

**Language and Earnings of Immigrants in Ontario and Quebec**

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## **Abstract**

This study is concerned with the determinants of dominant language fluency and how it affects the earnings of immigrants in Ontario and Quebec. The destination language fluency of immigrants can be affected by such variables as years of schooling, years since immigration, age at migration, marital status, minority language concentration and birthplaces of immigrants. The earnings' equation specifies that the natural logarithm of earnings is a function of total years of schooling, years since immigration, age at migration, marital status, citizenship of immigrant, the logarithm of weeks worked of immigrant in 1995, visible minority status, birthplace of immigrants, and the destination language fluency.

The analysis is based on the 1996 Canadian Census and includes all foreign-born males and females aged 25-64 who were living in Ontario and Quebec employed at the time of the census. OLS is used to estimate the equations of the destination language fluency and the earnings of immigrants. The result indicates that the official language fluency of immigrants is highly related to total years of schooling, years since immigration, and age at immigration. Minority language concentration has an effect on the official language fluency of immigrants as expected in Ontario, but not in Quebec. Birthplace has no persistent impact on the official language fluency in all estimations.

Total years of schooling, years since immigration and citizenship have significant effects on the earnings of immigrants in both provinces. Age at immigration has a significant effect on the earnings of immigrant men, but has no significant effects on the earnings of immigrant women. Marriage has significantly positive effects on the earnings of immigrant men while it has insignificantly negative effects on earnings of immigrant women. Visible minority status is not important in all immigrant labor market. English fluency has significantly positive effects on the earnings of immigrant men but not much significant effects on the earnings of immigrant women in Ontario. French fluency has significantly positive effects on the earnings of both immigrant men and immigrant women in Quebec, but English fluency has insignificant effects on the earnings of both immigrant men and immigrant women in Quebec. Bilingualism has a significant effect on the earnings of all immigrants in both provinces. Birthplaces have the same impact on the earnings of immigrants as on the destination language fluency of immigrants.

## I. Introduction

Canada has a large proportion of foreign-born people in its population. Every year between 200,000 and 250,000 immigrants are making Canada their new home. This constant influx of immigrants is of great potential value. It helps the country to prosper economically and maintain its demographic stability. It is an important source of future labor force growth. Also, the immigrants themselves should get opportunities to improve their lives. Unfortunately, this is not always the case: a lot of immigrants see their economic position deteriorate after immigrating. Comparing with their situation in their home countries, they often find that their earnings drop sharply especially in the first few years of immigration. What factors affect the earning of the immigrants? Is there any rule that we can draw from the processes of immigration? In order to answer these questions, it is necessary to examine the determinants of the earnings of immigrants.

The path that immigrants take from their first expression of interest in moving to Canada to their integration into Canadian society can be broadly separated into four phases: selection, settlement, adaptation, and contribution (Quell, 2002). At any of these stages, three dimensions of integration are of importance: language, environment, and society. Chief among them is language. Language refers to the ability of the immigrant to communicate at a satisfactory level with his or her environment. Proficiency in official language can shorten the process of adjustment and enhance the level of employment. It has been shown (Robinson, 1988, Chiswick and Miller, 1992) that the language proficiency and earnings have positive relationship. Hence, language plays a very important role in immigration.

The federal government has recently adjusted its policy on immigrant skills in both official languages. In the past, the immigration officer evaluated an immigrant's language abilities during a personal interview in a Canadian consulate or embassy. Since June 2002, this practice has changed. Immigrants have to take an approved English and /or French language test. Moreover, the weight of the second official language is increased. Originally, 16 points had been set aside for high proficiency in the first official language but only 4 points for high proficiency in the second. Now the number of points for the second official language was increased to 8. This modification is particularly important for immigrants intending to settle in Canada's official language minority communities. This new policy for immigrant language skills has two important functions. On the one hand, it promotes language learning before immigration and makes immigrants' lives ease after immigration; on the other hand, government can save a lot in the language training programs for immigrants since the official language fluency of immigrants increases.

This paper is concerned with the analyses of the determinants of the immigrants' language skills in Canada and the extent to which the earnings are influenced by the official language fluency of immigrants. These analyses are based on the Canadian Census 1996. By comparing with the finding of Chiswick and Miller (1992) for the year 1981, we can evaluate if there was any change in the determinants of official language proficiencies over time and if the language proficiency of immigrants is still an important determinant on earnings.

In Canada, the questions related to the determinants of the immigrants' language skills are more complicated than in other immigrant countries, such as the United State

and Australia. This is because there are two official languages in Canada, English and French. However, these languages are not both dominant languages in all regions. In Quebec, both French and English are dominant languages, but only English is dominant in Ontario. Immigrants of given origin country, number of years of schooling and work experience may hold different levels of language skills after the same number of years of immigration just because they land in different regions of the destination country. A related issue has to do with the incentives to acquire official languages. The effects of both official languages on earnings are not equal in Ontario and Quebec. French has more power on earnings in Quebec than in Ontario since French is one of the dominant languages there. English has more power on earnings than French in Ontario because English is the only dominant language. Hence, the incentives to learn both official languages are not the same in both provinces. This indicates that we should study the two official languages separately.

This paper will examine dominant languages in Ontario and Quebec respectively. Because English is strongly dominant in Ontario, I omit the study of French in Ontario. Thus there are three empirical analyses in this paper; English fluency analysis in Ontario, French fluency analysis in Quebec and English fluency analysis in Quebec.

Section 2 presents the economic theory about the destination language fluency of immigrants. Particular attention is given to the factors that are of primary focus in this study. Section 3 describes the data from the 1996 Canadian Census used for this study. Various specifications of the variables are considered. The empirical analyses of the determinants of English and French language fluency among immigrants are presented in Section 4. The effect of language skills on earning is studied in Section 5, and the

empirical analyses are included in Section 6. Section 7 closes this article with a summary and conclusion.

## **II. The determinants of official language proficiency**

According to Chiswick and Miller (1992), the destination language fluency of immigrants can be expressed as a function of three conceptual variables: economic incentives, exposure, and efficiency.

Economic incentive refers to the impetus of learning the official languages of the destination country. Immigrants are all eager to learn the official languages. First, in order to meet basic living needs, immigrants want to get familiar with the destination country's environment as soon as possible. The main information sources are written materials, television, broadcast and talking with native people, so the direct and effective way of understanding the destination environment is by language communication. Second, the economic incentives arise in part from the increment in the market wage rate, a higher rate of employment, and the decrease in the cost of communication in working. This suggests an endogeneity between earnings and language skills (Chiswick and Miller 1995). Finally, proficiency of official language would be helpful to get a feeling of hometown, enjoying TV, broadcast and other kinds of entertainment, making more friends, etc.

The second variable, exposure, refers to the time of formal language training, the learning by oneself, and the learning by doing. The longer the time that immigrants spend in learning the destination language, whether before immigration or after immigration,

the more fluent they are in their official languages.

Formal language training includes learning in formal education, programs for acquiring language skills and professional courses in the destination language. Because of the intensity of formal language training, it is the most efficient way for immigrants to learn the destination languages.

Duration of time spent in the destination country, as measured by the number of years since migration and marriage to a spouse from other linguistic origin, are the indexes of the learning by oneself and the learning by doing. Minority concentration is also an index of exposure. The exposure will be smaller for those living in an environment in which minority concentration is greater because immigrants may have more chances to communicate in their mother tongue. Other variables being the same, destination-language fluency would be expected to increase with duration and marriage to a spouse from a different language group, and to decrease with minority concentration.

