A Study of the Unemployment Status of Immigrants in the Toronto Labour Market

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Abstract

Using 2006 Census data, this paper examines the performance and integration of immigrants in the Toronto labour market by focusing on one specific outcome: the unemployment rate. Demographic, human capital and immigration characteristics are taken into account in the econometric analyses of the determinants of the unemployment of immigrants. Those factors are investigated for males and females respectively to see if the influences differ by gender. This study finds that immigrants are better integrated into the Canadian labour market as the years of residence in Canada increase, and the effect is more significant for females. Furthermore, foreign-acquired credentials are an important barrier to immigrants' integration. Immigrants from different places of origin perform differently in Toronto's labour market. However, contrary to some other studies, the absence of knowledge of the official languages does not seem to affect the unemployment of both male and female immigrants in Toronto's labour market.

1. Introduction

In Canada, there are three main sub-categories of immigrants: family class (close relatives of Canadian immigrants already living in Canada), economic immigrants admitted through the Point System (skilled workers and business people), and refugees (people who are escaping persecution, torture or cruel and unusual punishment). Of particularly interest are economic immigrants who are of central importance to the labour force growth and economic stability of Canada.

As a nation with a long and rich experience of immigration, Canada has attracted large numbers of people from all over the world who were willing to migrate and reside in a new country. Between 2001 and 2006, the foreign-born population in Canada increased by 13.6 percent, while the Canadian-born increased by only 3.3 percent; in other words, immigrants accounted for roughly two-thirds of Canada's population growth between those two census years. Furthermore, population projections indicate that net immigration may become the only source of population growth by the year 2030 and that it is responsible for virtually all the net labour force growth in 2011 (Statistics Canada 2007). As such, immigration is becoming increasingly important to Canada's future economic well-being.

During the 1980s, immigration policymakers instituted a program to encourage business people and entrepreneurs, who possessed managerial skills and capital, to immigrate to Canada so as to create additional employment opportunities. Today, the goal of the immigration system is to admit skilled, young, highly educated and bilingual immigrants to build the human capital that

is needed within Canada's aging labour force.

Without surprise, there is considerable interest in how immigrants behave in the Canadian labour market as well as in the practical impact that they have on Canadian workers. A country profile of the *Migration Information Source* (Challinor 2011) stated that questions of fairness have been raised by immigrants in finding employment since there appears to be some workforce barriers in Canada's labour market, such as credential recognition, strong demand for sophisticated language skills and literacy competency, which impede access to skilled employment among some newcomers. On average, new foreign-born workers have both higher unemployment rates and lower wages than the native born, despite their higher education levels (Desjardins and Cornelson, 2001). According to 2006 census data, the national unemployment rate for the very recent immigrants who landed Canada between 2001 and 2006 was 11.5 percent, more than double the unemployment rate of 4.9 percent for the Canadian-born population. This implies that very recent immigrants have difficulty integrating into the labour market, even though they are more educated than native-born individuals. As is expected, the longer immigrants have been in Canada, the better they fare in the labour market. With respect to the impact that immigrants have on the Canadian labour market, a limited number of Canadian studies have been done which tend to find no negative effect of immigration on the domestic labour market (Dungan, Fang and Gunderson, 2012).

Putting emphasis on Toronto's labour market, this paper studies the performances and integration of the foreign-born by focusing on one specific labour market outcome: unemployment. By looking at a region rather than a country, the study benefits from the presence

of a high concentration of immigrants in a relatively small labour market (Gross, 1998). Toronto is the metropolitan area in Canada with the highest density of immigrants. The paper uses data from the Public Use Microdata File of the 2006 Canada Census. The determinants of the unemployment statuses of Canadian born and immigrants are analyzed using linear probability models.

The paper is structured as follows. After a review of the literature on the impact of immigration on the unemployment of Canadian domestic workers and on the joblessness of immigrants in Section 2, the dataset and the binary choice models for the unemployment indicators are presented in Section 3. Then, the results from the estimations are discussed in Section 4. The conclusion in Section 5 summarizes the main findings of the paper.

2. Literature review

There exists a large amount of literature on the economic impact of immigration on a host country's labour market. The vast majority of the researches paid attention to the effect of immigration on earnings, but a few of them were concerned about unemployment in the Canadian labour market as well as about the unemployment of the immigrants themselves. The literature that I summarize can be split into two parts: the impact of immigration on the unemployment of Canadian domestic workers, and the joblessness of immigrants.

2.1 The effect of immigration on Canadian unemployment

Davies (1977) used three large scale econometric models, CANDIDE, TRACE and RDX2,

to measure the short- and medium-term economic effects of immigration to Canada from 1961 to 1974. The study reported on experiments using a consistent set of demographic variables for three different levels of immigration: zero, 100,000, and 200,000 per annum. The results suggest that increases in immigration would raise the unemployment rate. Nevertheless, the author emphasized that, even if all three models predicted short term effects of immigration, he could not necessarily draw the conclusion that a lower level of immigration is preferable to a higher one in the long run.

Unlike the previous study that used large econometric models, DeVoretz (1989) estimated simple translog production functions for the economy as a whole as well as for industrial sectors where the substitution between foreign-workers and Canadian workers might potentially be high. Using data for 1981 and 1986, he found that there is no significant economy-wide labour substitution, but that there is substitution between immigrants and Canadian-born workers in sectors where the concentration of the foreign-born is already high and where a large part of the labour force is female. His results indicated that it is possible, especially in certain economic sectors, for immigration to cause unemployment among the native-born.

The Economic Council of Canada (1991) considered the relationship between immigration and unemployment based on some inter- and intra-country tests of the correlations between these two variables. They came to the conclusion that the impact of more immigration on Canadian unemployment is insignificant, particularly when the increased influx of immigrants is conducted gradually and smoothly. The Council did admit, however, that existing tests are problematic and that the issue has not been settled.

Akbari and DeVoretz (1992) analyzed the impact of immigrant workers on the employment of Canadian born workers in 125 Canadian industries. With 1980 cross-sectional data, a translog production function was specified to determine the displacement between native-born labour and foreign-born labour. The following conclusions can be drawn from their findings. First, economy-wide, the substitution of Canadian born workers by immigration in the Canadian labour market is negligible. Furthermore, this lack of displacement is invariant to the date of arrival. Second, given a combination of various economic factors, it appears that immigrants substituted for Canadian-born workers for a selected group of Canadian industries, which has two unique features: an inordinate high share of value added to capital and a greater than average foreign-born labour content relative to the total Canadian labour force.

Marr and Siklos (1994) used time series methods and Granger causality tests to evaluate the relationship between immigration and unemployment in Canada based on quarterly data for the period 1962-1990. Their results suggested that, before 1978, changes in immigration levels did not influence the unemployment rate, but that after 1978, immigration rates indeed impacted on the unemployment rate. In a subsequent study, Marr and Siklos (1995) used annual data from 1926 to 1992 to conduct not only Granger causality tests between unemployment and immigration, but also an unrestricted VAR analysis on unemployment, immigration, wages (per capita total labour income) and real GDP, to investigate the immigration-unemployment link. The Granger causality tests indicated that past unemployment did not cause inflows of immigration; however, past immigration did induce unemployment. The research also revealed that there is an inverse relationship between immigration and unemployment rate, and that the

impact of past unemployment rate on immigration is quantitatively smaller than the effect of past immigration on current level of unemployment.

