Language Proficiency and Earnings of Non-Official Language Mother Tongue Immigrants: The Case of Toronto, Montreal and Quebec City

By Yinghua Song

Student No. 6285600

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Supervisor: **Professor Gilles Grenier**

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Abstract

This study uses data from the 2006 Canadian Census on non-official language mother tongue immigrants over a wide range of birthplaces to examine the determinants of official language proficiency and earnings in Toronto, Montreal and Quebec City. The definition of language proficiency is based on the reported knowledge of the two official languages. The focus is on English language proficiency in Toronto and on both English and French language proficiency in Montreal and Quebec City. The results suggest that language proficiency is improved with education attainment, duration of residence, but that it is negatively correlated with age at immigration and minority language concentration. They also indicate that being bilingual in the Canadian official languages is very important for the immigrants who live in Montreal and Quebec City, while it is not necessary for those living in Toronto.

I. Introduction

One important aspect of the adjustment and adaptation process of immigrants is the acquisition of the official language (or languages) of the host country. Fluency in the official language allows the immigrants to consume, invest and produce more effectively, in accordance with the specific human resources of the destination country. By doing so, immigrants can adapt to the host country successfully and increase substantially their living standards.

There are several reasons why immigrants with high official language fluency can be more effective consumers. One of them is that they will not be confined to the enclave economy, meaning that they will be able to communicate with a greater range of retailers, read the ads and articles about the products to screen out what they need, as well as understand easily the labels and instructions of products. Thus, they can purchase goods and services at lower prices and get relatively higher utilities compared to those who are not fluent in the destination language. Furthermore, fluency in the official language of the host country can reduce the cost of training and increase the opportunities to access training, which can help the immigrants in getting skills that meet the requirements of the local labour market.

The immigrants who are fluent in the official language also have a higher productivity

in the labour market, and then they can get promoted and receive higher wages relative to members of their community who do not know the language of the host country. Meanwhile, immigrants with good language skills can acquire human resources that fit the needs of the host country's labour market more effectively.

In recent years, there has been a large body of literature on the determinants of immigrants' language proficiency of the host country. Some of those studies used census data from Canada, Australia or the United States to study the determinants of English language fluency in these three English speaking immigration countries. Chiswick and Miller (1992, 1994, 1995 and 1998) did several studies using a large number of cross-sectional data sets to examine immigrants' language fluency from relatively short residence time to long residence time in the host country.

The purpose of this paper is to use a large sample of non-official language mother tongue immigrants from the Canadian 2006 census, with a wide range of birthplaces and durations of residence, in order to study the English proficiency of immigrants living in Toronto, and the English and French proficiency of immigrants living in Montreal and Quebec City; the last two cities are combined together because of the relatively small sample size. In the second part of the analysis, the impact of official languages fluency on immigrants' earnings is studied.

Section II summarizes some the relevant earlier literature. Section III presents the theoretical framework and includes two subsections: the model that analyzes the determinants of English and French proficiency of Canadian immigrants; and the model that studies the influence of the destination language proficiency on immigrants' earnings. The 2006 census data and samples are described in section IV. Section V includes the empirical results. It presents an econometric analysis of the determinants of English fluency in Toronto, and of English and French fluency in Montreal and Quebec City. It also provides the results for the earnings regressions. Section VI is the conclusion of the paper.

II. Literature Review

Destination language ability of the migrant workers is an important part of human capital. The determinants of immigrants' language proficiency and factors that determined the earnings of immigrants, as well as the relationship between language skills and their earnings attract the attention of many researchers in the economic literature. This literature review examines the studies on the determinants of language proficiency as well as the studies on the effect of proficiency on earnings. Some studies consider both issues at the same time.

II.1 Literature on the Determinants of Immigrants' Language Proficiency

Chiswick and Miller (1992, 1995) proposed a framework according to which economic incentive, acquisition efficiency, and exposure to the language environment determine the language proficiency. Economic incentive includes the economic benefits that are expected to be obtained from becoming fluent in the language of the host country. Efficiency refers to the level of language fluency that can be reached under a certain exposure to a language, and exposure includes pre-immigration exposure to the host language, as well as the amount of time and the intensity of exposure in the destination country. This framework is discussed further in section III below.

Using that framework, Chiswick and Miller (1992) compared male immigrants aged 25 to 64 in the United States and Canada, using U.S. 1980 and Canadian 1981 census data respectively. The dominant language in the United States is English, while in Canada it is English and French. In spite of those differences, the findings on the determinants of language proficiency for both countries are remarkably similar. Immigrants who came to the destination country at an early age and had exposure to the host country's official language, as well as those who had more education and longer duration of residence, have better language proficiency.

Borjas (1995) and Gang and Zimmermann (2000) found the ethnic neighbors had a negative impact on the immigrants' educational level. Chiswick and Miller (1996) also concluded that family social networking and language concentration were

important determinants of the acquisition of immigrants' English language.

Lazear (1999) suggested that immigrants were unlikely to be able to assimilate into the local culture and learn the destination language if they lived in a place where most immigrants came from the same country. This finding was verified using the 1900 and 1990 U.S. Census data. Those immigrants who were fluent in English preferred to live in places that barely had people who spoke the same mother tongue as theirs.

A similar conclusion was reached by Chiswick and Miller (2002). They used 1990 U.S. Census data to study adult male immigrants who were from non-English speaking countries. They found that immigrants' English language abilities were reduced when the same original language groups lived together. Furthermore, the higher the degree of linguistic concentration, the worse the English language fluency was.

From that literature, it can be concluded that language proficiency is positively related to education attainment, duration of residence, and negatively related to the minority language concentration and age at immigration.

II.2 Literature on the Effect of Language Proficiency on Immigrants' Performance

Immigrants are generally concentrated in relatively few occupations and their average wages are lower than those of natives. A lot of researchers have studied that phenomenon. Among the many determinants of the earnings of immigrants, many studies have focused on language proficiency.

Language ability is a form of human capital, and its acquisition is based on the sacrifice of time and other resources. This ability can be reflected in the individuals, the productivity market, as well as the consumer market. Thus, the ability to access the destination language plays a crucial role in their success in the labor market (Chiswick and Miller 1995, Chiswick 1998).

North (1974) did interviews with employers of immigrants in the 1970s, and they mentioned that the immigrants who worked in unskilled jobs did not need to speak much English, since there is no need to speak to the machines; however, they cannot be promoted unless they speak English.

Chiswick (1978) showed that the earnings of immigrants increase rapidly after they arrive in the host country, since the accumulation of local human capital and the experience gained in the destination country are valued more than the experience obtained in the origin country.

Chiswick and Miller (1992) also studied on the determinants of immigrants'

performance in the labour market of the host country. They estimated that immigrants who can carry on a conversation in the official language in the United States and Canada receive 12 percent higher earnings than those who are not fluent in the destination language. Thus, the authors concluded that good destination language ability has a positive influence on the immigrants' success in the labour market, regardless of the existence of the different in immigration policies between the United States and Canada.