Finally, efficiency refers to the capability of the learning the destination languages. Young immigrants have a more impressive ability to acquire language skills than old ones. The acquisition of language skills does not seem to be effortless. The investments in the acquisition of language skills are made largely by parents or caregivers when young. According to Harley(1986) and Long (1990), this is a time in the life cycle when the human mind is especially efficient in learning a language. However, the language skills acquired in this stage are not enough for a person to work and live at a later stage. Schooling gives a person the language skills he or she needs. Compared to the acquisition of the "mother tongue" skills, immigrants will face more difficulty to learn the official language of the destination. First, children have a facility for acquiring new language

skills that diminishes sharply as they become adults. Second, learning a language is a process that takes time. It is often unrealistic for immigrants to spend too much time in learning the official languages. They have to work for survival. This situation may result in making their learning less efficient.

This analysis suggests that the official language fluency of immigrants can be explained by the equation:

$$\text{LANG} = a_0 + a_1 \times \text{AAM} + a_2 \times \text{YSM} + a_3 \times (\text{YSM})^2 + a_4 \times \text{MS} + a_5 \times \text{YOS} \\ + a_6 \times \text{MLC} + a_7 \times \text{BOI}$$

LANG is the language fluency of immigrants, AAM is the age at migration, YSM is the years since immigration, YOS is the years of schooling, MS is the marital status. MLC is the measure of minority language concentration. BOI is the birthplace of immigrants.

Although the exact causal process is open to debate (Chiswick and Miller 1992), it is reasonable to assume that there is a positive relationship between educational attainment and proficiency in the official language for immigrants whose primary languages are not the destination country languages. In most countries of origin, English or French as a second language are learned only in the advanced grades. The more years of schooling the immigrants have, the more language skills they will attain. In addition, individuals with higher level of education would be more proficient in acquiring all kinds of knowledge, including language.

Young immigrants are likely to gain greater fluency in official language than older immigrants with the same number of years in the destination. Since age has an effect on learning a language, the immigrants who land at a young age should make greater progression in learning official language than those who land at an older age. In addition,

youths may gain more chances to become exposed to the official language through schools, and thus they can rapidly acquire fluency in the primary language of the destination country.

Another important factor of immigrants' official language skills is duration of time spent in the destination country, as measured by the number of years since migration. With more exposure to the destination language, other variables being the same, destination-language fluency would be expected to increase.

For married people, another important element of language environment is the home. If the spouse is of the same language group, it is almost certain that they will speak their mother tongue at home. This circumstance would both reduce the exposure to the official languages and weaken the incentive to become proficient in the language of the host country. On the other hand, if the spouse is an official-language speaker, the exposure to official language and the incentive to become proficient will both increase.

Birthplace may affect proficiency in the official languages in two ways. First, countries differ to the extent to which the official languages of the destination country are used as a dominant language, as a second language, or as a language of commerce. In countries such as Britain, the United States, Australia, New Zealand, the British West Indies and Ireland, English is a dominant language. Therefore immigrants from those countries are proficient in English in spite of differences in accents and minor differences in terminology, idioms and spelling (Chiswick and Miller, 1992). Furthermore, English or French are the second languages in many European countries. Immigrants from there are more fluent in English or French at arrival and find it easier to acquire them after immigrating than those from other parts of the world. Similarly, for countries that once

had colonial experiences, English or French is a prevalent language. People in these countries may have good senses in these official languages and learn more quickly. Second, the distances between the “mother tongue” and official languages vary among immigrants from different countries. Asian languages are totally different from Canadian official languages in formation of words, alphabet, grammar and articulation. The immigrants from Asia may have to face more language problems than immigrants from other parts of the world. The same thing is true for immigrants from Africa. Therefore, including the countries of origin in the analyses of official language fluency in the destination country measures, in part, the effects of this language distance.

Minority-group concentration has significant effects on the official language fluency of immigrants. It has been shown (Chiswick and Miller, 1992) that the higher the level of the minority concentration, the less the dominant language fluency of immigrants. This is because an individual’s incentive to acquire dominant-language skills will be inversely related to the extent to which his/her native tongue is used in his/her present environment. At the same time, the chances to practice the dominant language are also reduced.

For Canada, it seems reasonable to add more variables in the language function. For example, the Canadian government has invested a lot in helping immigrants to learn official languages. Immigrants can learn English for free in ESL programs (English as a second language) or LINC programs (language international class). It should be true that official language fluency will be higher in the regions where there are more ELS or LINC classes. However, there is no information about the density of these language classes in a region. Omitting this factor may lead to overestimate the effect of years since immigration.

Compared with immigrant men, immigrant women have some different characteristics in the destination country language fluency. First, women immigrate in Canada mostly as dependent immigrants (Boyd Monica, 1992). They don't need to have the knowledge of the destination country languages as a condition of the entering, so they usually have less fluency of the destination country languages than immigrant men. In addition, gender stratification in countries of origin often means that women are less educated than men. This also leads to lower level of the destination country language fluency when they arrive. Second, as Lloyd Axworthy, the former minister of employment and immigration, Canada, observed (1981) for immigrant women who have a family "working long hours, caring for a family, and attending part-time classes (for the official languages) often proves impossible". Older immigrant women have more responsibility for their families and less time to improve their destination language fluency. Therefore, the age at immigration should have more adverse effect on the official language fluency of immigrant women than on that of immigrant men. Finally, perhaps women like to communicate with each other, especially with those who hold the same mother tongue and the same culture background. Hence, minority concentration may have more negative effect on immigrant women than immigrant men.

### **III. The data**

This analysis is based on the 1996 Canadian Census. As Chiswick and Miller did in 1992, I limit this analysis to all foreign-born males and females aged 25-64 who were living in Quebec and Ontario at the time of the census.

The census question “knowledge of official language” provides information on fluency in speaking Canadian official languages. Data are not available for detailed levels of fluency, such as reading or writing skills. It is also not possible to construct for Canada a measure of official language fluency with gradation from Census data. In Australia and U.S., individuals who spoke a language other than English at home were asked for the degree of fluency in spoken English—“very well”, “well”, “not well” and “not at all”. But in Canada, there are only four categories: only speaking English, only speaking French, speaking both English and French, speaking neither English nor French. I collapse the four categories into two. For English, the language proficiency variable is set to one for individuals who know English and who know both English and French. For French, the language proficiency variable is set to one for individuals who know French and who know both English and French. The language proficiency variable is set to zero for those who don’t know English or French.

The variable “years of schooling” is used to measure educational attainment. This variable records the total years of full-time formal education. The census information on the year of arrival in Canada is recorded in individual years between 1985 and 1995 and in interval of varying length for pre-1985 arrivals. The categorical information was converted to a continuous measure of “years since migration”. Mid-points are taken exactly for intervals. The category “age at immigration” records the real age of every immigrant when he/she first landed in Canada, so it doesn’t need to be converted.

This paper uses a similar range of birthplace groupings as proposed by Chiswick and Miller (1992). There are nine groups: English speaking countries (including United States and United Kingdom), Western Europe (including Germany and Netherlands), Eastern

Europe (including Poland and USSR), Southern Europe (including Italy, Portugal and Yugoslavia), China (including China and HongKong), Other Asian Countries (including South Asia, Philippines, Viet Nam), South and Central America, Africa, India and Others (including West, Cent Asia/Mid East, Other Europe and all countries outside Canada).

