
US	-0.356***	-0.355***	-0.336***	-0.225***	-0.414***	-0.358***

	(0.060)	(0.036)	(0.042)	(0.057)	(0.033)	(0.047)
Other_America	-0.400***	-0.458***	-0.381***	-0.344***	-0.504***	-0.481***
	(0.029)	(0.021)	(0.026)	(0.029)	(0.020)	(0.027)
UK	-0.188***	-0.392***	-0.308***	-0.206***	-0.307***	-0.266***
	(0.049)	(0.030)	(0.033)	(0.048)	(0.027)	(0.031)
Other_Europe	-0.328***	-0.425***	-0.389***	-0.248***	-0.398***	-0.407***
	(0.027)	(0.021)	(0.028)	(0.027)	(0.019)	(0.028)
Africa	-0.381***	-0.439***	-0.368***	-0.280***	-0.529***	-0.384***
	(0.032)	(0.027)	(0.036)	(0.027)	(0.022)	(0.031)
China	-0.335***	-0.557***	-0.512***	-0.390***	-0.610***	-0.636***
	(0.030)	(0.021)	(0.034)	(0.039)	(0.022)	(0.033)
Philippines	-0.318***	-0.500***	-0.422***	-0.360***	-0.618***	-0.602***
	(0.029)	(0.020)	(0.024)	(0.028)	(0.021)	(0.026)
India	-0.440***	-0.593***	-0.534***	-0.361***	-0.581***	-0.498***
	(0.026)	(0.022)	(0.035)	(0.026)	(0.022)	(0.029)
Other_Asia	-0.412***	-0.564***	-0.466***	-0.340***	-0.603***	-0.518***
	(0.024)	(0.020)	(0.024)	(0.022)	(0.018)	(0.022)
Constant	0.204***	0.047***	0.03***	0.304***	0.165***	0.138***
	(0.081)	(0.061)	(0.056)	(0.073)	(0.071)	(0.060)
R Squared	0.4758	0.435	0.443	0.486	0.366	0.373
Observations	60,939	65,289	52,055	62,644	63,550	50,897

Notes: Robust standard errors are in brackets underneath. *significant at 10%, **significant at 5%, ***significant at 1%.

For the demographic variable of marital status, there exist significant differences between individuals who are married and those who are not for both genders. Being married is positively related to wages, especially for young age individuals. Young married female and male workers earn respectively 20.4 percent and 30.4 percent more, than their unmarried counterparts. Also, young married workers earn relatively more, compared to the unmarried ones, than the married workers in the other two age groups. For female middle and old age workers, being married brings a small increase in wages. For males, the wage premiums due to marriage are higher than those of females. It might be the case that young workers,

especially males, are more motivated to advance in their career and earn more wages since they need money to establish their families. With respect to the presence of children, having a child aged 0 to 5 has a positive effect on the earnings of young and middle age men, but not for the older men, where the negative effect on the wages of old workers is not statistically significant. However, having a child aged 0 to 5 has a negative effect on the wages of young and middle-aged women. The result shows that having a child aged 0 to 5 tends to decrease young and middle-aged women's wage respectively by 9.4 percent and 11.4 percent, but this negative effect becomes smaller when the child grows up. The observed results might be explained by the fact that female workers usually put more energy on family to take care of the child and to deal with family affairs than male workers. As the child grows up, female workers have more time to return to devote to work.

In terms of the geographic variables, workers have higher wages in Alberta than in the reference province of Ontario, and this is true especially for the younger age group. The observed results might be explained by the fact that Alberta is rich in natural resources. Middle-aged workers and older workers have higher wages in Ontario than in all the other provinces except Alberta. Young workers perform relatively better in Quebec, the Prairies, Alberta and British Columbia. Relatively to individuals living in small census metropolitan areas, the wages for all age groups workers are higher in the metropolitan areas. Residents of Toronto in all the age groups earn around 5 percent more than residents in the small metropolitan areas. As the largest metropolitan area, Toronto provides better employment

opportunities and living environments to its residents. In addition, new immigrants prefer to set up their home and business in Toronto because they can easily find the same social and cultural network there. The estimated coefficients of Montreal and Vancouver are not statistical significant which indicate a higher mobility for those two areas.