Schultz (1998), Borjas (1999) and Friedberg (1993, 2000) focused on studying how long it would take for immigrants to reach the income level of the natives. They found that the original earnings gap between immigrants and natives is reduced with the immigrants' lengths of residence in the destination country, which suggested that there exists a relationship between language proficiency and earnings.

Chiswick and Miller (2003) used 1991 Canadian census data to study the relationship between language and earnings among the adult male immigrants in Canada. They stated that the higher the fluency in the official language, the more likely one is to get a high income in the Canadian labour market. Therefore, the fact that immigrants who were not fluent in the official language in Canada had lower income can be attributed to two reasons: a direct effect of poor language fluency and a low rate of return on years of schooling and foreign work experience for those who lack language fluency.

Using 1990 U.S. Census data, Bleakley and Chin (2004) also found that English language skills have a significant positive impact on earnings of immigrants who migrated to the United States as children. However, narrowing the earnings gap with the natives through learning English may not be as effective for the adult immigrants due to the relatively lower acquisition efficiency.

Grenier and Nadeau (2011) used 2006 Canadian census data to study why the employment rate of immigrants in the Montreal's labor market was lower than that in the labour market of Toronto. They found that the main reason for the low employment rate of immigrants in Montreal was the lack of knowledge of French and economic incentive for learning French. Moreover, if the incentive for knowing French and the number of immigrants who know French were the same as their counterparts in Toronto who know English, as well as the reward for learning English, then the employment rate gap of immigrants between Toronto and Montreal would shrink.

In her M.A Major paper, Tu (2004) used the 1996 census data to study the determinants of language skills and earnings of immigrants who lived in Ontario and in Quebec. Her theoretical framework and empirical methodology was the same as Chiswick and Miller (1992), and she got a similar result to theirs.

Overall, the literature indicates that there exists a strong relationship between

destination language proficiency and the performance of immigrants in the labour market. Immigrants' earnings increase with the improvement of language proficiency.

Based on the theoretical framework and empirical methodology proposed by Chiswick and Miller (1992), and following Tu (2004), I use the 2006 census data to test the determinants of language proficiency and examine the labour market performance of immigrants who live in Toronto and in the bilingual metropolitan areas of Montreal and Quebec City.

III. Theoretical Framework

III.1 Determinants of Language Proficiency

Language ability is an important form of human capital. It contributes to an individual's productivity in the labour or consumer market. The acquisition of language skills is time consuming and costs a lot, which meets the basic requirements of the human capital.

People learn their mother tongue when they are young, and their parents pay for the costs. However, immigrants may have to pay a high cost and spend plenty of time to acquire the knowledge of the destination language, especially if there is a huge difference between their mother tongue and the official language of the host country.

As mentioned in the literature review, dominant language proficiency of immigrants can be expressed as depending on three factors: economic incentive, exposure, and efficiency (Chiswick and Miller, 1992).

Economic incentive is an important determinant of language fluency. Increases in wages, higher employment opportunities and lower consumption costs are brought by official language fluency, providing a strong economic incentive to learn it. The importance of economic incentive on language acquisition depends on the expected duration of immigration in the host country. There is less incentive to invest in learning the destination language for immigrants who have a high probability to return to their home country. In addition, older immigrants have a lower return on the investment in learning a second language since there is a relatively shorter expected residence time. Therefore, fluency in the official language of the host country is expected to be lower who came late in life.

Exposure refers to the formal instruction and training, as well as to the learning by doing, regarding the acquisition of the official language of the destination country. In addition, exposure before immigration, exposure time in the host country and its intensity are important components of that variable. Pre-immigration exposure in the target language, whether because the language is used as a *lingua franca*; or because of the presence of foreign nationals, improves the fluency in the destination language. Moreover, education in the destination language in the origin country is part of the

exposure before immigration, which may lead to a positive influence on the skills of destination language. Therefore, it is reasonable to include the place of birth in the analysis.

The other part of exposure is the time of residence in the host country, represented by the number of years since immigration. Keeping the other variables constant, there should be a positive correlation between the fluency in the destination language and years since migration. Immigrants who live in a community where many residents come from the same country of origin have a relatively low intensity of exposure since they speak more often their own mother tongue. Therefore, the more opportunities to conduct a conversation in their mother tongue, the worse the destination language fluency will be.

Efficiency refers to the level of language fluency that can be reached given a certain exposure in the destination language. It is well known that young people have a high efficiency in learning a language, but that efficiency diminishes with age. Moreover, young people have more opportunities of exposure in the host country's official language through school; therefore, they can gain fluency in the destination language more quickly than adults. In addition, the efficiency of language acquisition may increase with years of schooling, because more education leads to a better grasp of the mother tongue, and then to a higher effectiveness in learning new things. Besides, many countries have English and French as the second languages that students can

learn in the advanced grades. Therefore, one should expect that the longer the education, the higher the language fluency.

The above discussion suggests that the destination language proficiency of immigrants can be represented by the following regression model:

$$LANG = \beta_0 + \beta_1 * AAM + \beta_2 * YSM + \beta_3 * YSM^2 + \beta_4 * YOS + \beta_5 * MS + \beta_6 * MLC + \beta_7 * BOI$$

where *LANG* is a measure the destination language proficiency , *AAM* is age at immigration, *YSM* is the number of years since migration, *YOS* is the number of years of schooling, *MS* is marital status, *MLC* is minority language concentration (defined as the percentage of the population with the same mother tongue in the metropolitan area where the immigrants live), and *BOI* is the birthplace of immigrants.

The Canadian government invests plenty of money to help new immigrants learn the official languages. For instance, immigrants can learn English for free through the ESL and LINC projects, and the government of Quebec provides similar services for the learning of French. Theoretically speaking, immigrants' fluency in the official languages should be higher if there are more classes in the places where they are living. Unfortunately, there is no information on this aspect in the census data. Therefore, the absence of the data may lead to the overestimation of the influence of the years since immigration variable.

Female and male immigrants hold different characteristics with respect to language fluency. Boyd (1992) noted that most female migrants in Canada are not principal applicants. For them, there are no requirements on language ability when applying for immigration. Moreover, women's education in many countries is usually shorter than men's, which means that their language fluency is lower than that of men. In addition, older female immigrants have more responsibility with their families, meaning that they have less time to improve their language skills. Thus, the negative impact of age at immigration on language fluency is expected to be larger for females than that for males. Furthermore, women may be more likely to communicate with people who speak their own mother tongue; thus, the negative influence of minority language concentration for women is expected to be more significant than that for men. For the above reasons, the regression model is estimated separately for men and women.

III.2 Determinants of Immigrants' Earnings

In the immigrant labour market, variables such as years of schooling, years since immigration, marital status, citizenship, weeks worked, work experience, place of birth and the destination language proficiency are expected to have significant impacts on the earnings of immigrants.

The number of years since immigration provides information on length of duration in

the host country, and longer residence leads to higher earnings. This variable reflects the adaptation to the labour market institutions of the destination country, the acculturation factors, the development of networks in the labour market, as well as the investment in human capital that leads to success in the labour market.