Marital status could also affect the official language fluency. It is defined as a dummy variable that distinguishes between individuals who are married, spouse present and all other marital status. It is set to one for married or spouse-present people, and to zero for others. The effects of marital status depend on the ratio between same language group marriages and different language groups' marriages. If the dominant situation is the same language group marriage, the marital status will have an adverse effect on official language proficiency. Because there is no category "marriage oversea", we do not know exactly the ratio of the same language group marriages.

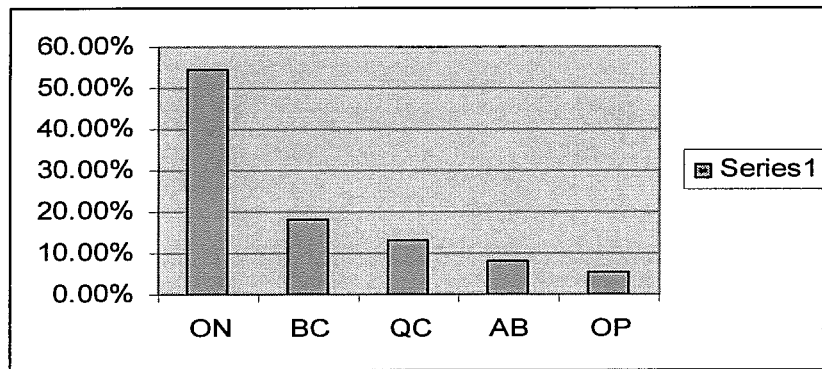
Minority-Group Concentration is measured by calculating the percentage of the whole population in the provinces with the same mother tongue as the respondent. The nondominant-language groups are identified on the Individual File. This is a very aggregate variable, but it is the only one that can be used to represent the environmental influences on the official language fluency of immigrants.

#### **IV. Analysis of the language fluency in Ontario and Quebec**

Ontario and Quebec are the two largest provinces in Canada. Every year more than two-thirds of the immigrants land in one of those two provinces. Half choose Ontario as their new hometown (as shown in Figure 1). Quebec is the only provinces in which

French is used as a dominant language. Thus these two provinces offer unique opportunities to study immigration issues in the context of the destination languages.

**Figure1 Distribution of Number of Foreign-Born by Province, 1996**



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

Data source: calculations are based on the data from Canadian Census, 1996.

A striking feature of the immigration in 1996 is the very high rate of dominant language fluency as shown in Table 1. In Ontario, 89.4 percent immigrants have the knowledge of English, 0.1 percent immigrants have the knowledge of French, and 6.3 percent immigrants have the knowledge of both English and French. In total, almost 96 percent immigrants in Ontario have the knowledge of at least one of the official languages in Canada. In Quebec, 20.2 percent immigrants have the knowledge of English, 20.5 percent immigrants have the knowledge of French, and 56.4 percent of immigrants have the knowledge of both English and French. In total, more than 97 percent of immigrants report that they have the knowledge of at least one of the official languages in Canada. Compared with census data of the official language fluency in 1981, there are more English-speaking immigrants in Ontario in 1996 (89.4% versus 88.4%) and fewer in Quebec (20.2% versus 25%). The numbers of French-speaking immigrants in Ontario

and Quebec have almost not changed from 1981 to 1996. However, more bilingual immigrants live in Quebec in 1996 (56.4% versus 52.2%) and fewer in Ontario (6.3% versus 7.7%). The number of those who know neither English nor French had increased in Ontario from 1981 to 1996 (3.8% versus 4.2%), but there was almost no change in Quebec (2.8% versus 2.9%).

**Table1. Language Fluency of immigrants in Ontario and Quebec  
(1996 and 1981)  
(percent)**

language fluency	Ontario, 1996	Ontario, 1981	Quebec, 1996	Quebec, 1981
Only English	89.4	88.4	20.2	25
Only French	0.1	0.1	20.5	20
English and French	6.3	7.7	56.4	52.2
Neither English nor French	4.2	3.8	2.9	2.8

Data source: calculations are based on the data of Canadian Census, 1996 and 1981.

The sources of the immigrants in Canada cover almost all countries in the world. Table 2 shows that there is some variation in dominant language proficiency across the major birthplace regions. Immigrants from the English speaking countries have a rate of fluency that for all practical purposes approaches 100 percent. Immigrants from China have the lowest rates of dominant language fluency, 76.1 percent, followed by the immigrants from Portugal, 84.4 percent. Immigrants from other countries have above 94 percent rates of dominant language fluency. The increase of the immigration from China from 1981 to 1996 may explain the increase of the percentage of immigrants who have no knowledge of the official languages in Ontario in this period of time.

**Table2. Ability of Official Language of immigrants by Country of Origin  
(1996)  
(percent)**

Official Language	Germany	Italy	Netherlands	Portugal	Poland	China	HongKong	India
know	99.9	95.8	100	84.4	96	76.1	94.8	94.3
not know	0.1	4.2	0	15.6	4	23.9	5.2	5.7

Note: official language refers to both English and French.

Data source calculations are based on the data of Canadian Census, 1996 and 1981.

Another important feature of immigration in Canada is the high level of education attainment shown in Table 3. The total years of schooling have increased from 1981 to 1996. For example, in Ontario, 15.1 percent of immigrants have an education of more than 18 years and 34.1 percent have education between 14 and 17 years in 1996, compared with 9 percent and 15.3 percent in 1981 respectively. In Quebec, 18.5 percent of immigrants have education of more than 18 years and 30 percent immigrants have education between 14 and 17 years, compared with 12 percent and 22.6 percent in 1981 respectively. The percentage of immigrants who have less than nine-year schooling has dropped from 50.5 percent to 31.5 percent in Ontario from 1981 to 1996 and from 46 percent to 35.5 percent in Quebec in the same period of time.

**Table3. Education Attainment among Immigrants in Ontario and Quebec  
(1996 and 1981)  
(percent)**

Education	Ontario 1996	Ontario 1981	Quebec 1996	Quebec 1981
18 year or more	15.1	9	18.5	12
14~17 years	34.1	15.3	30	22.6
10~13 years	19.3	25.2	16	19.4
Less than 9 years	31.5	50.5	35.5	46

Data source: calculations are based on the data of Canadian Census, 1996 and 1981.

### **Analysis of the language fluency in Ontario**

In Ontario, about one-third of the adult population is foreign-born. This provides a substantial sample for doing the regression of the official language fluency. Since the dependent variable, the official language fluency, is a dichotomous variable (set to one for individuals who can speak the official languages and to zero for the others), regression with a probit model, instead of ordinary least squares, may be more suitable. However, because the focus of this paper is to identify the effects of the independent variables on the official language fluency of immigrants, rather than to do prediction, and because there is not much difference in the signs and total significance of parameter estimates between probit regression and OLS regression, OLS is used for all regression in this paper. Chiswick and Miller (1992) do the same.

The results of the model for English language fluency in Ontario are shown in Table 4

for males and females. English language fluency is related to education attainment (total years of schooling), duration of residence (years since immigration), age at immigration, current marital status, minority concentration and dichotomous variables for country of birth.

The parameter estimates presented in Table 4 reveal that each additional year of education is associated with an increase in fluency rate of 1.1 percentage points for males and 2.0 percentage points for females. Therefore educational attainment has a more pronounced effect on the language skills of females than on the language skills of males.