With respect to the education variables, workers who have an education attainment above a high school certificate receive higher wages for all the age groups, while those without any certificate perform poorly. Middle-aged female workers with a bachelor's degree earn 51.4 percent more than those with only a high-school certificate. Furthermore, middle-aged female workers with a post-secondary degree above bachelor's degree earn 62 percent more than those with only a high-school certificate. In the case of middle-aged male workers, those whose educational attainment is at bachelor's degree and above the bachelor's degree earn 39.5 percent and 49 percent more, respectively, than those with only a high-school diploma. The results show that female workers received more benefit from higher education than male workers. Compared to the other age groups, middle-aged workers have the highest returns to university education. Compared to those who have a high school diploma, middle-aged female and male workers with bachelor's degrees have earnings that are respectively 6.8 percentage points and 7.9 percentage points higher than those of their young counterparts. Similarly, middle-aged women and men with bachelor's degree have earnings that are respectively 5.2 percentage points and 3.1 percentage points more than their older counterparts, compared to those with a high school diploma.

For the language ability variables, young female workers who know English or French, or both of the official languages, earn 2.7 percent more than those women who do not speak either language. Furthermore, young male workers who know English or French, or both of them earn 9.1 percent more than those men who do not speak either language. The results show that workers of all ages who know English or French earn higher wages in Canada. Also, language ability is more important for young male workers than for the young female workers, perhaps because young female workers need to put more time on family affairs. Middle-aged and older female workers who know English or French earn respectively 6.8 percent and 7.9 percent more than young counterparts and the similar result for male. This suggests that when people get older, language ability becomes more important in the labour market.

With respect to job-related variables, women and men who work full-time earn between 75 percent and 100 percent more than those working part-time for all age group individuals and this positive effect becomes stronger as individuals become older. The estimated coefficients of weeks worked indicate that working time has a positive effect on the wage. On average, a one percent increase in the number of weeks worked increases the wage by more than 0.7 percent for both female and males. For both genders, the effect of working time on young age and middle age men's wages is larger than that on older age men's wages.

Immigration variables are a major focus of this study. The number of years since migration is a key determinant for immigrants' wage differentials. For young workers, a one year increase in the number of years since migration increases the wage by 1.9 percent for women and 1.4 percent for men. The number of years since migration also has a similar effect for middle-aged and older workers. The explanation is that immigrants adapt to the labour market as time goes on. For older immigrants, a one year increase in the number of years since migration increases the wage by 0.8 percent for both genders, indicating a decreasing effect of that variable with age.

With respect to the place of birth dummy variables, the reference category is Canada. For all the age groups, the estimated coefficients for all the places of birth are negative, which indicates that there is a strong negative gap between immigrants and Canadian-born citizens at the time of the entry of the immigrants to Canada. Specifically middle-aged male immigrants from Asian countries with a large population such as China, the Philippines and India, earn substantial low wages at entry. The gaps are 61 percent, 61.8 percent and 58.1 percent respectively. An interesting case is that the young male immigrants from Africa who perform better than those from other developing countries, with a gap of only 28 percent when compare to native born. Immigrants from the United States, the United Kingdom and other European areas face a relatively low wage gap at entry, especially the young male

immigrants. Young male immigrants from those areas have respectively 22.5 percent, 20.6 percent, 24.8 percent lower wages at entry than their Canadian-born counterparts. The observed result might be expected since the languages, cultures and education systems of the United States, the United Kingdom and some other European areas are very similar to those of Canada.

Compared to the other age groups, middle-aged immigrants face higher wage gaps for both genders. For middle-aged female immigrants from the United Kingdom and the United States, the gaps in real wages compared to Canadian-born citizens are 35.5 percent and 39.2 percent respectively. For middle-aged female immigrants from China and India, the gaps in real wages compared to Canadian-born citizens are 55.7 percent and 59.3 percent respectively. The results for the middle-aged male immigrants are similar and show that middle-aged immigrants from developed countries face a lower wages gaps than those from developing countries. For older immigrants, the estimated coefficients for both genders are lower than those of young immigrants. It is possible that the young immigrants have higher learning ability than the older immigrants. Also, this gap from developed countries is smaller than the gap from developing countries. One interesting result is that there is no gap between different age groups for females from the United States, all of them having a gap in real wages compared to Canadian-born citizens are around 35 percent.