Years of schooling and experience have a positive impact on the income of migrants. Moreover, the work experience of immigrants can be divided into two parts, foreign work experience and local work experience. It can be assumed that foreign work experience is positively correlated with age at immigration, and that there exists a positive relationship between local work experience and the length of residence. Thus, I use the years since immigration and age at immigration in the regression instead of work experience. Moreover, the earnings of immigrants are negatively correlated with age at immigration (Schaafsma and Sweetman, 2001).

The expected impact of marital status on the earnings of immigrants is different for males and females. Being married is expected to have a positive impact on the earnings of men. This is because they have different responsibilities for their families than those of women, and that they may have to work harder than single men to support their families. For women, the effect of marital status on earnings may not as significant as for the men, and it can even be negative. Because women have to do housework and take care of children, they have less time to acquire the skills that the jobs require.

Citizenship may be the threshold for higher paid jobs, like the ones that are offered by the government. Place of birth reflects the impact of culture and discrimination on income, as well as factors that cannot be measured or observed in the immigrants' original countries that may influence their average productivity, such as the level of economic development. Furthermore, the immigrants who lack internationally applied skills have a lower expected wages.

For most immigrants the language of the destination country is not their native language. Therefore, it is costly for them to learn the destination language. Language skills reflect the productivity through communication efficiency that arises from using the language of host country. Furthermore, employers are usually not sure about the productivity of immigrant workers and the lower ability in the destination language may increase this uncertainty. If there exists a risk for firms to incur extra costs because of that uncertainty, employers may screen the employees whose productivity is lower to reduce those costs (Kossoudji, 1988). Finally, the lack of knowledge of the destination language may reduce immigrants' ability to seek and find a job that best suits their ability.

The above analysis suggests that the earnings of immigrants can be represented by the following regression:

$$LnEOI = \beta_0 + \beta_1 * YOS + \beta_2 * YSM + \beta_3 * (YSM)^2 + \beta_4 * AAM + \beta_5 * MS + \beta_6 * COI + \beta_7 * LnWW + \beta_8 * BOI + \beta_9 * DLF$$

where the *LnEOI* is the logarithm of immigrants' annual earnings, *YOS* is the years of schooling, which is estimated from the highest level of education. *YSM* is the number of years since immigration, *AAM* is the age at immigration, *MS* is the marital status, *COI* is the citizenship of immigrants, *LnWW* is the logarithm of the number of weeks worked in 2005, *BOI* is the place of birth of immigrants, and *DLF* is the destination official languages fluency, which is defined as follow: immigrants who speak only English, immigrants who speak only French, and immigrants who can speak both English and French (with immigrants who speak neither as the reference category).

IV. Data

This research is based on the public use microdata of the 2006 Census of Canada, and I limit this analysis to male and female immigrants whose mother tongue is not a Canadian official language, are aged between 25 and 64, and who lived in Toronto, Montreal or Quebec City at the time of the census. Earnings include wages and salaries and self-employment income. Since the very large (above $200,000) and very small values (below $500) are considered to be outliers, I excluded them from the analyses. Moreover, the immigrants who worked without payment or never worked are also excluded from the analyses. In this study, the immigrants who landed in Canada in 2005 and 2006 have not been taken into account, due to the fact that they

did not have enough time to find a job and work in 2005.

One question in the Canadian census data is about the knowledge of official languages. However, the Canadian census data does not provide information on language fluency level and other details, such as reading and writing. In Australia and the United States, individuals who do not speak English at home must indicate one of four fluent levels in English: “very well”, “well”, “not well” and “not at all”. In Canada, the categories are different because there are two official languages. They are: English-speaking only, French-speaking only, both English and French, and neither English nor French. As in Tu (2004), I combine the four categories into two. The individuals who speak English and who speak both English and French are defined as being English proficient. French fluency is defined as being able to speak French and to speak both English and French. Those variables are set to zero for individual who do not know either English or French.

The variable years of schooling is not available in the 2006 census data file (which is different from the previous censuses); only the highest level of education is included. Thus, the variable YOS approximates the years of schooling based on the information about the highest certificate, diploma or degree. Appendix A3 explains in detail how YOS is constructed.

One important variable in the 2006 census data is the year of immigration, which records individual years between 1980 and 2006, and intervals of varying length for the arrivals before 1980. This classification is used to calculate years since immigration, in which the midpoints of the intervals have been taken (when necessary). Moreover, the census variable age at immigration is the age at which immigrants landed in Canada for the first time.

Using the census information on place of birth, nine groups are created for this study, in which the United States, the United Kingdom, Germany and other Northern and Western Europe are the reference group. The other regions are: Eastern Europe (Poland and Other Eastern Europe); Southern Europe (Italy, Portugal and Other Southern Europe); China; Hong Kong; the Philippines; South Asian Countries (India, Pakistan and Other Southern Asia); South and Central America (Central America, Jamaica, Other Caribbean and Bermuda and South America,); Africa (Eastern Africa, Northern Africa and Other Africa); and Others (all the other countries excluding Canada).

Marital status is constructed as a dummy variable that distinguish the individual who are married from all the other marital statuses. The value for now married or living in the common-law is equal to one, and all the other statuses are set to zero.

Minority language concentration is defined as the proportion of the whole population

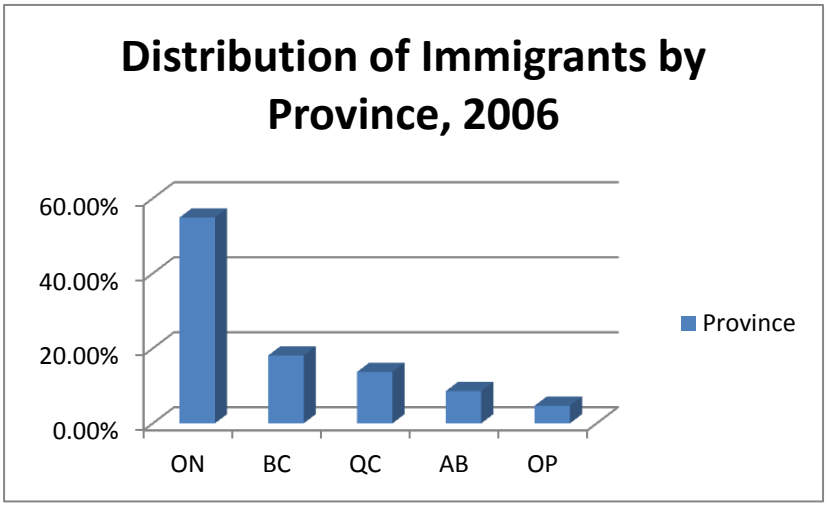
aged from 18 to 64 years old, in the English speaking city Toronto and the bilingual cities of Montreal and Quebec City respectively, who report the same mother tongue as the respondent. Official languages and aboriginal languages are excluded from the calculation of that variable. Appendix Tables A1 and A2 show the values of the main languages for Toronto and Montreal-Quebec City respectively.