Language skills increase with years since migration, but at a decreasing rate. The partial effect of this variable is given by  $\partial LANG / \partial YSM = 0.0027 + 0.000075YSM$  for immigrant men and  $\partial LANG / \partial YSM = 0.003 - 0.00009YSM$  for immigrant women in Ontario. This means that if someone is staying in Canada for ten years, one-year residence will result in an increase in English fluency rate of only 0.29 percentage points for men and 0.28 percentage points for women.

Age at immigration also has a significant impact on language fluency, with language proficiency declining the greater the age at migration. For example, males who arrived in Canada at age 25 are predicted to have English fluency rate 3.3 percentage points greater than males who arrived at 45 years of age. The difference is much larger for female immigrants. Females who arrived in Canada at age 25 are predicted to have English fluency rate 7.4 percentage points greater than females who arrived at 45 years of age. This is probably because older immigrant women have families and have to dedicate more time to their families. It is hard for them to enhance their official language fluency.

**Table 4**

**Regression Estimates of English Language Fluency among Adults, Ontario, 1996**

Variable	Men		Women	
	Parameter Estimate	t Value	Parameter Estimate	t Value
Intercept	0.82591	95.59	0.74613	69.77
Total years of schooling	0.01123	32.62	0.02011	49.81
Years since immigration (YSM)	0.00266	7.57	0.00304	7.43
YSM squared	0.00003749	-5.14	-0.00004252	-4.88
Age at Immigration	-0.00166	11.82	-0.00369	-22.87
Marital status	0.00234	0.81	0.00396	1.25
Minority linguistic concentration	-0.00578	-3.79	-0.01826	-9.74
Birthplace				
West Europeans	0.00956	1.28	0.02173	2.19
East Europeans	0.00362	0.58	0.00927	1.26
South Europeans	-0.01237	-2.66	-0.00128	-0.22
China	-0.05978	-8.68	-0.05409	-6.66
India	0.01547	2.53	-0.02964	-3.88
Other Asia Countries	0.00009664	-0.02	-0.01407	-2.56
South and Central Americans	0.02276	5.22	0.02781	5.52
Africa	0.01538	2.46	0.02066	2.58
Other	0.01421	3.31	0.00569	1.08
Sample Size	23929		25474	
Adjust R <sup>2</sup>	0.1132		0.2055	

Data source: 1996 Canadian Census, 100 percent sample of the immigrant men and immigrant women aged 25-64 years in Ontario.

Note: adjust R<sup>2</sup>s are often about 20 percent in similar statistical analyses such as those of Chiswick and Miller (1992).

Another significant variable is minority linguistic concentration. When this variable increases by 10 percentage points, that is, more individuals from the same original language in Ontario, the English fluency decreases by almost 6 percentage points for males and 18.26 percentage points for females.

Birthplaces reflect different levels of English fluency before immigration. The results

indicate that immigrants from China have a rate of the official language fluency 6 percentage points lower than that of the benchmark groups of immigrants from English-speaking countries for males and 5.4 for females, if other variables are kept the same. South Europeans are also distinguished by a lower level of official language skills, 1.24 percentage points lower than that of the benchmark group for males, but only 0.13 percentage points for females with a very low t-value. East Europeans are not statistically different from the benchmark group for both males and females. West Europeans and other Asians are not statistically different for males, but they are for females. Immigrants from Africa and India are shown to have a rate of official language fluency greater than that of the benchmark group for both males and females.

#### **Analysis of the language fluency in Quebec**

The estimates are presented in table 5 for English fluency and table 6 for French fluency. They reveal that each additional year of education is associated with an increase in the English fluency rate of 2.4 percentage points for men and 3.3 percentage points for women, and with an increase in French fluency rate of 1.5 percentage points for men and 1.9 percentage points for women. As in Ontario, educational attainment has a more pronounced effect on the language skills of females than on the language skills of males in Quebec, and it has more effect on English fluency than on French fluency.

The adverse impacts of age at immigration on English and French are statistically significant for immigrant men and immigrant women. The English fluency are 13.7 percentage points greater at 25 years old than at 45 years old for men and 12.1 percentage points for women. This phenomenon is almost the same for French fluency. For example, the French fluency is 10.1 percentage points greater at 25 years old for men and 12.6

percentage points for women.

**Table 5**  
**Regression Estimates of English Language Fluency among Adults, Quebec, 1996**

Variable	Men		Women	
	Parameter Estimates	t Value	Parameter Estimation	t Value
Intercept	0.72091	17.24	0.52708	10.12
Total years of schooling	0.02363	16.3	0.03259	18.08
Years since immigration (YSM)	-0.00076556	-0.45	0.00144	0.69
YSM squared	0.0000529	1.37	0.00005411	1.15
Age at Immigration	-0.00685	-9.99	-0.00603	-7.31
Marital status	0.02593	2	-0.00261	-0.18
Minority linguistic concentration	0.03282	2.6	-0.01751	-1.1
Birthplace				
West Europeans	-0.0217	-0.24	-0.0293	-0.31
East Europeans	-0.07491	-1.76	-0.02489	-0.53
South Europeans	-0.16089	-5.55	-0.1051	-3.02
China	-0.02796	-0.72	-0.03128	-0.74
India	0.05133	1.27	0.09144	1.63
Other Asia Countries	-0.08635	-3.18	-0.0162	-0.51
South and Central Americans	-0.2347	-9.23	-0.25478	-8.94
Africa	-0.1148	-4.33	-0.13054	-3.99
Other	-0.12836	-5.68	-0.15292	-5.7
Sample Size	6075		5954	
Adjust R <sup>2</sup>	0.1363		0.1938	

Data source: 1996 Canadian Census, 100 percent sample of the immigrant men and immigrant women aged 25-64 years in Quebec.

The duration of residence in Quebec has no statistically significant impacts on the English fluency, but has some impacts on the French fluency. The partial effect of this variable is given by  $\partial LANG / \partial YSM = 0.00814 - 0.00043YSM$  for immigrant men and  $\partial LANG / \partial YSM = 0.00385 - 0.00038YSM$  for immigrant women. For example, the first year of residence is associated with almost a 1 percentage point's improvement in the

French fluency for men and a 0.39 percentage points' improvement for women. However, if someone is staying in Quebec for ten years, one-year residence will result in an increase in French fluency rate of only 0.38 percentage points for men and almost zero for women.

**Table 6**

**Regression Estimates of French Language Fluency among Adults, Quebec, 1996**

Variable	Men		Women	
	Parameter Estimates	t Value	Parameter Estimates	t Value
Intercept	0.60648	15.34	0.56548	11.36
Total years of schooling	0.01458	10.63	0.01942	11.27
years since immigration (YSM)	0.00814	5.01	0.00385	1.92
YSM squared	-0.00021618	-5.92	-0.00018959	-4.23
Age at immigration	-0.00503	-7.75	-0.00629	-7.98
Marital status	-0.04886	-3.99	0.02501	1.76
Minority linguistic concentration	0.04248	3.55	0.04924	3.24
Birthplaces				
West Europeans	0.04967	0.57	0.11126	1.23
East Europeans	0.04049	1	0.03964	0.89
South Europeans	0.24148	8.8	0.22496	6.77
China	-0.39191	-10.68	-0.45742	-11.34
India	-0.41503	-10.86	-0.39979	-7.46
Other Asia Countries	-0.10907	-4.24	-0.2022	-6.67
South and Central Americans	0.11866	4.93	0.08526	3.13
Africa	0.19803	7.89	0.23261	7.44
Other	0.12937	6.05	0.15308	5.97
Sample Size	6075		5954	
Adjust R <sup>2</sup>	0.2115		0.2373	

Data source: 1996 Canadian Census, Mirocfile data, 100 percent sample of the immigrant men and immigrant women aged 25-64 years in Quebec.