In order to offer some insights into the adjustment process of a regional labour market, Gross (1997) used time-series data from 1975 to 1990 for British Columbia, a region with a high density of immigration in Canada, to study the effect of large flows of unskilled immigrants. The study revealed that unemployment increased in the short-run with growing immigration rates. However, the long-term analysis indicated that immigration and unemployment rates were negatively correlated. The permanently lowered unemployment suggested that immigrants created more jobs than they occupied. Moreover, Gross stated that the screening of immigration matters for regional unemployment and that improving the screening process could be an appropriate way to reduce unemployment. In the long-run, however, it cannot be expected to be a powerful tool to decrease unemployment. Therefore, the conclusion is that the high unemployment in British Columbia is unlikely to be caused by large inflows of less skilled immigrants. The structure of the labour market, and especially the lack of responsiveness of real wages to disequilibria, is more likely to be the explanation of persistently high unemployment.

Based on pooled Canadian data, a recent study by Dungan, Fang and Gunderson (2012) used the FOCUS model of the Canadian economy to study the influences of immigration on the Canadian labour market and on the economy as a whole. In terms of unemployment, one of the main outcomes of their study is that additional immigration virtually has no impact on the unemployment rate in the domestic labour market. The authors stated that the inflow of immigrants was adding sufficient demand for goods and services in the Canadian economy, such

that the increase in labour supply was absorbed properly by a ready market, with no disruption of the overall labour market.

Taking the above literature into consideration, it appears that the relationship between immigration and unemployment is indeterminate, as some results suggested that to a certain extent immigrants have a negative impact on unemployment, whereas others indicated that, generally, there was no evidence that immigration leads to higher unemployment in the Canadian labour market.

2.2 The unemployment of immigrants

After this review of studies on the immigration-unemployment link in the Canadian labour market, I now put emphasis on the unemployment of the immigrants themselves. As outcomes of labour market activities, unemployment and earnings of individuals are probably influenced by some common characteristics. Since there are more studies on earnings than on unemployment, this review includes researches that explored the earnings as well as the unemployment and employment of immigrant groups in Canada.

Bloom, Grenier and Gunderson (1995) combined data from the Canadian censuses of 1971, 1981 and 1986 to explore the correlation between earnings and various explanatory variables, especially year since immigration, for immigrants and Canadian born workers in the Canadian labour market. The authors concluded that it is not easy for the Canadian labour market to assimilate the more recent cohorts of immigrants, given the changing nature of such immigration. Compared to the older cohorts of immigrants, the recent cohorts face more difficulties to

integrate into the Canadian labour market. Moreover, obstacles are particularly larger for immigrant men from Asia, Africa, and Latin America than for those from Europe and the United State.

McDonald and Worswick (1997) built a unique data set by pooling 11 cross-sectional surveys spanning the years 1982 to 1993 to analyze the unemployment incidence of immigrant and non-immigrant men in Canada. They found that the unemployment rates of immigrant were higher than those of non-immigrant men over the sample years. The authors presented weighted sample means that demonstrated significant differences in a number of personal characteristics between immigrants and non-immigrants, while immigrants from successive arrival immigrant cohorts had similar personal characteristics. To be more specific, immigrants were more likely than non-immigrants to have completed a university degree or another level of postsecondary training, and they were also more likely to have spoken a language other than English or French in their childhood. With regard to immigrant cohorts, males from the recent cohorts were more educated than those from earlier cohorts, and they were more likely to speak a first language other than English or French. The two authors estimated a binary choice model over the pooled sample of immigrants and non-immigrants with a dummy variable unemployment as the dependent variable. The results suggest that immigrants experienced difficulty in finding employment and in staying employed during recessions that occur soon after their arrival in Canada. However, when they were given time to adjust to the Canadian labour market, the large unemployment levels of recent immigrants did not last over their entire careers.

Boyd and Thomas (2001) focused on the experiences of professionals in one selected

occupation: engineering. Using major field of study and labour force data from the 1996 Canadian census, the authors adopted a multinomial logit model to estimate the labour force status for men age 30 to 54 with engineering as the major field of study. Observations were classified into three groups: (1) Canadian-born; (2) permanent residents arriving at age 0 to 18; and (3) permanent residents arriving at age 28 or older. The paper concluded that immigrants who arrived at age 28 or later probably received their education outside Canada and they were assumed to hold a foreign degree. The authors found that immigrants who arrive as adults are less likely to find employment in engineering than their native-born counterparts or immigrants who arrive in Canada earlier. This implies that foreign credentials are not recognized to a certain extent and that immigrants who possess foreign-acquired education face difficulty in finding employment. For permanent resident men who immigrated between the ages of 0 to 18, the likelihood of being employed in managerial and engineering occupations is similar to the one of their Canadian-born counterparts. The findings show that the inefficiency of being employed is particularly important for individuals who have only a bachelor degree and for those who have resided in Canada less than 10 years. However, it is interesting that, for those with a master or Ph.D. degree, this phenomenon is mitigated when years of residency increase, suggesting that this group has overcome the initial difficulties.

Frenette and Morissette (2005) used pooled 1981, 1986, 1991, 1996 and 2001 Canadian census data from which individuals between 16 and 64 years old who worked full-time full-year and who had positive earnings were selected. The authors set up several control variables capturing the socioeconomics characteristics that are known to be correlated with earnings:

education, potential work experience, weeks worked, marital status, visible minority status and region. After estimating ordinary least squares earnings models for each survey year and each gender separately, they found that even after accounting for differences in the correlates of earnings, the declining entry earnings of immigrants were still large. Furthermore, it was the returns to these socioeconomics characteristics – i.e., the way they were valued by employers, which appeared to explain the decline.

Grenier and Nadeau (2011) analyzed and compared the employment rate gap between immigrants and Canadian-born individuals in the two metropolitan areas of Montreal and Toronto, using data from the 2006 Census Microdata Master File. The authors restricted the sample to working age men and women aged 18 through 64 including both immigrants and native-born cohorts who living in Montreal and Toronto. A linear probability model was chosen to estimate the relationship between the dependent variable, work status, and the explanatory variables, such as work experience, education, language, marital status, place of birth, year since immigration, that may affect the probability of working full-time full-year. It was concluded that immigrants encounter more difficulties to find employment in the Montreal labour market than in the Toronto labour market. The explanation of this result is related to language: the lack of knowledge of French and the lack of reward for knowing French in Montreal account for the lower employment rate of immigrants relative to their Canadian born counterparts. The analysis also shows that the situations regarding access to work are different for immigrants with different places of birth. Immigrants from some countries integrate better to the labour market than immigrants from other countries in both Montreal and Toronto.