V. Empirical Results

V.1 Language Proficiency in Toronto, Montreal and Quebec City

Ontario and Quebec are the two largest provinces in Canada. As shown in Figure 1, more than two-thirds of Canadian immigrants decide to live in one of those two provinces, with more than half choosing to settle in Ontario. Many immigrants also decide to live in British Columbia and Alberta. Quebec has the particularity to be the only province in Canada where French is a dominant language. But since English is the international language, it is also used in Quebec. In contrast, in Ontario, French is not used as a dominant language. As can be seen in Figure 2, about two-thirds of the immigrants who landed in Ontario chose Toronto as their new hometown, and almost all of the immigrants who landed in Quebec chose to live in Montreal or Quebec City. Therefore, I select these three representative cities to study the destination language proficiency of immigrants (with Montreal and Quebec City being put together for the sample to be large enough).

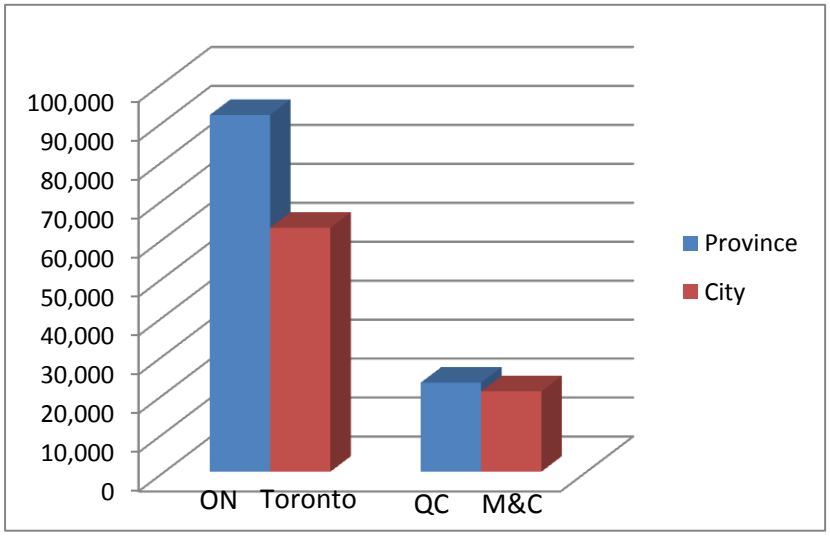
Figure 1



Notes: ON=Ontario, BC=British Columbia, QC=Quebec, AB=Alberta, OP=Other Provinces

Data source: calculations are based on the 2006 Canadian census data.

Figure 2 Distribution of immigrants in Ontario and Quebec



Notes: ON=Ontario, QC=Quebec, M&C=Montreal and Quebec City.

Data source: calculations are based on the 2006 Canadian census data.

Table1. Official Language Proficiency of Non-Official Mother Tongue Immigrants in Toronto, Montreal and Quebec City, 2006 (percent)

Language proficiency	Toronto	Montreal and Quebec City
Only English	91.01	18.87
Only French	0.08	22.28
Both English and French	4.55	55.59
Neither English nor French	5.36	3.26

Data source: calculations are based on the 2006 Canadian census data.

Table 1 shows the official language proficiency of immigrants whose mother tongue is neither English nor French. In Toronto, 91 percent of immigrants report the knowledge of English only, less than one tenth of a percent report the knowledge of French only, and 4.5 percent immigrants have the knowledge of both English and French. In Montreal and Quebec City, 19 percent of immigrants report the knowledge of English only, 22 percent report the knowledge of French only, and 56 percent report the knowledge of both English and French. Therefore, the knowledge of both official languages is an important characteristic of immigration in Quebec.

Table 2. Ability in Official Languages of Non-Official Mother Tongue Immigrants by Place of birth, Toronto, 2006 (percent)

Official language	English Only	French only	English and French	None
U.S, U.K. Northern and Western Europe	87.39	0	12.48	0.13
Eastern Europe	90.07	0.03	7.94	1.96
Southern Europe	89.34	0.09	5.56	5.01
China	78.05	0	0.74	21.24
Hong Kong	94.56	0.11	1.49	3.84
Philippines	99.17	0	0.64	0.20
South Asia	95.11	0	1.23	3.66
South and Central America	88.98	0.25	6.82	3.95
Africa	84.79	0	14.79	0.42
Other Countries	88.08	0.23	5.49	6.19

Data source: calculations are based on the 2006 Canadian census data.

Table 2 shows official languages ability by birthplace of non-official mother tongue immigrants who lived in Toronto. Immigrants from China have the lowest rate of English language proficiency, with only 78 percent of them knowing English. Immigrants from all the other countries have a rate of knowledge of English above 84 percent, with the immigrants from the Philippines having a 99 percent rate of knowledge of English. Moreover, only a few immigrants who lived in Toronto report the knowledge of only French or both English and French.

Table 3. Ability in Official Languages of Non-Official Mother Tongue Immigrants by Place of birth, Montreal and Quebec City, 2006 (percent)

Official language	English only	French only	English and French	None
U.S, U.K. Northern and Western Europe	18.95	4.84	76.21	0
Eastern Europe	15.23	15.14	68.65	0.98
Southern Europe	10.43	20.38	65.58	3.61
China	59.09	3.56	19.37	17.98
Hong Kong	55.34	0	33.01	11.65
Philippines	72.53	0.73	26.37	0.37
South Asia	66.04	1.02	27.30	5.63
South and Central America	3.18	46.93	48.49	1.41
Africa	5.69	30.35	63.73	0.23
Other Countries	17.36	15.21	63.58	3.94

Data source: calculations are based on the 2006 Canadian census data.

A high percentage of the immigrants who lived in Montreal and Quebec City reported knowing both English and French, which is different from the figures for Toronto in table 2. In particular, immigrants from South and Central America have the highest rate of French language proficiency in Montreal and Quebec City, at 47 percent; they are followed by the immigrants from Africa, at 30 percent.

V.2 Regression analysis of English language proficiency in Toronto

Language fluency is a dichotomous dependent variable, which is set to one for individuals who can speak the official language, and set to zero otherwise. Using the probit or logit model to do the regressions may be more appropriate than OLS. However, since the purpose of this paper is analyze the impact of independent variables on immigrants' destination language proficiency instead of making predictions, the OLS regressions are easier to interpret. Moreover, the differences between probit or logit and OLS regressions with respect to the signs and significance levels of the coefficients are usually very small. Thus, this paper uses OLS to study language proficiency, like Chiswick and Miller (1992) and Tu (2004).