With the exception of its effect on the English fluency of immigrant women, minority

linguistic concentration has positive and significant effects on language fluency for all immigrants in Quebec. This result is puzzling and contradicts to the expectation in part 2. It may be due to the fact that immigrants from the same country of origin prefer the same official language. The concentration of these minority language speakers may create the demand for services in this official language, resulting in more incentive to acquire this language skills and more chance to practice it. Perhaps it may be simply because this variable is not precise and its effect uncertain.

Finally, birthplace is another important determinant of language fluency of immigrants in Quebec. Immigrants from all over the world, aside from India, have a rate of English language fluency lower than that of the benchmark groups of immigrants from English-speaking countries for both men and women, but only the rates for South Europeans, South and Central Americans, Other Asia countries (only for men) and Africa are statistically significant. This shows that the English language fluency of immigrants from West Europeans, East Europeans and China is not different from that of benchmark groups. South and Central Americans have the lowest rate of English fluency, 24 percentage points lower than that of benchmark groups. Next are South Europeans, 16 percentage points and Africans, 12 percentage points lower.

The birthplace of immigrants has more significant effects on French language fluency than on English language fluency, (in the regression of French language fluency, English-speaking countries are still used as benchmark groups because a large proportion of immigrants who can speak French come from English-speaking countries). Only three birthplace countries, India, China and Other Asian Countries, have negative coefficients for French language fluency, while others have positive ones. The immigrant men from

India have a rate of French language fluency 42 percentage points lower than that of the benchmark groups as the lowest fluency group of men, and the immigrant women from China have a rate of French language fluency 46 percentage points lower than that of benchmark groups as the lowest fluency group of women. South European immigrants have a rate of French language fluency 24 percentage points greater than that of the benchmark groups for men and 25 percentage points greater than that of benchmark groups for women.

### **Ontario and Quebec Comparisons**

The immigrants in Ontario and Quebec enter on the basis of similar skill-based points system. As shown in table 3, the two provinces both have high ratio of immigrants who get post-secondary education. However, because the dominant languages are different in the two provinces, the immigrants who can speak English are more likely to land in Ontario and the immigrant who can speak French are more likely to land in Quebec. About 96 percent of immigrant in Ontario report that they are fluent in English, whereas only 76.7 percent of immigrants in Quebec are fluent in English. Only 7 percent of immigrants in Ontario report that they are fluent in French, whereas 76.8 percent of immigrants in Quebec are fluent in French. Correspondingly, the source countries of immigrants are somewhat different.

Despite these differences, the immigrant experience in the destination country language fluency is remarkably similar in Ontario and in Quebec. Except for minority linguistic concentration, the explanatory variables affect the destination language fluency in the same direction in each province. However, the magnitudes of the estimated effects of the explanatory variables differ between Ontario and Quebec. Comparing Table 4 and

Table 5 indicates that the estimated effects of total years of schooling and age at immigration for Quebec are larger than the estimated effects for Ontario for both immigrant men and immigrant women. Years since immigration has a significant impact on English fluency for immigrants in Ontario, but it has no significant impact on English fluency for immigrants in Quebec. Marital status has no impact in both provinces. The effects of minority linguistic concentration on the destination language fluency of immigrants in Quebec are obscure, even though its effects on the destination language fluency of immigrants in Ontario are as predicted. The differences of the dominant languages between Ontario and Quebec may be the main reason for the different effects of birthplaces.

#### **V. Earnings in the immigrant labor market**

In the immigrant labor markets, years of schooling, duration of residence, work experience, weeks worked, marital status, citizenship, the destination language fluency, visible minority and birthplace are considered to be important determinants of earnings.

Duration of residence, measured by years since immigration, “reflects about the institutions of the destination country labor market, cultural adjustment factors, the development of networks for labor market contacts and investments in the human capital skills that lead to labor market success in the destination country” (Chiswick and Miller, 2002). The longer the duration of residence, the higher the level of earnings.

Years of schooling has definitely a positive effect on earnings. Employers believe those who have work experience are familiar with work environment, hold work skills,

and have high productivity. Immigrants' work experiences can be divided into two elements: before immigration and after immigration. Supposing a positive relationship between work experiences after immigration and duration of residence and a positive relationship between work experience before immigration and age at immigration, I use duration of residence and age at immigration in the regression instead of work experiences. Actually, it has been found that there is a correlation between age at immigration and immigrants' earnings (Schaafsma and Sweetman, 2001).

Marital status has a different expected impact on men and women. Married men have greater family responsibilities, so they often work hard and could be more successful in their jobs than single men. Therefore, marriage has a positive impact on men's earnings. However, the situation is different for women. Married women have to do housework and take care of their children. They have less time to invest in work and job training. Hence, marriage has an adverse impact on women's earnings.

Citizenship may open doors to better paying jobs; for example, citizenship is a necessary requirement for jobs in the Canadian government. Visible minority status may cause discrimination in the job markets. Birthplace captures the unmeasured and unobservable differences in the average productivity of immigrants from the various countries of origin. Immigrants with relatively fewer internationally transferable skills are expected to have a lower earnings profile. Birthplace will also capture differences in the effects of culture and discrimination on measured earnings.

The destination country languages are not the native languages of most immigrants. For immigrants, there is an economic cost to destination language deficiency. Language ability can affect productivity by the efficiencies of language communication. Employers

are generally less certain of the productivity of immigrant workers, and a lack of ability of the destination language may increase that uncertainty. Employers may require immigrants to exhibit a higher level of productivity, especially in bad economic conditions. Wages offered at every skill level will account for this additional risk. If the risks of uncertainty about productivity or bad economic conditions are costly to the firm, then the wage offer may include monitoring costs and turnover costs. In this case, employers may attempt to reduce downside variance in productivity preemptively by screening against those with a higher probability of low productivity ( Kossoudji, 1988). Finally, a lack of command of the English language may alter an immigrant's job-search behavior and will most certainly hamper his or her ability to acquire the maximum information about wage offers and opportunities.

The equation of earnings can be expressed as:

$$\begin{aligned} \ln EOI = & b_0 + b_1 \times YOS + b_2 \times YSM + b_3 \times (YSM)^2 + b_4 \times AAM + b_5 \times MS + b_6 \times COI \\ & + B_7 \times \ln WW + b_8 \times VM + B_9 \times BOI + B_{10} \times DLF \end{aligned}$$

Where  $\ln EOI$  is the logarithm of earnings of immigrants,  $YOS$  is the years of schooling, a measure of the years of full-time equivalent formal schooling of the individual,  $YSM$  is the years since immigration, i.e. the number of years in the destination country,  $AAM$  is the age at migration,  $MS$  is the marital status,  $COI$  is the measure of the citizenship of immigrant,  $\ln WW$  is the logarithm of weeks worked of immigrant in 1995,  $VM$  is the dummy variable for visible minority,  $BOI$  is the birthplace of immigrants and  $DLF$  is the destination language fluency.

## VI. Analyses of immigrants' earnings in Ontario and Quebec

The empirical results are displayed in Table 7-1 and Table 7-2 for men and women in Ontario and Table 8-1 and Table 8-2 for men and women in Quebec. These estimates are derived for twenty-five to sixty-four year old foreign-born men and women who were employed at the time of the census. English fluency is included in Table 7-1, column a; the variable of both English and French fluency is included in column b. In Table 7-2, column a and b do the same for women. In table 8-1, English fluency is included in column a, French fluency in column b and the variable of both English and French fluency in column c. In Table 8-2, column a, b and c do the same for women.