To summarize, the main findings of this analysis are: 1) Young married women and men earn more than their counterparts in the other two age groups. 2) Different geographic locations in Canada lead to important wage gaps. 3) Workers with higher education attachment earn more, especially middle-aged women compare to those with lower education. 4) Language ability is very important in getting well-paid jobs, especially for older workers. 5) Young immigrants receive more benefit from the time spent in Canada than older immigrants. 6) Middle-aged male immigrants from large Asian countries earn substantially lower wages at entry than their Canadian-born counterparts. 7) Young immigrants from most countries face greater gaps than older immigrants. Also, middle-aged immigrants face a higher decrease in wages than those in the other age groups.

5.2 Employment regressions

Table 9 shows the linear probability regression results on employment outcome, separately for each age group and for males and females, respectively, in Canada. It also includes robust standard errors.

Table 9

OLS results on employment for three age groups and for females and males

	Female			Male		
	Young	**Middle-aged**	**Older**	**Young**	**Middle-aged**	**Older**
Employed						
Demographic variables						
A. Marital status (Reference: Not married)						
Legally married	0.030***	0.011***	-0.002	0.092***	0.033***	0.020***
	(0.004)	(0.003)	(0.003)	(0.003	(0.003)	(0.003)
B. Presence of child (Reference: No children)						

Children aged 0 to 5	-0.100***	-0.066***	0.114***	0.024***	0.002	-0.049
	(0.009)	(0.010)	(0.010)	(0.005	(0.006)	(0.065)
Children aged 6 to 14	0.002	0.002	0.041***	-0.014***	0.017***	0.045***
	(0.005)	(0.002)	(0.006)	(0.005	(0.002)	(0.004)
Geographical variables						
C. Province/Regions (Reference: Ontario)						
Atlantic	-0.021***	-0.021***	-0.038***	-0.031***	-0.042***	-0.078***
	(0.008)	(0.006)	(0.008)	(0.008	(0.006)	(0.008)
Quebec	0.049***	0.023	-0.005	0.041***	0.011***	-0.014***
	(0.005)	(0.004)	(0.006)	(0.006	(0.004)	(0.006)
Prairies	0.003	0.007***	0.005	0.045***	0.004	0.010
	(0.007)	(0.005)	(0.007)	(0.006	(0.005)	(0.007)
Alberta	0.017***	-0.001***	0.014	0.050***	0.011***	0.021***
	(0.006)	(0.004)	(0.006)	(0.005	(0.004)	(0.005)
British Columbia	-0.015	-0.012***	-0.008	-0.001	-0.018***	-0.019***
	(0.009)	(0.006)	(0.007)	(0.008)	(0.006)	(0.008)
D. Large Census Metropolitan Area (Reference: Small CMA)						
Montreal	-0.023***	-0.017***	0.007	-0.018***	-0.013***	0.022***
	(0.006)	(0.004)	(0.006)	(0.006)	(0.005)	(0.007)
Toronto	-0.003	-0.004	0.014***	0.003	-0.004	0.011***
	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)
Vancouver	0.024***	0.011	0.007	0.016	0.007	0.028***
	(0.010)	(0.007)	(0.008)	(0.009)	(0.007)	(0.009)
Non-CMA regions	-0.022***	-0.015***	-0.019***	-0.018***	-0.024***	-0.031***
	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)
Education variables						
E. Education attainment (Reference: High school diploma)						
No certificate, diploma or degree	-0.048***	-0.043***	-0.022***	-0.026***	-0.048***	-0.038
	(0.009)	(0.007)	(0.006)	(0.006)	(0.005)	(0.006)
Postsecondary below Bachelor degree	0.066***	0.020***	0.022***	0.047***	0.010***	0.000
	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)
Bachelor degree	0.072***	0.037***	0.015***	0.043***	0.024***	0.005***
	(0.005)	(0.004)	(0.005)	(0.005)	(0.003)	(0.005)
Post-secondary above Bachelor degree	0.076***	0.038***	0.013***	0.040***	0.023***	0.011***
	(0.006)	(0.004)	(0.006)	(0.007)	(0.004)	(0.005)
Language ability variables						
F. Knowledge of official language (Reference: Neither)						
English or French	0.055	0.048***	0.074***	-0.043	0.021	0.077***
	(0.044)	(0.019)	(0.017)	(0.034)	(0.021)	(0.018)
Immigration variables						
G. Year since migration						
Year since migration	0.0047***	0.0024***	0.0004	0.0031***	0.0019***	0.0001