Table 5. Regression Estimates of English Language Proficiency among Non-Official Mother Tongue Immigrants, Toronto, 2006

Variable	Male		Female	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Intercept	0.786	(0.014)	0.725	(0.017)
Years of Schooling	0.017	(0.0008)***	0.023	(0.0009)***
Years since immigration(YSM)	0.001	(0.0005)**	0.0004	(0.0005)
YSM squared	-0.00003	(0.000)***	-0.00002	(0.00001)*
Age at immigration	-0.004	(0.0002)***	-0.005	(0.0003)***
Marital status	0.007	(0.004)*	0.010	(0.004)**
Minority linguistic concentration	-0.002	(0.001)**	-0.002	(0.001)*
Birthplace (Reference Group: U.S., UK, Germany and Other Northern and Western Europe)				
East Europe	0.014	(0.007)**	0.011	(0.006)*
Southern Europe	0.019	(0.006)***	0.010	(0.006)*

China	-0.120	(0.013)***	-0.142	(0.014)***
Hong Kong	0.007	(0.011)	0.021	(0.012)*
Philippines	0.045	(0.006)***	0.040	(0.006)***
South Asia	0.030	(0.007)***	0.010	(0.008)
South and Central America	0.017	(0.009)**	0.011	(0.009)
Africa	0.039	(0.006)***	0.039	(0.006)***
Other	0.005	(0.007)	-0.019	(0.008)**
Sample Size	14167		14106	
R^2	0.1441		0.1839	

Notes: *** significant at 1%, ** significant at 5%, * significant at 10%.

Data source: 2006 Canadian census data.

The regression results for English language proficiency in Toronto for male and female non-official mother tongue immigrants are presented in table 5. The coefficients of years of schooling show that every additional year of education increases language proficiency by 1.7 percentage points for men and by 2.3 percentage points for women. Therefore, the influence of education attainment on language fluency for female is larger than for male.

Language ability increases with duration of residence, reflecting longer exposure, but, the growth rate decreases with time. The partial impact of this variable for males can be expressed as $\partial LANG/\partial YSM = 0.0010066 - 0.0000518 \times YSM$ and as $\partial LANG/\partial YSM = 0.0004213 - 0.0000332 \times YSM$ for females. This means that if an immigrant lives in Canada for ten years, the partial effect is approximately 0.06 percentage points for males and about 0.009 percentage points for females. Even though the coefficients are statistically significant, those effects are rather small. In addition, as we can see from table 5, there exists a negative relationship between age at immigration and English language fluency for both men and women, suggesting

that the immigrants are less efficient in acquiring the destination language when they arrive at an older age.

The effect of minority language concentration is negative for both males and females, at the 5 percent and 10 percent significance level respectively. That is, the more immigrants who speak the same mother tongue in Toronto, the worse the English ability is. Specifically, the English proficiency decreases by 0.2 percentage points for each percentage point increase in concentration for both men and women.

Place of birth reflects English exposure of individuals before immigration. Table 5 shows that English language fluency for the immigrants from China is 12 and 14.2 percentage points lower than the benchmark group for men and women respectively. The immigrants from the Philippines and Africa have better English fluency than reference group, with an effect of 4.5 and 4 percentage points for the males and females from the Philippines, and of 4 percentage points for the immigrants from Africa. The male immigrants who came from Eastern and Southern Europe are also characterized by a relatively higher level of English fluency, with a gap of 1.4 and 1.9 percentage points respectively. However, for women, it is only significant at the 10 percent level. South Asian and South and Central American males, but not females, are statistically different from the benchmark group. Immigrants from Hong Kong are not statistically different from reference group for males, and they are different at only the 10 percent significance level for females.

V.3 Regression Analysis of English and French language proficiency in Montreal and Quebec City

The results of English and French fluency in Montreal and Quebec City are shown in tables 6 and 7 respectively. They indicate that every additional year of education increases men's English proficiency by 2.8 percentage points and French fluency by 1.1 percentage points, and that it increases women's English proficiency by 4.7 percentage points and French fluency by 1.8 percentage points. Therefore, the influence of education attainment on language fluency is larger for females than for males in Montreal and Quebec City, as it was the case for Toronto. Moreover, the effect of years of schooling on English is more important than on French for both men and women.

Table 6. Regression Estimates of English Language Proficiency among Non-Official Mother Tongue Immigrants, Montreal and Quebec City, 2006

Variable	Male		Female	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Intercept	0.652	(0.047)	0.324	(0.053)
Years of Schooling	0.028	(0.002)***	0.047	(0.002)***
Years since immigration(YSM)	-0.0003	(0.002)	-0.0005	(0.002)
YSM squared	0.00001	(0.00003)	0.00006	(0.00003)*
Age at immigration	-0.008	(0.0007)***	-0.008	(0.0007)***
Marital status	-0.006	(0.014)	-0.004	(0.014)
Minority linguistic concentration	0.014	(0.008)*	0.017	(0.009)*
Birthplace (Reference Group: U.S., UK, Germany and Other Northern				

and Western Europe)				
East Europe	0.008	(0.031)	-0.073	(0.026)***
Southern Europe	-0.094	(0.031)***	-0.126	(0.026)***
China	-0.004	(0.035)	-0.070	(0.035)*
Hong Kong	0.038	(0.048)	0.053	(0.055)
Philippines	0.165	(0.032)***	0.178	(0.024)***
South Asia	0.180	(0.030)***	0.123	(0.031)***
South and Central America	-0.246	(0.035)***	-0.385	(0.029)***
Africa	-0.130	(0.034)***	-0.239	(0.032)***
Other	-0.019	(0.032)	-0.096	(0.026)***
Sample Size	4412		4196	
R^2	0.1658		0.2608	

Notes: *** significant at 1%, ** significant at 5%, * significant at 10%.

Data source: 2006 Canadian census data.

As in Toronto, age at immigration is negatively related to English and French fluency for both men and women. However, there is no significant impact of duration of residence on English proficiency in Montreal and Quebec City, while it is statistically significant for French fluency. The partial impact of years since immigration for males can be expressed as ∂LANG/∂YSM = 0.0052614 - 0.0002114×YSM and as ∂LANG/∂YSM = 0.0029048 - 0.0002498×YSM for females; this means that, if it is estimated at ten years' residence, the partial impact is 0.32 percentage points respectively for men, and 0.04 percentage points for women.

Table 7. Regression Estimates of French Language Proficiency among Non-Official Mother Tongue Immigrants, Montreal and Quebec City, 2006

Variable	Male		Female	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Intercept	0.608	(0.058)	0.694	(0.050)
Years of Schooling	0.011	(0.002)***	0.018	(0.002)***
Years since immigration(YSM)	0.005	(0.001)***	0.003	(0.001)**

YSM squared	-0.0001	(0.00003)***	-0.0001	(0.00003)***
Age at immigration	-0.005	(0.0006)***	-0.006	(0.0006)***
Marital status	0.019	(0.013)	0.003	(0.012)
Minority linguistic concentration	0.054	(0.007)***	0.069	(0.007)***
Birthplace (Reference Group: U.S., UK, Germany and Other Northern and Western Europe)				
East Europe	0.111	(0.050)**	-0.004	(0.035)
Southern Europe	0.077	(0.047)	-0.049	(0.033)
China	-0.522	(0.054)***	-0.693	(0.041)***
Hong Kong	-0.431	(0.084)***	-0.597	(0.070)***
Philippines	-0.529	(0.065)***	-0.550	(0.047)***
South Asia	-0.418	(0.053)***	-0.606	(0.042)***
South and Central America	0.148	(0.048)***	0.008	(0.032)
Africa	0.155	(0.049)***	-0.017	(0.034)
Other	-0.021	(0.048)	-0.127	(0.033)**
Sample Size	4412		4196	
R^2	0.3518		0.3673	

Notes: *** significant at 1%, ** significant at 5%, * significant at 10%.