The results in the two tables indicate that the earnings of immigrants are related to years of schooling, duration of residence, age at immigration, weeks worked, marital status, citizenship of immigrant, birthplace of immigrants and the destination language fluency. Visible minority is not statistically significant in all regressions. This suggests that discrimination against visible minorities does not appear to be a serious problem for immigrants, while it does exist among native-born Canadians (Pendakur and Pendakur, 2002).

The estimates in Table 7-1, column a, reveal that each additional year of education is associated with an increase in earnings of 4.6 percentage point for immigrant men in Ontario. The first year's residence in Ontario will enhance earnings by 3.54 percentage points. Unlike its effect on the destination country language fluency, age at immigration has a positive effect on immigrants' earnings. For example, men who arrive in Canada at age 35 are predicted to have earnings 2.7 percentage points more than those who arrive at

**Table 7-1**

**Regression Estimates of Earnings among Adults, Ontario, 1996**

Variable	Men			
	Parameter Estimates (a)	t Value	Parameter Estimates (b)	t Value
Intercept	4.89225	17.5	4.9615	17.51
Total years of schooling	0.04584	23.36	0.04599	23.76
years since immigration (YSM)	0.03544	16.66	0.035662	16.76
YSM squared	-0.00052	-	-0.00052	-
		12.28		12.37
Age at immigration	0.00268	3.41	0.00249	3.18
Citizenship	0.08836	4.91	0.09013	5.02
Marital status	0.18849	11.6	0.19023	11.71
Visible Minority				
black people	0.31801	1.14	0.3373	1.21
South Asian	0.40785	1.47	0.42891	1.54
Chinese	0.49015	1.75	0.50355	1.8
other visible minority	0.35709	1.29	0.37363	1.35
Log of weeks worked	0.91361	65.07	0.91383	65.09
Birthplaces				
West Europeans	-0.12676	-3.06	-0.12494	-3.01
East Europeans	-0.14578	-4.22	-0.1417	-4.1
South Europeans	-0.05006	-2.19	-0.0526	-2.3
China	-0.16137	-2.89	-0.16278	-2.92
India	-0.07708	-1.63	-0.07823	-1.65
Other Asia Countries	-0.14311	-3.82	-0.14297	-3.82
South and Central Americans	-0.03589	-1.09	-0.03395	-1.06
Africa	-0.06618	-1.65	-0.07648	-1.91
Other	-0.18639	-7.61	-0.19032	-7.76
English Fluency	0.09461	2.38		
Both English and French			0.08155	3.03
Adjust R <sup>2</sup>	0.2787		0.2788	

Note: column (a) includes the independent variable of English Fluency.

Column (b) includes the independent variable of Language Fluency of both English and French.

Data source: 1996 Canadian Census, 100 percent sample of the immigrant men and immigrant women aged 25-64 in Ontario. Sample size: 23929.

**Table 7-2**

**Regression Estimates of Earnings among Adults, Ontario, 1996**

Variable	Women			
	Parameter Estimates (a)	t Value	Parameter Estimates (b)	t Value
Intercept	5.30521	13.25	5.33014	13.37
Total years of schooling	0.05451	22.94	0.05215	22.42
years since immigration (YSM)	0.03426	14.1	0.03426	14.12
YSM squared	-0.00051	-10.3	-0.00051	-10.32
Age at immigration	0.000225	0.25	0.000295	0.33
Citizenship	0.06693	3.36	0.06564	3.3
Marital status	-0.01288	-0.77	-0.00931	-0.56
Visible Minority				
black people	-0.32344	-0.82	-0.32812	-0.83
South Asian	-0.2763	-0.7	-0.28167	-0.71
Chinese	-0.10645	-0.27	-0.11464	-0.29
other visible minority	-0.30768	-0.78	-0.31628	-0.8
Log of weeks worked	0.92387	70.5	0.92481	70.63
Birthplaces				
West Europeans	-0.20962	-4.09	-0.20923	-4.09
East Europeans	-0.08145	-2.1	-0.0752	-1.94
South Europeans	0.05516	2.05	0.04992	1.86
China	-0.04787	-0.77	-0.04364	-0.7
India	0.0891	1.59	0.08715	1.56
Other Asia Countries	0.0495	1.14	0.05332	1.23
South and Central Americans	0.08832	2.37	0.08687	2.33
Africa	0.10791	2.2	0.08674	1.76
Other	-0.02317	-0.83	-0.03909	-1.39
English Fluency	-0.00158	-0.04		
Both English and French			0.16221	5.43
Adjust R <sup>2</sup>	0.2891		0.2903	

Note: Parameter Estimates (a) includes the independent variable of English Fluency.

Parameter Estimates (b) includes the independent variable of Language Fluency of both English and French.

Data source: 1996 Canadian Census, 100 percent sample of the immigrant men and immigrant women aged 25-64 years in Ontario. Sample size: 25474.

25 years old. Citizenship has a significant impact on immigrants' earning. Immigrant men who hold citizenship of Canada can earn 9 percentage points more than those without citizenship. As predicted, married men have higher earnings than single men by 19 percentage points. English language fluency is an important factor affecting the earnings of immigrant men. Immigrant men who can speak English have earnings almost 10 percentage points higher than those who can't. Birthplace country is very important for understanding variation in earning of immigrant men in Ontario. Each of the birthplace groups has earnings lower than the benchmark group of immigrant men from English-speaking countries, although the coefficients of India, South and Central Americans and Africa are not significant. The ranking of earnings in decreasing order is: English-speaking countries (the benchmark), South and Central America, South Europeans, Africa, India, West Europeans, Other Asia Countries, East Europeans, China. At the lowest end of the spectrum, the earnings of immigrant men from China are approximately 20 percentage points lower than those of English-speaking countries.

In Table 7-1, column b shows that coefficient of both English and French fluency is almost the same as that of English fluency. This indicates that being bilingual is not a very important factor in immigrant labor market in Ontario.

Column a, in Table 7-2, lists the parameter estimates for immigrant women in Ontario. There is much difference in the parameter estimates of years of schooling between immigrant men and immigrant women in Ontario. Each additional year of education increases earnings of immigrant women more than those of immigrant men by almost 1 percentage point. The first year's residence in Ontario has almost the same impact on immigrant women as on immigrant men. Unlike its effect on the earnings of immigrant

men, age at immigration has no significant effect on the earnings of immigrant women. This may indicate that work experiences before immigration are not important in the destination country for immigrant women in Ontario. Citizenship has contributed less to earnings of immigrant women than to those of immigrant men. Marriage has nearly no impact on the earnings of immigrant women. The effect of English fluency is very small, but the effect of being bilingual is statistically significant. Weeks worked is also a main variable to earnings. Birthplace country has impacts on the earnings of immigrant women through traditions and culture of origin countries. In some origin countries, women are inclined to stay at home to do housework. In other countries, it is very common for women to work outside like men.

The estimated results of immigrant men and immigrant women in Quebec are shown in Tables 8-1 and 8-2 respectively.