Desjardins and Cornelson (2011) showed a snapshot of the more recent immigrant labour market outcomes in Canada by presenting estimates of the immigrant wage gap and excess unemployment using data from the 2006 Census Public Use Microdata Files. The authors stated that the diverse conditions of education and other relevant labour market characteristics such as age, gender, region and experience, should be taken into consideration when examining the labour market outcomes. Several figures which exhibited the outcomes of the unemployment regression were presented in the report and from which we can obviously find that the excess unemployment of immigrants appears to be higher in those metropolitan areas in Canada where the majority of immigrants reside. Regarding gender, the unemployment rate of female immigrants is higher than that of their male counterparts. In addition, the very recent immigrants who arrived in Canada in the last five years experience a higher unemployment rate than their counterparts who had been permanent residents for more than five years. Moreover, the quality of education and language skills are also potential factors that can explain the higher unemployment of immigrants.

In conclusion, immigrants, especially recent immigrants, do not do well in the labour market in Canada. Furthermore, there are various socioeconomic characteristics, such as education, year since immigration, work experience, places of birth, gender, language skill, etc., that significantly influence the unemployment of immigration cohorts in the Canadian labour market. The rest of this paper will explore further the determinants of the unemployment of immigrants in the Toronto metropolitan area.

3. Data and Methodology

The data used in this paper is drawn from the 2006 Census of Canada public use microdata. The Census of Canada, which is conducted by Statistics Canada every five years, is a detailed enumeration of the Canadian population that provides information on demographic, social and economic characteristics, and that distinguishes between immigrants and Canadian-born people. The restricted sample in the study includes males and females living in Toronto aged 25 through 64. Those ages are considered as the core of the productive life for most people. The sample excludes non-permanent residents who hold a work or study permit, or who are refugee claimants. I further restrict the sample by considering only individuals who are in the labour force, which refers to persons who are either employed or unemployed during the census reference week in 2006. Unemployed individuals are those who were not working and were available for work, and the conditions for being available to work are classified into three categories in the Census dictionary: (1) had actively looked for paid work in the past four weeks; or (2) were on temporary lay-off and expected to return to their job; or (3) had definite arrangements to start a new job in four weeks or less. Thus, individuals who are not in the labour force have been dropped out of my restricted sample. The resulting sample includes 61,311 individuals among which 53.5% are immigrants. In addition, the sample is constituted by 31,728 men and 29,583 women.

3.1 Variables

Dependent variable

For the purpose of analysis, I choose unemployment status, which is defined as a binary variable that indicates whether or not the individual was unemployed during the week prior to census day (May 16, 2006), as the dependent variable. I classify the work status as employed and unemployed using the information on labour market activity in the 2006 census.

Explanatory variables

This section provides some details on the description and construction of the crucial independent variables that are included in the regression analyses. Since earning and unemployment rate are both outcomes of labour market activities, one would expect that unemployment would be affected by some of the same factors as those that affect earnings. The earnings of individuals depend on their values as reflected in the labour market, where the values are measured by some characteristics such as education, language skill, age and so on. Similarly, these factors also determine whether someone has a job or not.

The family related variables (e.g., number and age of children at home) may influence the decision to want to work or not, especially for women. Those variables also affect the chances that a person has been offered a job. Therefore, they should be included in the regression model for unemployment. The variables of presence of children show whether the census families have specific aged children or not. In the research, I define two variables for census families with

children aged 0 to 1, and with children aged 2 to 5, and I take those with no children or with children older than 5 as the benchmark.

Considering the age variable, the 2006 census defines age in groups. I take the midpoint of each age group to get a continuous variable for age. For example, the group 25-29 is assigned 27 years of age. Furthermore, as in earnings regressions, age is considered as a predictor that is not related to the dependent variable in a perfectly linear fashion. Generally speaking, individuals tend to improve their performance from the beginning of entering the labour market through the middle ages, but there exists a peak after which there is a decline in performance. Therefore, the related variable, age squared, is added in the regression to measure whether the impact of age diminishes over time. Hence, the impact of age is expected to be negative, but less and less so as age increases.

Another demographic variable is legal marital status, for which the 2006 census distinguishes between five categories: legally married (and not separated), separated but still legally married, divorced, widowed, and never legally married. To simplify the analysis, I classify people between those who are legally married and those who are not. In addition, I choose the legally married group as the reference and the expected effect of single males would be positive since married men are considered to be more employable, while that of single females would be in other direction or not significant since marriage usually can be a handicap for women on the labour market.

There are two education variables: highest degree and attendance at school. Highest degree provides information that indicates the person's most advanced certificate, diploma or degree.

Based on the information of the 2006 census, the highest degree is defined into five categories: (1) no certificate, (2) high school graduation certificate or equivalency certificate, (3) trade, apprenticeship and college certificate, (4) university certificate or diploma, including below bachelor level, bachelor level, and (5) university certificate or diploma above bachelor level, including master's degree, doctorate degree, and medicine, density veterinary medicine or optometry. I set no certificate as the reference group. The expected effect is the more individuals are educated the less they encounter joblessness. As for attendance at school, the value 1 indicates that an individual attended school during the nine-month period between September 2005 and May 16, 2006, and the value 0 indicates that an individual did not attend school. The expected effect is that being in school would increase the probability of unemployment.

In terms of language ability, I take the variable on the knowledge of the Canadian official languages, which refers to the ability to conduct a conversation in English only, in French only, in both English and French, or in none of the official languages of Canada. Given the fact that few people in Toronto use French only, I set up two categories: (1) English, French and both English and French, and (2) none of the official language, with the former group as the benchmark. Conventionally, proficient in the official languages provides individuals with more opportunities in finding employment in the Canadian labour market.

There are four immigration variables: immigration status, years since immigration, location of study and place of birth. For the immigration status, non-permanent residents were dropped from the sample; thus a dummy variable takes the value 1 if the person is immigrant and takes the value 0 if the person is a Canadian citizen by birth. The expectation is that native-born

individuals are more likely to be employed since they enjoy strong advantages relative to immigrants, such as the proficient language ability, applicable education background and being better acquainted with the native labour market. The variable years since immigration is calculated by taking 2005 minus the year during which landed immigrant status was first granted. Many previous studies have revealed that, as time goes on, the immigrants adjust to the new circumstances and acquire more knowledge of the host country, which helps them find employment. Concerning the location of study, previous research has indicated that foreign credentials are not always fully recognized and that immigrants who possess foreign-acquired education face difficulty in finding employment (Boyd and Thomas, 2001). Thus, location of study, the variable that indicates the location where the highest degree (above the secondary school level) is obtained, is classified into two categories: within Canada and outside Canada, with the former group, including those with no postsecondary education, as the reference group. Finally, the regression includes place of birth, which is defined as a set of dummy variables, consisting of ten categories that are Canada, the U.S.A., Other America (including Central America, Jamaica, other Caribbean and Bermuda, and South America), the U.K., Other Europe (including Germany, other Northern and Western Europe, Poland, other Eastern Europe, Italy, Portugal, and other Southern Europe), Africa and Oceania (including Eastern Africa, Northern Africa, other Africa, Oceania and Others), Mainland China, India, the Philippines, and Other Asia (West Central Asia and the Middle East, Hong Kong, other Eastern Asia, other Southeast Asia, Pakistan, and other Southern Asia). In the regression analyses that include all the observations, Canada is chosen as reference. For the models that are applicable to immigrants

only, I choose Other Europe as reference. For the models that are applicable to Asian immigrants only, I choose the Philippines as reference.