Data source: 2006 Canadian census data.

There exists a positive effect of minority language concentration on language proficiency for all immigrants in Montreal and Quebec City, but it is only significant at the10 percent level for English language fluency. This result is not consistent with the theoretical expectation and it is different from the one in Toronto. This could be because the most important languages in Toronto are Chinese and Indo-Iranian languages, and that people are likely to speak their own mother tongue when they gather; however, in Montreal and Quebec City, the Chinese and Indo-Iranian languages are not dominant, while Arabic, Italian and Spanish are important immigrants' mother tongues, as can be seen in Appendices A1 and A2. Moreover, those immigrants who speak Arabic, Italian and Spanish are more likely to know and speak French. It may also be because the definition of this variable is not precise

enough, since the calculation is based on the whole metropolitan area, as opposed to a small neighborhood.

It is interesting to observe that place of birth does not have the same impact on English and French proficiency. Table 6 shows that after controlling for the other variables in the regression, English fluency for immigrants from the Philippines and South Asia is much higher than that of the reference group, by 16.5 and 18 percentage points for males, and18 and 12 percentage points for females. However, English fluency for immigrants from South and Central America and from Africa is respectively 25 and 13 percentage points lower than that of the benchmark group for men, and 13 and 24 percentage points lower for women; this may be due to the fact that many of the immigrants from those countries use French more than English in Montreal and Quebec City. The result is similar for the immigrants from Southern Europe it is 9.4 and 12.6 percentage points for men and women respectively. Finally, the English fluency of immigrants from Hong Kong and China is not statistically different from that of the reference group for both males and females.

Table 7 suggests that, after controlling for the other variables in the regression, male immigrants from South and Central America and from Africa have better French fluency than the reference group, by about 15 percentage points in each case; however, this result is not significant for females. It may be due to cultural background; since women have more responsibility for the household, they are less likely than men to work and communicate with others using French. The French fluency of male

immigrants from Eastern Europe is also higher than that of the reference group, by 11 percentage points. Female immigrants from China have the lowest French fluency, at 69 percentage points below the one of the reference group; for males, the difference is 52 percentage points. Similarly, male immigrants from the Philippines have lowest very low rate of French language proficiency, at 53 percentage points below the reference group, and the females are 55 percentage points lower. Immigrants whose birthplace is Hong Kong or South Asia are also characterized by a low level of French fluency, with a difference of 43 and 60 percentage points for males and females from Hong Kong, and 42 and 61 percentage points for the males and females from South Asia.

V.4 Language fluency comparisons between Toronto and Montreal and Quebec City

As can be seen from table 4, the education attainment of immigrants in Toronto, Montreal and Quebec City are similar. However, due to different dominant languages in the two provinces, English-speaking immigrants are more likely to live in Toronto, while immigrants who speak French or both languages prefer to live in Montreal or Quebec City. In Toronto, about 91 percent of the non-official mother tongue immigrants report the knowledge of only English, while only 19 percent of them have knowledge of English only in Montreal and Quebec City. For French, less than one tenth of one percent of immigrants report the knowledge of only that language only in

Toronto, compared to 22 percent in Montreal and Quebec City. The percentage of immigrants who know both English and French is 4.55 in Toronto and 56 in Montreal and Quebec City.

In spite of the differences in the distributions of immigrants that were mentioned above, some of the results of the language proficiency regressions are similar among those metropolitan areas. It can be concluded that both the years of schooling and age at immigration have significant effects on language fluency in Toronto and Montreal and Quebec City. The number of years since immigration has a significant influence on the English proficiency of immigrants in Toronto and on the French proficiency of immigrants in Montreal and Quebec City, but not on the English fluency of immigrants in Montreal and Quebec City.

V.5 Regression Analysis of Immigrants' Earnings in Toronto, Montreal and Quebec City

Table 8 and table 9 present the regression coefficients of the determinants of the earnings of immigrants who lived in Toronto and in Montreal and Quebec City. For Toronto, only English proficiency and proficiency in both English and French are included in the regression (the reference category is knowledge of neither English nor French), since that there are very few immigrants who speak only French. For Montreal and Quebec City, English only proficiency, French only proficiency, and

both English and French proficiency are taken into account. In addition to language proficiency, the determinants of immigrants' earnings include years of schooling, years since immigration, age at immigration, citizenship of immigrants, marital status, weeks worked, and place of birth.

Table 8. Regression Estimates of Earnings among Non-Official Mother Tongue Immigrants, Toronto, 2006

Variable	Male		Female	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Intercept	6.006	(0.139)	5.593	(0.109)
Years of Schooling	0.052	(0.003)***	0.065	(0.003)***
Years since immigration(YSM)	0.023	(0.002)***	0.029	(0.002)***
YSM squared	-0.0004	(0.00005)***	-0.0004	(0.00005)***
Age at immigration	-0.005	(0.0008)***	-0.004	(0.0009)***
Citizenship	0.080	(0.020)***	0.141	(0.022)***
Marital status	0.215	(0.020)***	0.0002	(0.018)
Log of weeks worked	0.882	(0.032)***	0.870	(0.023)***
Birthplace (Reference Group: U.S., UK, Germany and Other Northern and Western Europe)				
East Europe	-0.179	(0.055)***	-0.164	(0.049)***
Southern Europe	-0.041	(0.050)	-0.122	(0.045)***
China	-0.334	(0.056)***	-0.187	(0.050)***
Hong Kong	-0.212	(0.057)***	-0.081	(0.052)
Philippines	-0.199	(0.056)***	-0.058	(0.049)
South Asia	-0.317	(0.053)***	-0.248	(0.047)***
South and Central America	-0.211	(0.057)***	-0.185	(0.052)***
Africa	-0.241	(0.061)***	-0.155	(0.055)***
Other	-0.312	(0.054)***	-0.199	(0.048)***
English Proficiency	0.141	(0.038)***	0.057	(0.035)*
Both English and French	0.152	(0.054)***	0.237	(0.049)***
Sample Size	11908		10435	
R^2	0.2630		0.3618	

Notes: *** significant at 1%, ** significant at 5%, * significant at 10%.

Data source: 2006 Canadian census data.

Table 8 shows that, in Toronto, every additional year of education increases the earnings of male immigrants by 5.2 percent and by 6.5 percent for female immigrants. Thus, the impact of education attainment on earnings for females appears to be larger than for males, which is also what was found in the language proficiency regression. Earnings increase with duration of residence, but at a decreasing rate. In addition, the impact of age at immigration on immigrants' earnings is negative for both men and women. The influence of citizenship on earnings is also significant. As far as marital status is concerned, married males' earnings are 22 percent higher than those of single males, but this variable is not significant for women. Finally, weeks worked is also an important determinant of the earnings for both men and women. All the above results are consistent with those found in the literature.