	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
H. Place of birth (Reference: Canada)						
US	-0.122***	-0.054***	-0.026	-0.055***	-0.065***	-0.011
	(0.028)	(0.012)	(0.017)	(0.024)	(0.014)	(0.019)
Other_America	-0.089***	-0.082***	-0.020	-0.029***	-0.058***	0.004
	(0.013)	(0.008)	(0.011)	(0.011)	(0.008)	(0.010)
UK	-0.064***	-0.082***	-0.016	-0.037	-0.058***	-0.007
	(0.029)	(0.012)	(0.014)	(0.021)	(0.009)	(0.013)
Other_Europe	-0.096***	-0.061***	-0.014	-0.052***	-0.048***	0.012
	(0.013)	(0.008)	(0.011)	(0.011)	(0.007)	(0.009)
Africa	-0.136***	-0.077***	-0.013	-0.106***	-0.084***	0.010
	(0.016)	(0.010)	(0.015)	(0.015)	(0.009)	(0.012)
China	-0.094***	-0.079***	-0.030	-0.113***	-0.069***	-0.001
	(0.014)	(0.009)	(0.016)	(0.017)	(0.008)	(0.014)
Philippines	-0.024***	-0.038***	-0.010	-0.034***	-0.038***	-0.013
	(0.011)	(0.007)	(0.010)	(0.012)	(0.007)	(0.011)
India	-0.076***	-0.082***	-0.075***	-0.043***	-0.045***	-0.013
	(0.013)	(0.009)	(0.015)	(0.011)	(0.007)	(0.011)
Other_Asia	-0.124***	-0.093***	-0.029***	-0.073***	-0.060***	-0.005
	(0.011)	(0.008)	(0.010)	(0.010)	(0.006)	(0.008)
Constant	0.748***	0.861***	0.812***	0.851***	0.894***	0.810
	(0.044)	(0.019)	(0.018)	(0.034)	(0.021)	(0.019)
R Squared	0.023	0.014	0.008	0.026	0.021	0.018
Observations	64,895	70,275	56,350	66,830	69,120	56,701

Notes: Robust standard errors are in brackets underneath. *significant at 10%, **significant at 5%, ***significant at 1%.

With respect to marital status, for both genders, workers who are married are more likely to be employed than those who are not married, especially the young workers. Young married female and male workers are respectively three percentage points and 9.2 percentage points more likely to be employed than their unmarried counterparts. Also, compared to the other two age groups, marital status has more impact on employment for the young workers. For the presence of children, having a child aged 0 to 5 has a negative effect on having a job for young female workers, but a positive effect for young male workers. The results show that

young female workers with a child aged 0 to 5 are 10 percentage points less likely to be employed than those with no children. When the children are older, the opportunity to have a job for young female workers returns to a normal level.

Regarding geographic variables, for all the age groups, those in the Atlantic Provinces and British Columbia experience a relatively lower employment rate than the reference province of Ontario; this is true especially for older workers who suffer a 7.8 percentage points and a 1.9 percentage points decrease in their employment rate for those two regions respectively. Among the young workers, males are more likely to be employed in Quebec, the Prairies and Alberta. However, middle-aged and older workers in those areas have almost the same employment rate as those in Ontario. Compared to the other small census metropolitan area, the employment rate for young and middle-aged workers in Montreal is lower. The results show that young and middle-aged residents in Montreal have between a 1.3 percentage points to a 2.3 percentage points lower probability to have a job than those in the small census metropolitan areas. This may be related to the bilingual natural of the Montreal labour market. However, the estimated coefficients of the employment rates for all age groups for individuals living in Toronto and Vancouver are not statistically significant. Compared to the other age groups, older workers are more likely to be employed in the large census metropolitan area than in the small ones, perhaps because they have access to more social networks.

