Are Immigrants More Likely to Retire Later Than Canadian-Born Workers

by

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Abstract

The work participation rate is one of the most important factors that affects the Canadian economy and early retirement can have an important negative impact on this rate. This paper focuses on differences in the preferences for the age of retirement of immigrants and Canadian-born workers. Based on a very large dataset from the Canadian Community Health Survey (CCHS), a probit model is used to estimate the probability of retirement for both immigrants and Canadian-born workers at different age ranges. The main results suggest that immigrants tend to retire at an older age than Canadian-born workers. This result is consistent with the first assumption that immigrants are willing to work longer to increase their CPP and their personal saving, and the second assumption that immigrants have a potential better health status, which could also lead to a later retirement.

Key terms: Immigrant, Canadian-Born, Retirement, Age, Health

LIST OF ABBREVIATIONS USED

CCHS	Canadian Community Health Survey
CPP	Canada Pension Plan
OAS	Old Age Security Program
GIS	Guaranteed Income Supplement

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CHAPTER 1 INTRODUCTION

Government policy makers and economists have been increasingly interested in the age of retirement over last decades due to the rapid aging of populations in industrialized countries. Workers tend to leave the labor force at a younger age which has led to a lower work participation rate (Gruber and Wise, 1997). Retirement decisions are strongly affected by health status and income (Sickles and Taubman 1984). In Canada, retired seniors' income is mainly from three sources that include personal savings and investments, government pension benefits and employer pensions. Personal savings and investments and some of the government pension benefits, such as CPP/QPP, are dependent on personal incomes before retirement.

Currently, almost 20% of the population is made up of immigrants (Statistics Canada 2006) and current immigration policy brings in around one quarter of a million new immigrants per year (Human Resources and Skills Development Canada 2011). Many immigrants have already started their careers prior to arriving in Canada and therefore, have less time to accumulate CPP contributions. This suggests that immigrants may need to work longer once in Canada to accumulate CPP.

Studies show that immigrants are on average healthier than the native born. Many explanations are made for this phenomenon. For example, migrants need to pass the health screening by recipient countries and immigrants are self-selected which refers that healthier and wealthier people tend to immigrate (Kenney et al. 2006). However, some

studies show the "healthy immigrant effect" tends to diminish over time and converges to the native norm (Gee et al. 2003).

Since most of the immigrants do not have as many working years as most Canadian-born workers and potentially a better health status, they might choose to work longer to increase their CPP and their personal savings. This study looks at the issue by examining whether immigrants delay retirement relative to Canadian-born workers.

The work participation rate is one of the most important factors affecting the health of the Canadian economy, therefore; the government is interested in increasing the work participation rate. Based on a very large dataset from the 2010 Canadian Community Health Survey (CCHS), this paper uses a probit model to determine whether immigrants are less likely to retire than Canadian-born residents at the same age, which would be a reference for policy makers to modify existing policies.

The result shows that immigrants tend to retire later than Canadian-born individuals. Gender, marital status, education and health are also important determinants on an individual's retirement decision. Men and women's retirement decisions are different. Males tend to stay in the labor force longer than women at the same age. Marital status also has important implications for retirement and differs based on gender. Married women are more likely to retire while married men are willing to stay in the labor force longer. House ownership, education and emotional health are all important determinants for the retirement decisions of females, but they do not appear to be important factors for males.

This paper contributes to the small literature on the different retirement timing between immigrants and native-born people. To the best of my knowledge, there are only a few academic papers focusing on this issue in Canada. There are also a few papers studying this issue for European counties. One particular area in which this paper builds on the previous literature is that I use much a larger dataset and therefore obtain more reliable estimates.

The remainder of the paper is organized as follows. Section 2 presents the current literature. Section 3 presents the data. Section 4 describes the model. Section 5 analyzes the results. Section 6 concludes.

CHAPTER 2 LITERATURE REVIEW

In order to understand differences in the age of retirement decision between immigrants and the native born, it is helpful to examine what previous literature has shown to be important determinants of early retirement. Gower (1997) found that workers with postsecondary education and those with long-term jobs tend to retire early, especially if they worked in the public sector. He also estimated that the retirement age will continue to drop. In Denmark, people who choose to retire early are mostly blue collar workers and lower white collar workers since they worked under higher job stress or higher psychological job demands (Lund 2005, Villadsen 2005).