3.2 Descriptive statistics

Summary statistics of selected independent variables are shown in Table 1. The sample is divided between males and females, and between Canadian born and immigrants.

Table 1. Characteristics of immigrant and Canadian-born individuals, members of the labour force aged 25 to 64, Toronto, 2006

	Canadian-born		Immigrants	
	Males	Females	Males	Females
Proportion (%)	51.16	48.84	52.56	47.74
Presence of children				
Aged 0 to 1 (%)	7.33	6.30	7.79	5.29
Aged 2 to 5 (%)	12.10	12.07	14.36	11.95
Marital status				
Single (%)	43.07	43.16	21.67	27.64
Married (%)	56.93	56.84	78.33	72.36
Knowledge of official language				
English/ French/ English and French (%)	99.94	99.90	97.05	96.35
None (%)	0.05	0.10	2.96	3.65
Attendance at school (%)	8.46	11.37	8.95	12.05
Highest degree				
No certificate (%)	8.71	5.75	11.38	10.71
High School certificate (%)	23.87	22.92	20.03	20.88
Trade/College certificate (%)	29.28	29.14	24.02	24.93
University certificate (%)	38.13	42.20	44.57	43.48
Sample size	14,581	13,921	17,147	15,662

Source: Public Use microdata from the 2006 Census

As can be seen with regard to the various characteristics, the differences between the immigrants and their domestic-born counterparts are important. This is true especially for the knowledge of the official languages, the legal marital status and the highest degree.

Canadian-born individuals, obviously, have an almost perfect command of either English or French; thus the proportion of native-born individuals who know neither English nor French is much smaller than that of immigrants, which around 3 percent. Regarding marital status, the proportions of those who are married are generally higher among immigrants than among the Canadian-born individuals. This is probably due to cultural differences: Canadian born individuals are more likely to live in common law without being legally married, but it is less so for immigrants. Because of the point system that emphasizes skills, immigrants are generally more educated than the Canadian born. For example, about 38 percent of Canadian-born men in our sample hold degrees at the bachelor level or higher, while the equivalent figure for male immigrants is about 45 percent.

Table 2 presents the distribution of immigrants by place of birth for males and females separately, as well for both genders together.

Table 2. Distribution of immigrants by place of birth (in percent), members of the labour force aged 25 to 64, Toronto, 2006

	Total	Males	Females
United States of America	1.62	1.55	1.70
Other America	16.11	14.43	17.96
United Kingdom	5.25	5.09	5.43
Other Europe	21.72	22.35	21.03
Africa/Oceania and others	5.83	5.97	5.68
China	7.42	7.22	7.64
India	10.25	10.84	9.60
Philippines	6.42	5.21	7.72
Other Asia	25.31	27.28	23.15
Sample size	32,809	17,147	15,662

Source: Public Use microdata from the 2006 Census

As can be seen, Asia accounts for a large proportion of immigrants, which is about 50 percent of the total for all the Asian countries taken together. Only a very small fraction of immigrants (1.6 percent for males and 1.7 percent for females) come from the United States of America, while the proportion of immigrants from the other parts of America is higher (14.4 percent and 18.0 percent for males and females respectively). The proportion of immigrants who come from Other Europe is about 21.7 percent, more than four times that of immigrants from the United Kingdom.

Table 3 shows the unemployment rates of Canadian-born individuals and of immigrants by place of birth for males and females separately, as well for both genders together.

Table 3. Unemployment rates of Canadian born individuals and immigrants by place of birth (in percent), Toronto, 2006

	Total	Males	Females
Canada	4.14	3.86	4.43
Immigrants	5.91	4.83	7.09
United States of America	4.89	5.66	4.12
Other America	6.03	4.65	7.25
United Kingdom	3.37	3.44	3.29
Other Europe	3.98	3.34	4.74
Africa/Oceania and others	7.48	5.96	9.22
China	8.75	8.16	9.36
India	6.66	4.73	9.04
Philippines	4.52	3.81	5.05
Other Asia	6.96	5.49	8.85

Source: Public Use microdata from the 2006 Census

It can be seen that the unemployment rate of immigrants as a whole is higher than that of the Canadian-born. Separately, the unemployment rate varies across the places of origin. Interestingly, the unemployment rate of immigrants from the United Kingdom is lower than that

of Canadian-born individuals for both males and females, and the unemployment rate of Filipino men is also smaller than that of the Canadian-born men. The possible explanation might be those individuals from these two regions are relatively highly educated and skilled. For the immigrants from China, both males and females face the highest unemployment rates among all the places of origin. There are a few surprises, such as the low unemployment rate of Indian male immigrants at 4.7 percent, while that of Indian female immigrants is 9.7 percent. This may be related to the culture and traditions in India: males are highly educated relative to their female counterparts who tend to stay at home to deal with household affairs, which induces a different performance in the labour market.

3.3 Models

Three regressions are estimated in the analysis: one for all observations, one for immigrants only, and one for Asian immigrants only, since the latter are a large proportion of total immigration and that their unemployment is high. Given that the dependent variable is dichotomous, a probit or logit regression model could have been used. In practice, a linear probability model, which is used in this analysis, is acceptable to model the unemployment indicators. I also did a probit regression on the unemployment status and found that the results were very similar to those of the linear probability model. Therefore, only the results of the linear probability model are presented here. In addition, I also did linear probability regressions for people who fully entered the labour market by excluding individuals who attended school during the nine-month period prior to the census. The results were quite similar to those presented in

this study which include the observations for individuals enrolled in school. To account for potential heteroscedasticity in the linear probability model, I use the option of robust standard errors in all the regressions.

The unemployment status for all observations and for immigrants only is expressed respectively in the following two models, where the β_i's are the OLS estimated coefficients.

Model 1 (for the whole sample)

$$\text{Unemployment} = \beta_0 + \beta_1 (\text{presence of children}) + \beta_2 (\text{age variables}) + \beta_3 (\text{gender}) + \beta_4 (\text{marital status}) + \beta_5 (\text{knowledge of official language}) + \beta_6 (\text{attendance of school}) + \beta_7 (\text{highest education}) + \beta_8 (\text{place of birth}) + \beta_9 (\text{location of study}) + \mu$$

Model 2 (for immigrants only: all immigrants and Asian immigrants respectively)

$$\text{Unemployment} = \beta_0 + \beta_1 (\text{presence of children}) + \beta_2 (\text{age variables}) + \beta_3 (\text{gender}) + \beta_4 (\text{marital status}) + \beta_5 (\text{knowledge of official language}) + \beta_6 (\text{attendance of school}) + \beta_7 (\text{highest education}) + \beta_8 (\text{place of birth}) + \beta_9 (\text{location of study}) + \beta_{10} (\text{year since immigration}) + \mu$$

Model 1 regresses the unemployment status on independent variables for both immigrants and domestic-born individuals in the restricted sample. Model 2 presents a regression for immigrants only which includes all the predictors in model 1 as well as the variable years since immigration. These two equations are estimated for males and females separately, as well as for both sexes combined.