In terms of education variables, all the estimated coefficients of individuals who have an educational attainment above a high school certificate are positive and statistically significant, and this positive effect becomes larger when the individuals improve their educational attainment. This is similar to wage equation. Compared to other age groups, young workers, especially females, receive more benefits from higher educational attainments. Young female workers with bachelor's degree and post-secondary degree above bachelor's degree are respectively 7.2 percentage points and 7.6 percentage points more likely to be employed than those with only a high-school certificate. However, having a bachelor's degree and post-secondary degree above bachelor's degree makes the young male workers respectively 4.3 percentage points and 4.0 percentage points more likely to experience employment than those with only a high-school certificate. As was the case for wages, female workers benefit more from their education than male workers in their employment prospects.

With respect to language ability variables, the in estimated coefficients are not statistically significant for young workers. It may be because young workers are more likely to do physical work which requires low technical content and little communication skills, especially for male workers. Immigrants account for one fifth of the labour force in Canada's labour market, and most of the individuals who have no knowledge of English or French are immigrants. The enclave labour market can raise the likelihood for young immigrants to find

jobs with their mother tongue. For the older workers, the situation is similar as the one described earlier. Female worker who know English or French, or both of these official languages, are 7.4 percentage points more likely to be employed than those who do not speak either language. Furthermore, male workers who know English or French are 7.7 percentage points more likely to be employed than those who do not speak either language. For both genders, the estimated coefficient of older workers is larger than the one of the other age groups perhaps indicating that when people get older, language ability is more important in the labour market.

Looking at the immigration variables, increases in years since migration do not significantly augment the chance of getting jobs for older immigrant. I also test whether the place of birth of a typical respondent has an effect on employment rate at the time of entry in Canada. I find similar results to those that I reported on the wage regressions. All of the estimated coefficients for places of birth are negative, which indicates that there is a gap in employment opportunities for immigrants compared to Canadian-born individuals. For older immigrants, most of the estimated coefficients for both genders are not statistically significant. For the other two age groups, immigrants from the Philippines bear the highest probability to find a job. Young female and male workers from the Philippines are respectively 2.4 percentage points and 3.4 percentage points less likely to be employed than their Canadian-born counterparts. Furthermore, middle-aged female and male workers from the Philippines are 3.8 percentage points less likely to be employed than their Canadian-born counterparts. It is

likely that immigrants from the Philippines have good language ability and most of them properly meet the working requirement of Canadian labour market.

In conclusion, the key findings in this section are: 1) Young married workers are more likely to be employed, compared to the Canadian born, than the ones in the other two age groups. 2) Older workers are more likely to be employed in the large census metropolitan area. 3) Young workers receive more benefit from education than the other age groups. 4) Language ability is very important for older workers to get a job. 5) Canadian-born workers have a higher probability of having a job than immigrants for all age groups. 6) Immigrants from the Philippines are more likely to be employed than those from other developing countries.

5.3 Oaxaca decomposition

Table 10 shows the Oaxaca decomposition results on the wage differentials between immigrants and Canadian-born citizens, for each age group individually and by gender. The variables in the regressions are grouped to show the combined effects of the different categories of factors. Specifically, marital status and the presence of child are combined as demographic. Provinces and census metropolitan area are combined as geographical. Education attainments are combined as education. Full time or part time status and number of weeks worked are combined as job related. The results decompose the wage differentials into a portion which can be explained by differences in the values of the independent variables

and a portion which is due to differences in the coefficients of those variables. A positive sign for an element of the decomposition indicates that the variables in question favour Canadian-born citizens and thereby increase the wage differentials. Similarly, a negative sign indicates factors in favour immigrants that reduce the wage differentials.