Since CPP could have a significant impact on immigrants' retirement decision, it is important to examine how pensions and social benefits affect people's retirement decision in the previous literature. Compton (2001) indicated that older people who are over 60 (or over 65) are more likely to retire than younger individuals. Although individuals may wish to retire before the age of 60 (or before 65) based on their net present value of wealth, if they cannot shift future income to present, then they might be forced to continue working until they are eligible for benefits. She thinks small changes in programs like CPP/QPP will not have a discernible short term impact on the labor force participation of older workers. Large structural changes may have the desired impact but might be unnecessary, since other external factors appear to be moving in a direction that may result in a rising average age of retirement. Samwick (1998) used SCF (Surveys of Consumer Finance 1983, 1986) and PPS (Pension Provider Survey 1983) datasets to estimate the effect of Social Security and pension benefits on the probability

of retirement for people who aged 42 to 68. He found that change in retirement wealth affects people's retirement decision while pensions are regarded as the primary determinant of the change of retirement wealth. Social Security benefits have only small effects on the probability of retirement. However, some omitted information in the dataset might lead to an erroneous conclusion. Chan and Stevens (2004) tested the relations between individuals' retirement decisions and their pension accumulations. They found that individuals do respond as expected to pension incentives. Nevertheless, they regard a permanent exit from the labor force as actual retirement, which is not an adequate definition of retirement for the reason that retirement is not the only reason for a permanent exit from the labor force. Their definition for retirement could cause a biased result. For example: people might leave the labor force when they have health issues or family issues. According to Bingley and Lanot (2002), one of the most important income flows for workers is employer-specific compensation. However, employer effects on workers' retirement decisions are not found in the general samples.

Gender and marital status have a great impact on an individual's retirement decision. Dentinger and Clarkbege (2002) used data drawn from the 1994-1995 waves of the Cornell Retirement and Well-Being Study to test the relationship of informal caregiving and retirement timing among men and women by using discrete-time event history methods. They found that wives hasten their retirement when their spouse needs care which indicates that women are willing to spend more quality time with their husbands. Men are more likely to delay their retirement to support their loved one's needs. Denaeghel et al. (2002) explored the influence of spouse or partner on individual

retirement decisions. They used a longitudinal dataset, the ECHP (European Community Household Panel) for the period 1994-2001. Their results showed that spouses do affect each other with regard to retirement decisions; age gap between the spouses reduces the hazard of retirement. Higher education decreases the odds on retirement for dual-earners households as well. Bingley and Lanot (2007) found female's retirement decisions are more sensitive to income changes than male's retirement decisions in Denmark. The leisure time of the spouses is almost always found to be complementary. Female's working status responding much more to male income than male participation responds to female income. Baker and Benjamin (1997) evaluated several explanations of immigrants' family labor-supply behavior, which showed that immigrant wives work more than native born while immigrant husband work less. They employed data from the 1986 and 1991 Canadian Survey of Consumer Finances (SCF) and found immigrant wives take jobs to finance their husbands' investments in the "family investment model." These researches imply that gender and marital status are important determinants of retirement.

Health plays an important role on worker's retirement timing. Zucchelli et al. (2007) investigate the causal relationship between ill-health and retirement among old workers. They regard the transition to retirement as a discrete-time hazard model using the dataset from the first five waves (2001-2005) of the HILDA survey (Household, Income and Labor Dynamics in Australia). Their results show that an individual's retirement decision is strongly related to their health. Meanwhile, his or her spouse's health does not significantly affect the individual's retirement choices. Sickles and Tauban (1984) did an

analysis of the relationship between health and retirement status among the elderly. They found health status, variables that change the shape and position of the income/leisure opportunity; marital status, self-employment status and education strongly affect people's retirement decisions.

"Healthy immigrant effect" has been discussed in different countries in recent years. Studies show that immigrants are on average healthier than the native-born workers which are the result of health screening by recipient countries, as well as immigrant self-selection, where healthier and wealthier people tend to be migrants (Kenney et al. 2006). McDonald and Kennedy (2004) combine multiple cross-sections of data to confirm the existence of the "healthy immigrant effect". They point out that immigrants are relatively healthier when they first arrive in Canada compared to Canadian-born residents. Nevertheless, their health status tends to be the same as native-born Canadians after living several years in Canada. Using the Canadian Community Health Survey, Gee et al (2003) find that the "healthy immigrant effect" only applies to mid-life (45-65 years) male immigrants in Canada. Their findings indicate that gender plays an important role for the "healthy immigrant effect". They believe older female immigrants are in relatively worse health status since they have different health care needs than their older male counterparts and burdened with the majority of childcare and homemaking responsibilities.

Besides the "healthy immigrant effect", immigrants might be slower in their income accumulation. Frenette and Morissette (2003) found that recent immigrants would have to experience a drastic steeping of their relative age-earnings profile for their earnings to

converge to that of their Canadian-born counterparts. Hum and Simpson (2009) also find a similar result. They employ data from the Survey of Labor and Income Dynamics (SLID) and the Public Use Master Files of the Census to compare the retirement prospects of immigrant men with Canadian-born men. They find a substantial gap in retirement income and pension contributions between immigrant men and native-born men. The situation is worse for more recently arrived immigrants.