4. Regression Analysis

4.1 Regression for the domestic-born individuals and immigrants

Table 4 presents the estimated coefficients, robust standard errors, and significance levels of the first linear probability regression model for males and females separately, as well for both genders together.

Table 4. Ordinary least squares linear probability regression of unemployment for all observations.

	Totals			Females			Males		
	Coef.	R.s.e.	Sig.	Coef.	R.s.e.	Sig.	Coef.	R.s.e.	Sig.
Presence of children *(Reference: older than 5 and no children)*									
Aged 0 to 1	0.0346	0.0045	***	0.0853	0.0087	***	0.0014	0.0043	
Aged 2 to 5	0.0041	0.0029		0.0146	0.0051	***	-0.0031	0.0033	
Age	-0.0030	0.0008	***	-0.0027	0.0012	**	-0.0020	0.0011	*
Age^2	0.00003	0.00001	***	0.00003	0.00001	*	0.00002	0.00001	*
Gender (female)	0.0153	0.0018	***						
Marital status *(Reference: married)*									
Single	0.0200	0.0022	***	0.0109	0.0030	***	0.0311	0.0031	***
Knowledge of official language *(Reference: English/French/both)*									
Neither English nor French	0.0249	0.0095	***	0.0308	0.0140	**	0.0161	0.0126	
Attendance at school	0.0235	0.0050	***	0.0262	0.0049	***	0.0247	0.0050	***

Highest degree *(Reference: no certificate)*									
High school certificate	-0.0126	0.0040	***	-0.0138	0.0063	**	-0.0114	0.0050	**
College certificate	-0.0256	0.0039	***	-0.0292	0.0062	***	-0.0227	0.0049	***
Bachelor certificate	-0.0334	0.0039	***	-0.0421	0.0062	***	-0.0256	0.0050	***
Above bachelor certificate	-0.0352	0.0043	***	-0.0433	0.0068	***	-0.0275	0.0054	***
Location of study *(Reference: within Canada)*									
Outside Canada	0.0267	0.0029	***	0.0323	0.0046	***	0.0220	0.0036	***
Place of birth *(Reference: Canada)*									
U.S.A	0.0072	0.0094		-0.0056	0.0122		0. 0197	0.0141	
Other America	0.0136	0.0035	***	0.0233	0.0053	***	0.0053	0.0046	
U.K.	-0.0079	0.0045	*	-0.0112	0.0064	*	-0.0045	0.0064	
Other Europe	-0.0047	0.0028	*	-0.0026	0.0043		-0.0066	0.0036	*
Africa/Oceania	0.0285	0.0061	***	0.0384	0.0098	***	0.01888	0.0076	**
China	0.0345	0.0062	***	0.0310	0.0092	***	0.0389	0.0083	***
India	0.0181	0.0047	***	0.0303	0.0079	***	0.0083	0.0056	
Philippines	-0.0061	0.0050		-0.0057	0.0071		-0.0036	0.0070	
Other Asia	0.0232	0.0031	***	0.0353	0.0051	***	0.0148	0.0039	***
R-squared		0.0129			0.0208			0.0111	
F-statistics		29.83			20.51			14.54	
Number of observations		61311			29583			31728	

Notes: Dependent variable is 1 if the individual is unemployed, 0 otherwise. * Significant at 10%, ** significant at 5%, *** significant at 1%.

With respect to family related variables, for both genders together, individuals with children

aged 0 to 1 are 3.5 percentage points more likely to be unemployed than those with no children or with only children older than 5, while those with children aged 2 to 5 are not different from the reference group. However, there is a difference between males and females. A female is 8.5 percentage points more likely to be unemployed if she has children aged 0 to 1, and the equivalent figure is only 1.5 percentage points for females with children aged 2 to 5. In contrast, the presence of children aged 0 to 5 has no significant effect on unemployment for males. The observed results might be explained by the fact that males usually are primary breadwinners while females have to take responsibility of taking care of children and dealing with household affairs. In terms of marital status, there exist significant differences between individuals who are legally married and those who are not for both genders. Specifically, single males and females are respectively 3.1 and 1.1 percentage points more likely to experience unemployment than their married counterparts. It might be the case that married individuals are more motivated to find employment and advance in their career, given their family responsibilities.

Considering the age variables, age and age squared both have striking effects on the likelihood of being unemployment for both genders, which is consistent with the expectation. The negative age coefficient reveals that younger individuals come across more obstacles in finding employment in Toronto's labour market; this can be explained by the fact that they lack the experience and the skills that come along with age and that may raise the likelihood of finding a job. In addition, the positive coefficient of age squared implies that these gains do not continue indefinitely, but that they instead eventually taper off. Regarding the effect of gender, females are 1.5 percentage points more likely to be unemployed than males. This is different

from other findings, as some data (like the Labour Force Survey) sometimes show higher unemployment rates for males than for females.

Turning now to the language ability indicator, the estimated coefficient is statistically significant for the sample as a whole. Nevertheless, the results are different for males and females. With regards to females, those who neither have knowledge of English nor of French are significantly less likely to be employed than those who are able to conduct a conversation in English or French. Surprisingly, however, there is no significant statistical difference between males who have knowledge of either official languages and those who lack of this language ability. The difference between males and females is perhaps because males are more likely to do physical work which requires low technical content and little communication skill. Additionally, taking the objective conditions of Toronto's labour market into consideration, immigrants account for more than half of the labour force and, obviously, the vast majority of individuals who have no knowledge of English or of French are immigrants; meanwhile, the proportion of individuals who know neither English nor French is relatively small (as shown in Table 1.). All of these conditions raise the likelihood for some male immigrants to find jobs in the enclave economy that can be fulfilled by the use only their mother tongue.

The following variables are related to education. It can be found that being in school increases unemployment propensity by about 2.5 and 2.6 percentage points for males and females respectively. This is mainly because attendance at school limits the time individuals can allocate to work. Beside school attendance, highest degree is another important educational variable of interest. Without surprise, all the estimated coefficients of highest education are

statistically significant. To be more specific, compared with individuals who have no postsecondary certificate, a person having a high school graduation or equivalent certificate is about 1.3 percentage points less likely to experience unemployment and the equivalent figures are 1.1 and 1.4 percentage points for males and females respectively; males and females having a trade, apprenticeship and college certificate are respectively about 2.3 and 2.9 percentage points less likely to be unemployed; a male having a university certificate or diploma below bachelor level, or bachelor degree, is about 2.6 percentage points less likely to encounter unemployment and the equivalent figure is 4.2 percentage points for females; and having a university certificate above bachelor degree (including master's degree, doctorate degree, and medicine, density veterinary medicine or optometry) makes a person 2.8 percentage points and 4.3 percentage points less likely to experience unemployment for males and females respectively. Apparently, having more education benefits women more than men in reducing unemployment in Toronto's labour market.