Table 10

Oaxaca decomposition of log wage differentials between immigrants and Canadian born citizens, by age group

	Female			Male		
	Young	**Middle**	**Older**	**Young**	**Middle-aged**	**Older**
Difference	0.077	0.157	0.052	0.107	0.176	0.081
Total explained part of differential	-0.023	0.040	-0.037	0.004	0.020	-0.009
Due to:						
Demographic	-0.003	0.012	0.004	-0.025	-0.004	-0.003
Geographical	-0.026	0.012	-0.023	0.018	0.030	0.033
Education	-0.035	-0.029	-0.017	-0.042	-0.056	-0.042
Language_ability	0.001	0.008	0.016	0.002	0.006	0.016
Job_related	0.040	0.037	-0.017	0.051	0.044	-0.015
Total unexplained part of differential	0.100	0.117	0.089	0.104	0.155	0.090
Due to:						
Demographic	0.045	0.063	0.045	0.039	0.105	0.087
Geographical	0.049	0.045	0.062	0.017	0.030	0.044
Education	0.027	0.043	0.024	0.010	-0.002	-0.014
Language_ability	0.539	0.177	-0.551	0.448	0.330	0.086
Job_related	0.028	-0.185	0.258	0.076	-0.382	0.029
Constant	-0.589	-0.025	0.252	-0.573	0.000	-0.142

Notes:

Demographic: Married, Child_age0_5, and Child_age6_14

Geographical: Montreal, Toronto, Vancouver, Non-CMA regions, Atlantic, Quebec, Prairies, Alberta, and British Columbia

Education: No_cert_degree, Post2nd_below_Bachelor, Bachelor, and Post2nd_above_Bachelor

Language_ability: En_Fr_Both

Job_related: Full_time, and lnWK_Weeks

Female middle-aged workers have the highest wage differential among the female age groups. The total differential is 15.7 percent. Four percentage points of the wage gap can be explained by differences in the values of the independent variables, and 11.7 percentage points are unexplained. The largest contributors to the explained part are the job-related variables, followed by the education variables. Male middle-aged workers also have the highest wage differentials among the male age groups. The total differential is 17.6 percent. Only two percentage points of the wage gap can be explained, and 15.5 percentage points is unexplained. The largest contributors to the explained part are the education variables, followed by the job-related variables. Overall, the results indicate that a higher proportion of the wage differentials between immigrants and Canadian-born citizens are explained for the middle-aged than for the other age groups. Also, less of this differential is explained for males than for females. These findings suggest that the labour market earnings disadvantage is particularly marked among middle-aged immigrants; in the other two age groups immigrants experience this earnings disadvantage to a lesser degree.

6. Summary and Conclusion

In this paper, I used data drawn from the 2011 National Household Survey to analyze factors that influence immigrants and Canadian-born citizens' labour market outcomes. Individuals included in the sample set were divided into young, middle-aged and older age groups. Two different indicators were used: wages and employment status. Additionally, the Oaxaca method was used to decompose the wage differentials between immigrants and

Canadian-born citizens. The main findings are summarized as follows:

Immigrants earn less than Canadian-born citizens for all age groups, and this earnings gap is larger for middle-aged workers than for the other two age groups. Likewise, immigrants are less likely to be employed than Canadian-born citizens among the young and middle-aged individuals. Among the older individuals, male immigrants are more likely to be employed than Canadian-born citizens.

For both genders, married individuals are more likely to find a good job and to earn more than unmarried workers, especially among the young workers. Furthermore, having a child aged 0 to 5 has the strongest negative effect on the wages and employment of young female workers.

Geographic location has different impacts on different age groups of workers in terms of wages and employment status. For example, young workers are more likely to start their careers in relatively less wealthy provinces and cities.

All age groups of workers are more likely to have a job and to earn higher wages if they have higher educational attainment; this is especially true for young female workers. Also, all age groups of immigrants who know at least one official language are more likely to be employed and to earn higher wages.

Immigrants from the Philippines face less inequality in employment status than immigrants from other Asian countries with a large population.

Finally, the decomposition of the wage differentials suggests that the explained component is low and generated mainly by job-related and education variables. Overall, the wage differentials between immigrants and Canadian-born citizens are explained to a higher degree for middle-aged than for the other age groups.

In summary, if the Canadian government wants to help immigrants adapt to their new environment, it must devise policies that take account of the factors that reduce the wage gap between immigrants and Canadian-born citizens, especially for middle-aged immigrants. The models in this paper include a relatively limited number of explanatory variable; those variables shed some light on topics for further research as well as for policy making. For instance, governments should provide better language training programs for immigrants. If governments make the right policy choices, then perhaps the immigrants will quickly adapt to their new environment.

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