The estimates in Table 8-1, column a reveal that each additional year of education is associated with an increase in earnings of 6.4 percentage points for immigrant men who can speak English in Quebec. This parameter estimate is larger than that in Ontario by almost 2 percentage points. The first year's residence in Quebec will enhance earnings by 4.3 percentage points. This estimate is also larger than that in Ontario. Age at immigration has a positive impact on immigrants' earnings, the same as in Ontario, but the impact is much larger than that in Ontario. Unlike its effect on immigrant men's earnings in Ontario, citizenship has an insignificant impact on immigrant men's earnings in Quebec. As in Ontario, marital status has a significant impact on the earnings of immigrant men in Quebec. Married men have higher earnings than single men by 17 percentage points, a discrepancy that is a little bit lower than in Ontario. It is surprising

that English language fluency has no significant effect on the earnings of immigrant men in Quebec. As in Ontario, visible minority is not statistically significant. Birthplace is not very important for the earnings of immigrant men in Quebec. Except for West Europeans, each of the birthplace groups of immigrant men in Quebec has lower earnings than the immigrant men from English-speaking countries, but the coefficients are not significant.

In Table 8-1, column b indicates that language skills are important for the earnings of immigrant men with French fluency. Immigrant men who are proficient in French have earnings 14.3 percentage points higher than immigrant men who lack this skill, other things being the same. The return to ability in French may have increased because Quebec government promoted the use of French in Quebec. The linguistic composition of the Quebec workforce shifted toward the French from 1970 to 1985 (Bloom and Grenier, 1992). Other parameter estimates are not much different from the parameter estimates for immigrants who can speak English. Column c shows that parameter estimates for immigrant men who can speak both English and French are almost the same as the parameter estimates for immigrant men who can speak only French. This indicates that bilingualism is as important as French in immigrant labor market of Quebec.

Table 8-2 lists the parameter estimates for immigrant women in Quebec. Compared with the parameter estimates for immigrant men in Quebec, additional year of education has less effect on the earnings of immigrant women by 0.5 percentage points than on the earnings of immigrant men, but the first year's residence enhances more earnings of immigrant women by almost 0.5 percentage points than the earnings of immigrant men. Compared with the parameter estimates for immigrant women in Ontario, an additional year of education and the first year's residence increase earnings of immigrant women in

**Table 8-1**

**Regression Estimates of Earnings among Men, Quebec, 1996**

Variable	Parameter Estimates (a)	t Value	Parameter Estimates (b)	t Value	Parameter Estimates ©	t Value
Intercept	4.58182	8.15	4.54363	8.1	4.588	8.18
Total years of schooling	0.06496	17.35	0.064	17.4	0.06271	16.63
years since immigration (YSM)	0.04247	8.85	0.04179	8.71	0.0422	8.8
YSM squared	-0.0005240	-5.13	-0.000499	-4.88	-0.000514	-5.04
Age at immigration	0.00799	4.61	0.00843	4.89	0.00882	5.05
Citizenship	0.06463	1.5	0.05666	1.32	0.05731	1.33
Marital status	0.17441	5.37	0.18238	5.62	0.17719	5.46
Visible Minority						
black people	0.24557	0.44	0.24325	0.44	0.24627	0.45
South Asian	0.1875	0.34	0.2332	0.42	0.20289	0.36
Chinese	0.21132	0.38	0.20472	0.37	0.19925	0.36
other visible minority	0.38088	0.69	0.36714	0.67	0.36704	0.67
Log of weeks worked	0.86956	31.04	0.86846	31.04	0.86746	30.99
Birthplaces						
West Europeans	0.04884	0.21	0.04216	0.18	0.04588	0.2
East Europeans	-0.25905	-2.42	-0.26575	-2.49	-0.25805	-2.41
South Europeans	-0.06705	-1.08	-0.11237	-1.79	-0.08685	-1.4
China	-0.12683	-0.92	-0.0823	-0.6	-0.09729	-0.71
India	0.02315	0.17	0.02554	0.19	0.03501	0.26
Other Asia Countries	-0.17482	-2.14	-0.17651	-2.17	-0.16254	-1.99
South and Central Americans	-0.14786	-1.92	-0.18377	-2.4	-0.15165	-1.99
Africa	-0.176	-2.49	-0.21387	-3.01	-0.19113	-2.71
Other	-0.16437	-2.88	-0.18774	-3.29	-0.16944	-2.98
English Fluency	0.04279	1.15				
French Fluency			0.14314	3.61		
Both English and French					0.10609	3.3
Adjust R <sup>2</sup>	0.3050		0.3068		0.3065	

Note: column (a) includes the independent variable of English Fluency.

Column (b) includes the independent variable of Language Fluency of both English and French.

Data source: 1996 Canadian Census, 100 percent sample of the immigrant men and immigrant women aged 25-64 years in Quebec. Sample size: 6075.

**Table 8-2**

**Regression Estimates of Earnings among Women, Quebec, 1996**

Variable	Parameter Estimates (a)	t Value	Parameter Estimates (b)	t Value	Parameter Estimates ©	t Value
Intercept	5.96885	5.97	6.03294	6.04	6.06936	6.08
Total years of schooling	0.0597	12.54	0.0592	12.81	0.05631	11.71
years since immigration (YSM)	0.04678	7.92	0.04645	7.88	0.04614	7.82
YSM squared	-0.00065469	-5.23	-0.00062668	-5.01	-0.00063274	-5.06
Age at immigration	0.00222	1.06	0.00278	1.32	0.00333	1.57
Citizenship	0.03771	0.74	0.03704	0.73	0.03819	0.75
Marital status	0.00921	0.25	0.00551	0.15	0.00556	0.15
Visible Minority						
black people	-0.86328	-0.86	-0.9524	-0.95	-0.93397	-0.94
South Asian	-1.21342	-1.21	-1.26517	-1.26	-1.27766	-1.27
Chinese	-0.80994	-0.81	-0.92193	-0.92	-0.92168	-0.92
other visible minority	-0.94302	-0.94	-1.05409	-1.06	-1.0413	-1.04
Log of weeks worked	0.79599	27.63	0.79506	27.63	0.79424	27.61
Birthplaces						
West Europeans	-0.16266	-0.68	-0.17828	-0.75	-0.17352	-0.73
East Europeans	-0.14194	-1.2	-0.14929	-1.26	-0.1446	-1.22
South Europeans	-0.00389	-0.05	-0.0503	-0.66	-0.02896	-0.39
China	0.02369	0.14	0.08309	0.5	0.07506	0.46
India	0.18037	0.91	0.18231	0.92	0.19261	0.97
Other Asia Countries	0.15073	1.5	0.17077	1.69	0.17615	1.74
South and Central Americans	-0.04753	-0.51	-0.09252	-1	-0.05392	-0.59
Africa	-0.00146	-0.02	-0.04826	-0.54	-0.0239	-0.27
Other	0.04789	0.7	0.01621	0.24	0.03782	0.56
English Fluency	0.06437	1.49				
French Fluency			0.1415	3.11		
Both English and French					0.13808	3.47
Adjust R <sup>2</sup>	0.2821		0.2837		0.2842	

Note: column (a) includes the independent variable of English Fluency.

Column (b) includes the independent variable of Language Fluency of both English and French.

Data source: 1996 Canadian Census, 100 percent sample of the immigrant men and immigrant women aged 25-64 years in Quebec. Sample size: 5954.