For this study, the immigration variables are very important. For individuals who get their advanced diploma outside Canada, the estimated coefficients are 0.026 for all the observations, 0.022 for males, and 0.032 for females. The positive and large coefficients indicate that individuals with a foreign-acquired degree are more likely to be unemployed. This is the result of difficulties in having their education and work experience recognized.

Of particular interest are the coefficient estimates of the places of birth. As the table shows, immigrants from the U.S.A., whether males or females, are not statistically different from the Canadian-born individuals. The observed results might be expected since the language, cultures

and education systems of the U.S.A. are very similar to those of Canada, especially in Toronto. For male immigrants from other parts of America, there is also no significant evidence of differences in being unemployed, compared to the Canadian-born workers. However, female immigrants from other America are 2.3 percentage points more likely to face unemployment. Considering Europe, male immigrants from the U.K. and female immigrants from other countries of Europe are more likely to be unemployment in different degrees at the 10% level of significance, while the rest of the immigrants from those two regions show no significant difference with their Canadian-born counterparts. Individuals with Africa, Oceania, or Other Asia as place of origin are significantly more likely to be out of work than the Canadian born. Immigrants from China are those who fare the worse, with a coefficient of 0.034. Respectively, the equivalent figures for male and female immigrants from China are 0.039 and 0.031. For immigrants from India, there is substantial and positive effect on the unemployment of females while males are not different from the reference group. An interesting case is the Philippines, for which the coefficients for both genders are not statistically significant. It is likely that immigrants from the Philippines are relatively highly educated and the vast majority of them properly meet the language requirement of Toronto's labour market.

In conclusion, the key findings in this section are: (1) females with young children and single individuals are more likely to experience unemployment ; (2) the younger the individuals are, the more likely they are to be unemployed; (3) the absence of knowledge of the official languages has no significant effect on joblessness in Toronto's labour market for males but it has for females; (4) school enrollment lowers the likelihood of being employed and the probability of

being unemployed in Toronto's labour market decreases with the level of education, with the impact being larger for females; (5) the credentials acquired outside Canada are not recognized; (6) immigrants from different places of origin perform differently in Toronto's labour market.

4.2 Regression for immigrants only

Table 5 presents the results of the regression model for the immigrants only, excluding the Canadian born.

Table 5. Ordinary least squares linear probability regression for immigrants only

	Totals			Females			Males		
	Coef.	R.s.e.	Sig.	Coef.	R.s.e.	Sig.	Coef.	R.s.e.	Sig.
Presence of children *(Reference: older than 5 and no children)*									
Aged 0 to 1	0.0362	0.0067	***	0.0925	0.0135	***	0.0060	0.0065	
Aged 2 to 5	0.0072	0.0043	*	0.0209	0.0078	***	-0.0015	0.0047	
Age	-0.0046	0.0012	***	-0.0050	0.0019	***	-0.0012	0.0015	
Age^2	0.0001	0.00001	***	0.0001	0.00002	***	0.00002	0.00002	
Gender (females)	0.0235	0.0027	***						
Marital status *(Reference: married)*									
Single	0.0174	0.0034	***	0.0048	0.0047		0.0371	0.0051	***
Knowledge of official language *(Reference: English/French/both)*									
Neither English nor French	0.0189	0.0098	*	0.0201	0.0147		0.0144	0.0131	
Attendance at school	0.0235	0.0050	***	0.0242	.0071	***	0.0248	0.0070	***

Highest degree *(Reference: no certificate)*									
High school certificate	-0.0063	0.0053		-0.0084	0.0085		-0.0046	0.0066	
College certificate	-0.0223	0.0052	***	-0.0292	0.0084	***	-0.0183	0.0065	***
Bachelor certificate	-0.0280	0.0054	***	-0.0426	0.0085	***	-0.0164	0.0068	**
Above bachelor certificate	-0.0291	0.0059	***	-0.0379	0.0096	***	-0.0218	0.0074	***
Location of study *(Reference: within Canada)*									
Outside Canada	0.0168	0.0036	***	0.0190	0.0057	***	0.0152	0.0046	***
Place of birth *(Reference: Other Europe)*									
U.S.A	0.0103	0.0096		-0.0039	0.0125		0.0244	0.0144	*
Other America	0.0133	0.0041	***	0.0203	0 .0063	***	0.0084	0.0053	
U.K.	0.0019	0.0050		0.0012	0.0072		0.0040	0.0069	
Africa/Oceania	0.0263	0.0066	***	0.0314	0. 0103	***	0.0205	0.0080	**
China	0.0279	0.0065	***	0. 0176	0. 0097	*	0.0391	0.0087	***
India	0.0130	0.0051	**	0.0179	0.0085	*	0.0100	0.0061	
Philippines	-0.0103	0.0054	*	-0.0134	0.0079	*	-0.0022	0.0073	
Other Asia	0.0194	0.0038	***	0.0259	0.0062	***	0.0161	0.0047	***
Year since immigration	-0.001	0.0001	***	-0.0016	0.0002	***	-0.0006	0.0002	***
R-squared		0.0155			0.0250			0.0117	
F-statistics		20.71			15.68			8.43	
Number of observations		32809			15662			17147	

Notes: Dependent variable is 1 if the individual is unemployed, 0 otherwise. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Taking account of the family situation variables, a female with kids aged 0 to 5 is more

likely to be out of work, while for a male the influence of presence of children is insignificant. Compared with the previous regression where Canadian born was included, the estimated coefficients of regression for the presence of children are a bit larger but differences are not significant. For example, a female immigrant with children aged 0 to 1 is 9.3 percentage points more likely to be unemployed while for female immigrants who have children aged 2 to 5 are 2.1 percentage points more likely to experience joblessness. Furthermore, similarly to the results reported in Table 4, male immigrants who are single face greater probability of joblessness than those who are married. A surprising result, however, is that single female immigrants are not different from their married counterparts.

The variables age and age squared both have significant effects on the likelihood of being unemployed; specifically, age has a negative effect which is diminishing with time since the coefficient of age squared is positive. In addition, the negative significant effect of age appears to be slightly higher for female immigrants. For gender, female immigrants are 2.4 percentage points more likely to experience unemployment, which is larger than in the regression with both immigrants and native-born, where the equivalent figure was 1.5 percentage points.

The coefficients for immigrants without knowledge of both English and French have the right positive sign, but they are not significant. This could happen for the same reasons that were noted in the first analysis.