Place of birth is a very important factor that explains differences in earnings among immigrants in Toronto. The earnings of immigrants in all the groups are lower than those the reference group of U.S, U.K and Western and Northern Europe; however , the coefficients of male immigrants from Southern Europe and of female immigrants from Hong Kong and the Philippines are not significant. Looking at some specific cases, male immigrants from China have the lowest earnings, at 33 percent less than those of the reference group. Female immigrants from South Asia have the lowest earnings among the nine groups, at 25 percent less than the benchmark group.

Finally, table 8 suggests that the destination language proficiency has an important

impact on the earnings of immigrants. Male immigrants who speak English earned 14.1 percent more than those who do not have any of the knowledge of English, and the difference is 5.7 percent for female immigrants. For immigrant men who know both English and French, the effect is about the same as the one of knowing only English, but for females, the effect is much larger. This suggests that being bilingual is not very important for the male immigrants, but it seems to be important for females in Toronto.

Table 9. Regression Estimates of Earnings among Non-Official Mother Tongue Immigrants, Montreal and Quebec City, 2006

Variable	Male		Female	
	Coefficient	Robust Std. Err.	Coefficient	Robust Std. Err.
Intercept	5.409	(0.150)	5.461	(0.152)
Years of Schooling	0.064	(0.004)***	0.063	(0.004)***
Years since immigration(YSM)	0.024	(0.003)***	0.023	(0.003)***
YSM squared	-0.0003	(0.00006)***	-0.0003	(0.00006)***
Age at immigration	-0.0008	(0.001)	-0.0009	(0.001)
Citizenship	0.078	(0.028)***	0.085	(0.028)***
Marital status	0.072	(0.024)***	0.071	(0.024)***
Log of weeks worked	0.888	(0.028)***	0.879	(0.029)***
Birthplace (Reference Group: U.S., UK, Germany and Other Northern and Western Europe)				
East Europeans	-0.169	(0.073)**	-0.166	(0.073)**
South Europeans	-0.096	(0.067)	-0.092	(0.067)
China	-0.282	(0.083)***	-0.280	(0.083)***
Hong Kong	-0.157	(0.104)	-0.154	(0.104)
Philippines	-0.153	(0.082)*	-0.148	(0.082)*
South Asian	-0.321	(0.083)***	-0.318	(0.083)***
South and Central America	-0.217	(0.071)***	-0.212	(0.071)***
Africa	-0.187	(0.073)***	-0.183	(0.073)**
Other	-0.220	(0.070)***	-0.216	(0.071)***
English Proficiency	0.098	(0.067)	0.090	(0.066)
French Proficiency	0.080	(0.069)	0.066	(0.068)

Both English and French	0.158	(0.068)**	0.149	(0.067)**
Sample Size	6192		6175	
R^2	0.3462		0.3424	

Notes: *** significant at 1%, ** significant at 5%, * significant at 10%.

Data source: 2006 Canadian census data.

As we can see from table 9, in Montreal and Quebec City, every additional year of education increases the earnings of male immigrants by 6.4 percent and those of female immigrants by 6.3 percent. Unlike the results for Toronto, the impacts of education attainment on earnings are almost the same for males and females.

In Montreal and Quebec City, the number of years since migration has a significant impact on earnings. However, unlike in Toronto, the impact of age at immigration on the immigrants' earnings is not significant. The influence of citizenship on earnings is significant, but it is relatively lower than in Toronto for both men and women. Unlike its impact on immigrants' earnings in Toronto, marital status has a significant effect on earnings for both men and women. As in Toronto, the number of weeks worked also has a significant impact on earnings of immigrants.

As in Toronto, the earnings of immigrants from all places of birth are lower than those of the benchmark group , but the difference is not significant for immigrants from Southern Europe and from Hong Kong. In addition, immigrants from South Asia have the lowest earnings for both men and women. Specifically, their earnings are 32 percent lower than those of the reference group for males and females; they are followed by the Chinese immigrants, with earnings 28 percent lower for both men and women.

As for the impact of destination language proficiency on immigrants' earnings in Montreal and Quebec City, the results are interesting. The immigrants who speak only English or only French earned more than those who speak none of the official languages, but the advantages are not significant. However, the earnings of male immigrants who reported knowing both English and French are 16 percent higher than those who do not know any of the official languages, and those of females are 15 percent higher. Thus, it can be concluded that being bilingual is really important for the immigrants who live in Montreal and Quebec City.

VI. Conclusion

This paper has analyzed the determinants of proficiency in the Canadian official languages and the earnings of non-official language mother tongue immigrants over a wide range of birthplaces. The analysis used the 2006 Canadian Census individual data file and it was done for both men and women who lived in Toronto, Montreal and Quebec City.

The findings indicate that, the variables years of schooling, years since immigration, age at immigration and minority language concentration have significant impacts on the language proficiency of immigrants for both male and female. Specifically, the more education the immigrants obtained, the higher the language fluency, and the

proficiency is improved with the duration of residence. Moreover, immigrants who migrated at an old age tend to have low language proficiency compared to those who landed in the host country when they were young. The impact of minority language concentration is different in Toronto and Montreal and Quebec City. In Toronto, the language fluency decreases with the minority language concentration, meaning that the higher the number of people who speak the same mother tongue in the metropolitan area, the worse the official language proficiency. In Montreal and Quebec City, the result is different, which may be caused by the distribution differences of immigrants among those cities.

For the regression of earnings, the variables years of schooling, years since immigration, age at immigration, citizenship of immigrants, marital status, weeks worked and destination language proficiency all have significant impacts on the immigrants' earnings. To be specific, there is a significant impact of years of schooling, year since immigration, citizenship if immigrants and weeks worked on the earnings of immigrants for both men and women in Toronto, Montreal and Quebec City. Marital status has a positive and significant impact on the earnings of men who live in Toronto, but not for women; however, the impact is significant for both men and women in Montreal and Quebec City. Moreover, there is a negative and significant influence of age at immigration on immigrants' earnings for both men and women in Toronto, while in Montreal and Quebec City the impact is not significant.

Finally, it is worth to mention that being bilingual is not important for the immigrants who live in Toronto, since the impacts of proficiency in only English and both English and French on immigrants' earnings are almost the same. However, only the impact of proficiency in both English and French on earnings is significant in Montreal and Quebec, indicating that being bilingual is crucial for the immigrants' success in labour market of Montreal and Quebec City.