Quebec more than the earnings of immigrant women in Ontario by about 0.5 percentage points and 0.7 percentage points respectively. As they are in the case for immigrant women in Ontario, age at immigration and marital status have no significant impact on the earnings of immigrant women in Quebec. This may indicate that work experiences before immigration are not important for immigrant women in Quebec either. Unlike its effect on the earnings of immigrant women in Ontario, the effect of citizenship on immigrant women in Quebec is not significant. As in the case of immigrant men, immigrant women who are bilingual or fluent in French have significantly higher level of earnings. Weeks worked has an important impact on earnings, but birthplace doesn't.

### **Comparing Immigrants' Earnings of 1996 with 1981**

Chiswick and Miller (1992) estimate for Canada the same equation of immigrants' earnings as the one in this paper using data based on 1981 Canadian Census for adult male immigrants (aged 25-64 years, 1/100 sample). Because more than half of immigrants are in Ontario, the parameter estimates for male immigrants in Ontario may be compared to the situation of Canada as a whole. Hence, the comparison will be carried out between the findings of Chiswick and Miller and those drawn for male immigrants in Ontario in this paper.

The results, contained in Table 9, indicate that the effect of education attainment on immigrants' earnings has almost not changed in this period of time. However, the variable, years since immigration, has more effect on immigrants' earnings in 1996 than in 1981. The first year's residence in Canada in 1996 increases immigrants' earnings more than in 1981 by 1 percentage points. Marriage has less effect on immigrants' earnings in 1996 than in 1981, but citizenship has more effect on immigrants' earnings in

1996 than in 1981. Official language fluency has less impact on immigrants' earnings in 1996. This is probably because the number of the immigrants who can speak English has increased from 1981 to 1996, and this results in a downward pressure on the earnings of the immigrants with official language proficiency. The earnings of immigrants from all birthplace countries have increased from 1981 to 1996. The coefficients of birthplace of South Europeans, China and Africa have increased twice from 1981 to 1996. Higher level of education may be the main reason for the increasing of immigrants' earnings in 1996.

## **VII. Conclusion**

This paper has explored the determinants of the official language fluency and earnings of immigrants in Ontario and Quebec respectively, using the individual file of Canadian Census 1996. The findings of this study are the following:

- (1) The official language fluency of immigrants is highly related to total years of schooling, years since immigration, age at immigration and minority linguistic concentration. Immigrants who get higher levels of education (more years of schooling) will speak the official languages better than the immigrants who get lower levels of education if they stay in Canada for the same period of time. With years in Canada, the official language fluency of immigrants will improve rapidly. If the age at immigration is greater, the official language fluency of immigrants will decline. An increase in the minority linguistic concentration is associated with a reduction in the language fluency rate of immigrants. Marital status has no significant effects on the official language fluency of immigrants since there is no

further information on the spouse's mother language. Birthplaces have no persistent impact on the official language fluency of immigrants in all estimations.

(2) The earnings of immigrants are highly related to total years of schooling, years since immigration, and citizenship. Age at immigration has a significant effect on the earnings of immigrant men, but has no significant effect on the earnings of immigrant women. Marriage has significantly positive effects on the earnings of immigrant men while it has insignificantly negative effects on earnings of immigrant women. Visible minority status has negative but insignificant effects on the earnings of both immigrant men and immigrant women. English fluency has significantly positive effects on the earnings of immigrant men but not much significant effects on the earnings of immigrant women in Ontario. French fluency has significantly positive effects on the earnings of both immigrant men and immigrant women in Quebec, but English fluency has insignificant effects on the earnings of both immigrant men and immigrant women in Quebec. Bilingualism has a significant effect on the earnings of all immigrants in both provinces.

(3) Compared with the features of immigrant labor market in 1981, duration in Canada and citizenship of immigrants have more effect on the earnings of immigrants in 1996, but marital status and official language fluency have less effect on the earnings of immigrants in 1996. The effect of educational attainment has almost not changed. Birthplaces have still an adverse impact on the earnings of immigrants, but this impact has decreased from 1981 to 1996.

**Table 9**  
**Comparison of parameter estimates**

Variable	Parameter Estimates for men	
	1996 Ontario	1981 Canada
Total years of schooling	0.04584	0.045
YSM squared	0.03544	0.025
Citizenship	0.08836	0.071
Marital status	0.18849	0.21
Log of weeks worked	0.9136	1.0031
Language Fluency	0.09461	0.122
Birthplaces		
West Europeans	-0.12676	-0.138
East Europeans	-0.14578	-0.182
South Europeans	-0.05006	-0.14
China	-0.16137	-0.344
Other Asia Countries	-0.14311	-0.237
South and Central Americans	-0.03589	-0.296
Africa	-0.06618	-0.13
Other	-0.18639	-0.103

Note: parameter estimates of 1981 from Chiswick and Miller (1992), P268-270.

## Reference

- Benjamin, D., M. Gunderson, and W. C. Riddell (1998) *Labour Market Economics*, 4<sup>th</sup> edition, (Toronto: McGraw-Hill Ryerson), Chapter 11.
- Bloom, David E., Gilles Grenier and Gunderson, M (1995) "The changing Labor Market Position of Canadian Immigrants", *Canadian Journal of Economics*, Vol.28, No.4b, 1995, pp987-1005.
- Bloom, David E., Gilles Grenier "Earnings of the French Minority in Canada and the Spanish Minority in the United States" In Chiswick, B. *Immigration, Language and Ethnicity: Canada and the United States* (Washington, D. C.: AEI Press), 1992, pp373-409.
- Boyd, Monica "Gender Issues in Immigration and Language Fluency" In Chiswick, B. *Immigration, Language and Ethnicity: Canada and the United States* (Washington, D. C.: AEI Press), 1992, pp305-363.
- Chiswick, Barry R., and Paul W. Miller (1992) "Language in the Immigrant Labor Market". In Chiswick, B. *Immigration, Language and Ethnicity: Canada and the United States* (Washington, D. C.: AEI Press), 1992, pp229-287.
- Chiswick, Barry R., and Paul W. Miller (1995) "The Endogeneity between Language and Earnings: International Analyses" *Journal of Labor Economics*, Vol.13, No.2, 1995, pp246-88.
- Chiswick, Barry R., and Paul W. Miller (2002) "Immigrant Earnings: Language Skills, Linguistic Concentrations and the Business Cycle", *Journal of population Economics*, vol. 15, no.1, 2002, pp31-57.
- Harley, Brigit. *Age in Second Language Acquisition*. Avon: Multilingual Matters, 1986.
- Kossoudji, Sherrie A. (1988) "English Language Ability and the Labor Market Opportunities of Hispanic and East Asia Immigrant Men" *Journal of Labor Economics*, No. 2, 1988, pp205-28.
- Long, Michael H. (1990) "Maturational Constraints on Language Development" *Studies in Second Language Acquisition*, No. 3, 1990, pp251-85.
- Pendakur, Krishna and Pendakur, Ravi, (2002) "Colour My World: Have Earnings Gaps for Canadian-Born Ethnic Minorities Changed over time", *Canadian Public Policy*, vol. 28, no. 4, 2002.
- Quell, Carsten "*Official Languages and Immigration: Obstacles and Opportunities for Immigrants and Communities*". Published by Office of the Commissioner of Official Languages, 2002.
- Robinson, Chris. (1988) "Language choice: The Distribution of Language Skills and Earnings in a Dual Language Economy" *Research in Labor Economics*, 1988, pp53-90.
- Schaafsma, Joseph and Sweetman, Arthur (2001), "Immigrant Earnings: Age at Immigration Matters", *Canadian Journal of Economics*, vol. 34, no. 4, 2001, pp1066-1100.