With respect to the education indicators, attendance at school increases the likelihood of being unemployed by almost the same percentage for both male and female immigrants (about 2.5 and 2.4 percentage points respectively); this is similar to that in the previous regression. For

highest education, there is no significant evidence of difference in being out of work between immigrants who hold a high school graduation certificate or equivalency certificate and immigrants who have no postsecondary degrees. However, the consequences of the other three groups are quite similar to that of the first analysis. It is obvious that, with equivalent level of education, male immigrants face more obstacles in finding employment than their female counterparts in Toronto's labour market.

The next variables are related to immigration. Firstly, regarding the location of study, the estimated coefficients are 0.015 for male immigrants and 0.019 for female immigrants. The observed positive effects are slightly smaller than those of the regression with both native-born and immigrants. May indicated that even immigrants who studied in Canada are penalized compared to native-born. The years since immigration indicator is new variable introduced in these regressions. The coefficients -0.0016 for female immigrants and -0.0006 for male immigrants suggest that the likelihood of experiencing unemployment diminishes over time, which mirrors the findings of many previous studies on earnings. The result might be expected as the longer immigrants stay in Canada, the more they adapt to the domestic labour market. In addition, these estimated coefficients reflect that, for males, each year in Canada decreases unemployment likelihood by 0.06 percentage points; for females, each year in Canada decrease unemployment likelihood by 0.16 percentage points. That is, female immigrants benefit more from one year stay in Canada than male immigrants.

With regards to the place of birth variables, the reference category is now Other Europe. For both genders, the estimated coefficients for immigrants from Other America, Africa, China, India,

and Oceania and other regions are economically meaningful, which indicates that immigrants with those places of origin are more likely to be unemployed, in varying degrees, than immigrants from Other Europe. Moreover, there are special situations for immigrants from the United States of America, United Kingdom, and the Philippines. For immigrants from the U.S.A., there exists a significant and positive effect on likelihood of joblessness for males while there is no substantial difference for female immigrants, compared with their counterparts from Other Europe. As for the U.K., the coefficients are insignificant for both genders; in other words, the unemployment situation for immigrants from the U.K. is not different from that of the reference group. For immigrants from the Philippines, interestingly, females reported a significant and negative estimated coefficient with the value of -0.0134 at the 10% significance level; the same coefficient was not significant in the previous regression. This might be explained by the fact that taking up occupations in housekeeping, babysitting and related fields provides Philippine female immigrants with more opportunities in finding employment in Toronto's labour market.

To sum up the above analysis which is similar to previous regression to a certain degree, the salient findings are: (1) for female immigrants, the likelihood of being unemployed is not influenced by the marital status; (2) the probability of being unemployment diminishes as the years of residence in Canada increase and this effect is more important for female immigrants; (3) the absence of knowledge of the official languages does not affect the unemployment of both male and female immigrants; (4) immigrants with a high school graduation or equivalent certificate fare the same in finding employment as immigrants without a postsecondary certificate in Toronto's labour market; (5) immigrants from different places of origin perform

differently in Toronto's labour market, and it is worthy to note that only Philippine female immigrants have a better performances than their counterparts from Other Europe.

4.3 Regression for Asian immigrants only

The following model examines the unemployment status of immigrants from Asia only, which includes those from Mainland China, India, the Philippines, and Other Asia. For the new set of place of birth variables, immigrants from the Philippines, which has the lowest unemployment rate among all Asian immigrant cohorts, is chosen as the reference group.

Table 6 presents the estimated coefficients, robust standard errors, and significance levels of the regression for Asian immigrants only.

Table 6. Ordinary least squares linear probability regression for Asian immigrants

	Totals			Females			Males		
	Coef.	R.s.e.	Sig.	Coef.	R.s.e.	Sig.	Coef.	R.s.e.	Sig.
Presence of children *(Reference: older than 5 and no children)*									
Aged 0 to 1	0.0332	0.0089	***	0.0861	0.0183	***	0.0081	0.0090	
Aged 2 to 5	0.0100	0.0061	*	0.0292	0.0112	***	-0.0007	0.0066	
Age	-0.0049	0.0019	***	-0.0046	0.0029		-0.0012	0.0024	
Age^2	0.0001	0.00002	***	0.0001	0.00003	*	0.00001	0.00002	
Gender (females)	0.0305	0.0041	***						
Marital status *(Reference: married)*									
Single	0.0072	0.0056		-0.0117	0.0074		0.0360	0.0086	***

Knowledge of official language *(Reference: English/French/both)*									
Neither English nor French	0.0220	0.0119	*	0.0292	0.0179		0.0098	0.0154	
Attendance at school	0.0258	0.0072	***	0.0293	0.0107	***	0.0241	0.0095	**
Highest degree *(Reference: no certificate)*									
High school certificate	-0.0016	0.0085		-0.0110	0.0139		0.0056	0.0104	
College certificate	-0.0286	0.0089	***	-0.0390	0.0143	***	-0.0220	0.0108	**
Bachelor certificate	-0.0208	0.0087	**	-0.0369	0.0140	***	-0.0076	0.0107	
Above bachelor certificate	-0.0218	0.0094	**	-0.0237	0.0160		-0.0199	0.0112	*
Location of study *(Reference: within Canada)*									
Outside Canada	0.0137	0.0054	**	0.0103	0.0088		0.0164	0.0066	**
Place of birth *(Reference: Philippines)*									
China	0.0349	0.0076	***	0. 0232	0.0109	**	0.0418	0.0103	***
India	0.0209	0.0064	**	0.0248	0.0099	**	0.0121	0.0082	
Other Asia	0.0302	0.0055	***	0.0376	0.0082	***	0.0195	0.0074	***
Year since immigration	-0.0015	0.0003	***	-0.0024	0.0004	***	-0.0008	0.0003	***
R-squared		0.0143			0.0241			0.0100	
F-statistics		11.95			9.42			4.67	
Number of observations		16204			7536			8668	

Notes: Dependent variable is 1 if the individual is unemployed, 0 otherwise. * Significant at 10%, ** significant at 5%, *** significant at 1%.

Considering family related variables, it can be found that the effects of presence of children and marital status for Asian immigrants mirror the findings of the regression for all immigrants.

With respect to the age variables, age and age squared both have significant effects on the probability of being out of work for males and females together, which is consistent with the previous estimated results. For male immigrants and female immigrants respectively, inversely, neither of these two age variables have significant impact on the likelihood of unemployment. The results suggest that the unemployment experience is similar for all the age groups. In terms of the effect of gender, the result consistently matches that of the previous regressions: the female immigrants are more likely to be unemployed than the male immigrants.

For the language ability variable, the estimated results are similar to those of the regression for all immigrants: there is no evidence that there exists significant difference in being unemployed between those who have knowledge of either official language and those who lack of this language ability for Asian male immigrants and female immigrants respectively.