Appendix

A1. Minority language concentration in Toronto, 2006

Arabic	1.31
Chinese languages	8.86
German	0.60
Other Germanic Languages	0.28
Greek	1.01
Indo-Iranian Languages	6.61
Italian	3.81
Polish	1.76
Portuguese	2.55
Panjabi(Punjabi)	2.59
Spanish	2.43
Ukrainian	0.57
Austro-Asiatic Languages	1.10
Other European Languages	0.68
Russian	1.38
Other Slavic Languages	1.77
Finno-Ugric Languages	0.55
Other Afro-Asiatic languages	0.88
Dravidian language	2.30
Other East-South East Asian languages	1.80
Tagalog(Pilipino, Filipino)	2.71
Niger-Congo languages and other African languages	0.66
All other languages	0.86

Data source: calculations are based on the 2006 Canadian census data by using MTNNO, and Official languages and aboriginal languages are excluded from the calculation.

A2. Minority language concentration in Montreal and Quebec City, 2006

Arabic	2.75
Chinese languages	1.51
German	0.22
Other Germanic Languages	0.18
Greek	0.93
Indo-Iranian Languages	1.08
Italian	2.68
Polish	0.38
Portuguese	0.80
Panjabi(Punjabi)	0.30
Spanish	2.37
Ukrainian	0.09
Austro-Asiatic Languages	0.77
Other European Languages	0.77
Russian	0.45
Other Slavic Languages	0.37
Finno-Ugric Languages	0.16
Other Afro-Asiatic languages	0.36
Dravidian language	0.31
Other East-South East Asian languages	0.39
Tagalog(Pilipino, Filipino)	0.40
Niger-Congo languages and other African languages	0.49
All other languages	1.92

Data source: calculations are based on the 2006 Canadian census data by using MTNNO, and Official languages and aboriginal languages are excluded from the calculation.

A3. Definition of the variable Years of Schooling (YOS) based on highest degree

YOS	The highest degree individuals have
9	-None
13	-High school graduation certificate or equivalency certificate
14	-Other trades certificate or diploma
	-Registered apprenticeship certificate
	-College, CEGEP or other non-university certificate or diploma from a program of 3 months to less than 1 year
15	-College, CEGEP or other non-university certificate or diploma from a program of 1 year to 2years
	-College, CEGEP or other non-university certificate or diploma from a program of more than 2 years
16	-University certificate or diploma below bachelor level
17	-Bachelor's degree
18	-University certificate or diploma above bachelor level
19	-Master's degree
23	-Degree in medicine, dentistry, veterinary medicine or optometry
	-Earned doctorate degree

A4. Definitions of the variables

LANG	Destination language proficiency, including English language fluency and French language fluency (= 1 if proficient, = 0 otherwise).
AAM	Age at immigration (estimated at midpoint of each AGEIMM group).
YSM	Year since immigration (estimated at midpoint of each YRIMM groups when necessary, and calculated as 2005 minus YRIMM)
YSM^2	The square of YSM.
YOS	Years of schooling (estimated by HDGREE, which is the highest certificate, diploma or degree, as per Appendix A3).
MS	Marital status of the person – Historical (=1 if married, =0 otherwise).
MLC	Minority language concentration (calculated from MTNNO, which is mother tongue, the non-official language component, as per Appendix A1 and Appendix A2).
BOI	Birthplace of immigrants (a set of dummy variables, with U.S., U.K., Germany and Other Northern and Western Europe as the reference category)
EOI	Annual earnings of immigrants (positive value) in 2005 composed of wages, salaries and self-employment income.
LnEOI	Logarithms of EOI
COI	Citizenship of immigrants.
LnWW	Logarithms of weeks worked in 2005.
DLF	Destination language fluency, which is composed of only English, only French and Both English and French (with knowledge of neither English nor French as the reference category).

References

Bleakley, H. and Chin, A. (2004) "Language skills and earnings: Evidence from childhood immigrants", *The Review of Economics and Statistics*, Vol.86, No.2, pp481-496

Borjas, G. J. (1995) "Ethnicity, neighborhoods, and human-capital externalities", *American Economic Review*, Vol. 85, No. 3, pp365-390

--------. (1999) "The economic analysis of immigration", *Handbook of Labor Economics*, Vol.3, Part A, pp1697–1760

Boyd, M. (1992) "Gender issues in immigration and language fluency", In Chiswick, B. *Immigration, Language and Ethnicity: Canada and the United States* (Washington, D.C.: AEI Press), pp305-363

Chiswick, B. (1978) "The effect of Americanization on the Earnings of Foreign-Born Men", *The Journal of Political Economy*, Vol.86, No.5, pp897-921

--------, and Miller, P. (1992) "Language in the immigrant labour market", In Chiswick, B. *Immigration, Language and Ethnicity: Canada and the United States* (Washington, D.C.: AEI Press), pp229-287

--------, and Miller, P. (1994) "Language and earnings among immigrants in Canada", In Zerker S. *Change and impact: essays in Canadian social sciences* (Jerusalem: Magnes Press), pp247-264

--------, and Miller, P. (1995) "The endogeneity between language and earnings: international analyses", *Journal of Labor Economics*, Vol.13, No.2, pp245-287

--------, and Miller, P. (1996) "Ethnic networks and language proficiency among immigrants", *Journal of Population Economics*, Vol.9, pp19-35

--------, and Miller, P. (1998) "English language fluency among immigrants in the United States", *Research in Labour Economics*, Vol.17, pp151-200

--------, and Miller, P. (2002) "Immigrant earnings: Language skills, linguistic concentrations and the business cycle", *Journal of Population Economics*, Vol.15, No.1, pp31-57

--------, and Miller, P. (2003) "The complementarity of language and other human capital: immigrant earnings in Canada", *Economics of Education Review*, Vol.22, No.5, pp469–480

Friedberg, R.M. (1993) "Immigration and the labour market", MIT PhD Dissertation
--------. (2000) "You can't take it with you? Immigrant assimilation and the portability of human capital", *Journal of Labor Economics*, Vol.18, No.2, pp. 221-251

Gang, I. and Zimmermann, K. (2000) "Is child like parent? Educational attainment and ethnic origin", *Journal of Human Resources*, Vol.35, pp550-569

Grenier, G. and Nadeau, S. (2011) "Immigrant Access to Work in Montreal and Toronto", *Canadian Journal of Regional Science*, Vol.34, No.1, pp19-32

Kossoudji, A. (1988) "English language ability and the labour market opportunities of Hispanic and East Asian Immigrant Men", *Journal of Labor Economics*, Vol.6, No.2, pp205-228

Lazear, E. (1999) "Culture and language", *Journal of Political Economy*, Vol.107, pp95-126

North, D. (1974) "Immigrants and the American labour market", RD Monograph (Washington, D.C.: Department of Labour), No.31

Schaafsma, J. and Sweetman, A. (2001), "Immigrant earnings: Age at immigration matters", *Canadian Journal of Economics*, Vol.34, No.4, pp1066-1100

Schultz, T. (1998) "Immigrant quality and assimilation: A review of the U.S. literature", *Journal of Population Economics*, Vol.11, No.2, pp239-252

Tu, X. (2004) "Language and earnings of immigrants in Ontario and Quebec, Major Paper, Department of Economics, University of Ottawa, mimeo