Turning now to the educational variables, the effects of attendance at school are economically meaningful for the Asian immigrants as a whole as well as for males and females separately; this is similar to the results of the previous two regressions. Another important educational variable is highest degree, of which the results are different from the previous regressions. It is obvious that Asian immigrants who hold a high school graduation certificate or equivalency certificate encounter the equivalent unemployment propensity with those who have no postsecondary degrees, which resembles the results of the second regression for all the immigrants. However, the consequences of the other three groups appear somewhat different from the previous regressions. Asian immigrants with a trade, apprenticeship and college certificate perform best in finding employment in Toronto's labour market. Specifically, having a

trade, apprenticeship and college certificate makes one about 2.2 percentage points and 3.9 percentage points less likely to be unemployed for male immigrants and for female immigrants respectively. Asian females with a university certificate or diploma below bachelor level and bachelor degree are 3.7 percentage points less likely to be out of work while this impact is not significant for their male counterparts. On the contrary, having a university certificate above bachelor degree (including master's degree, doctorate degree, and medicine, density veterinary medicine or optometry) makes one 2.0 percentage points less likely to be unemployed for Asian males, but it does not have statistically significant effect for Asian females. The situations might be explained by having a relatively high degree narrows the positions that Asian immigrants can find in Toronto's labour market. It is likely that employers prefer to hire native-born highly educated workers to fill some important positions.

The next variables are related to immigration. First of all, in terms of the location of study, there is no evidence of substantial difference between Asian female immigrants who get their advanced diploma outside Canada and those who get their advanced diploma within Canada, which is different from the previous regressions. Similarly to the previous regressions, Asian males with a foreign-acquired degree are more likely to be unemployed than their counterparts who hold a native-acquired diploma. Then, considering the year since immigration indicator, the results of this regression just mirrors that of the regression for all immigrants. Regarding the place of birth variables, the reference category is Philippines. For both genders, the estimated coefficients for immigrants from China, India, and Other Asia are statistically significant, except for Indian male immigrants.

In summary, the primary findings that differ to some extent from the previous analyses are: (1) the negative effect of age and the positive effect of age squared for males and females are no longer significant; (2) Asian immigrants who possess a trade, apprenticeship and college certificate have the lowest probability of being unemployed; (3) domestic-acquired credentials make no significant difference to Asian female immigrants in finding employment in Toronto's labour market; (4) Chinese male immigrants are the most likely to be unemployed in Toronto's labour market.

5. Conclusions

There are concerns as to how well immigrants integrate into the Canadian labour market. This paper has investigated the determinants of the unemployment of immigrants and of Canadian-born individuals in the Toronto labour market using a binary choice model. A sample was constructed based on the 2006 Census of Canada public use microdata. The empirical results can be summarized as follows.

First, generally speaking, females encounter more barriers in finding employment in Toronto's labour market. In addition, the presence of children increases the probability of unemployment for females, with female immigrants faring worse than Canadian-born women.

Second, although there is a positive effect of being single on the joblessness of individuals, the marital status does not significantly influence the likelihood of being unemployed for female immigrants.

Third, the probability of unemployment declines with age while for Asian female

immigrants and Asian male immigrants, the age effects are not significant.

Fourth, in contrast to other studies, compared to immigrants who know either English or French, immigrants who lack of knowledge of the official languages do not appear to differ in their unemployment experience. Due to the large immigrant population in Toronto, some immigrants find employment in enclaves.

Fifth, education is important to avoid joblessness for both Canadian-born and immigrant workers.

Then, the regions where credentials were obtained have substantial impact on the likelihood of better integrated into Toronto's labour market. Immigrants with foreign-acquired credentials face more seriously unemployment problems.

For immigrants, as the number of years in Canada increases, the likelihood of being out of work diminishes because more experience is obtained, language difficulties are overcome, and knowledge of the local labour market is accumulated. Additionally, female immigrants benefit more than males from the passage of time in Canada.

Last but not least, immigrants from different places of origin perform differently in the Toronto labour market. From all the places of birth, only immigrants from the U.S.A. and the Philippines do not significantly differ from the Canadian-born in the probability of being unemployed. In contrast, Asian male immigrants are more likely to be out of work. A surprising result, however, is that Philippine female immigrants are significantly less likely to be unemployed than their counterparts from Other Europe.

References

Akbari, A., & DeVoretz, D.J. (1992). The Substitutability of Foreign-born Labour in Canadian Production: Circa 1980. *Canadian Journal of Economics*, 25(3), 604-614.

Bloom, D.E., Grenier, G., & Gunderson, M. (1995). The Changing Labour Market Position of Canadian Immigrants. *Canadian Journal of Economics*, 28(4b), 987-1005.

Boyd, M., & Thomas, D. (2001). Match or Mismatch? The Employment of Immigrant Engineers in Canada's Labor Force. *Population Research and Policy Review*, 20(1/2) High-Skilled Migration, 107-133.

Challinor, A. E. (2011). Canada's Immigration Policy: a Focus on Human Capital. *Migration Information Source*. Migration Policy Institute. Retrieved from http://www.migrationinformation.org/Profiles/display.cfm?ID=853

Davies, G.W. (1977). Macroeconomic Effects of Immigration: Evidence from CANDIDE, TRACE, and RDX2. *Canadian Public Policy*, 3(3), 299-306.

DeVoretz, D.J. (1989). Immigration and Employment Effects. Institute for Research in Public Policy Discussion Paper, Ottawa.

Desjardins, D., & Cornelson, K. (2011). Immigrant Labour Market Outcomes in Canada: The Benefits of Addressing Wage and Employment Gaps. Research paper, Royal Bank of Canada.

Dungan, P., Fang, T., & Gunderson, M. (2012). Macroeconomic Impacts of Canadian Immigration: an Empirical Analysis Using the Focus Model. *British Journal of Industrial Relations*, 51(1), 174-195.

Economic Council of Canada. (1991). *Economic and Social Impacts of Immigration*. Ottawa: Supply and Services Canada.

Frenette, M., & Morissette, R. (2005). Will They Ever Converge? Earnings of Immigrant and Canadian-Born Workers over the Last Two Decades. *International Migration Review*, 39(1), 228-257.

Grenier, G., & Nadeau, S. (2011). Immigrant Access to Work in Montreal and Toronto. *Canadian Journal of Regional Science*, 34(1), 19-32.

Gross, D. (1997). Immigration Flows and regional Labor Market Dynamics. Vancouver Centre of excellence: research on Immigration and Integration on the metropolis (RIIM), October. Working paper No.97-09.

Marr, W.L., & Siklos, P.L. (1994). The Link between Immigration and Unemployment in Canada. *Journal of Policy Modeling*, 16(1), 1-26.

Marr, W.L., & Siklos, P.L. (1995). Immigration and Unemployment: A Canadian Macroeconomic perspective. In D.J. DeVoretz, eds., *Diminishing Returns: The economics of Canada's recent Immigration Policy*, 293-330. The C.D. Howe Institute Toronto and the Laurier Institution, Vancouver.

McDonald, J.T., & Worswick, C. (1997). Unemployment Incidence of Immigrant Men in Canada. *Canadian Public Policy*, 23(4), 353-373.

Statistics Canada. (2007). Study: Canada's Immigrant Labour Market. *The Daily* (September 10, 2007). Ottawa: Statistics Canada.