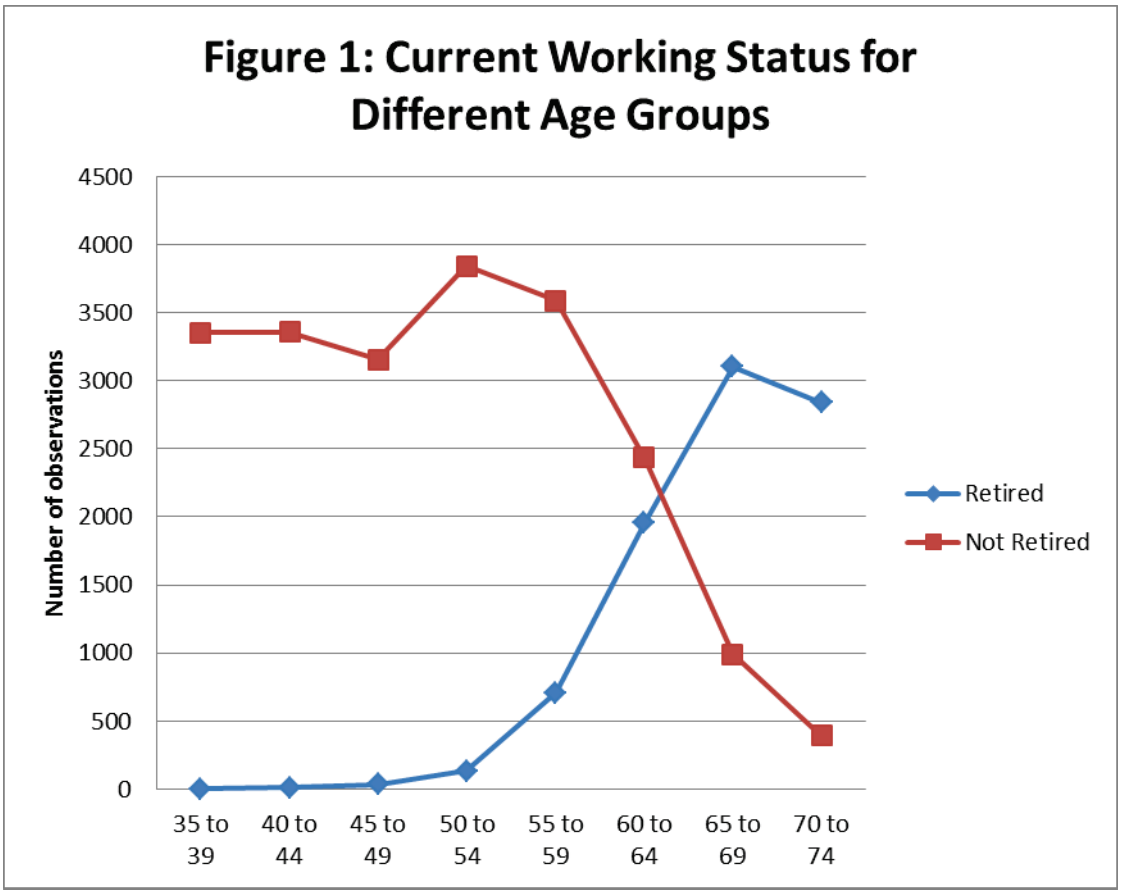
CHAPTER 3 DATA DESCRIPTION

The 2010 Canadian Community Health Survey (CCHS) is a cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population. It also contains other basic information such as age, education, respondents' employment status etc. There are 62,909 observations in this survey. However, this paper focuses on the population aged 55-74 for which the survey contains 15,926[1] observations (2,540 immigrants and 13,386 natives). Respondents with missing values for any variable are dropped.

The definition for people who are retired is based on the response for the question "what is the main reason for not working in the past three months". People who answered "retired" are considered retired in this paper. Since there are multiple answers for this question, those who answered "chronic physical or mental illness"; "own injury such as broken bone, bad cut, burn or sprain"; "own infectious disease such as a cold, flu or stomach flu or other reason related to physical or mental health"; "caring for own children, caring for elderly relatives or maternity, paternity or parental leave"; "education, training or school"; "temporary lay-off or strike or lockout"; "other" and people who did not answer this question are dropped. The sample is restricted to the individuals who stated that they were "retired" or those who are excluded from this question, which means they are still working.

[1] There were 19,316 observations in the original dataset, which include 3,022 immigrants, 15,838 natives and 456 unstated individuals. After dropped those unstated individuals and observations with missing values, 15,926 observations are left in the dataset, including 2,540 immigrants and 13,386 natives.

Age is grouped into four categories, 55-59 years, 60-64 years, 65-69 years and 70-74 years. As the standard age for retirement is 65 years, using the age range of 55-74 allows to properly examine both early or late retirement. Figure1 shows the current working status for different age groups. Very few of those aged 35-54 years are retired. The number of retired individuals increases dramatically after age 54. This is the reason that I focus on individuals aged 55-74.



Immigrant, gender, race, marital status and house ownership are dummy variables. Immigrant is equal to one for immigrants, and to zero for native-born people. Gender is equal to one for males. Race is equal to one for White respondents and zero otherwise.

Marital status is equal to one for married individuals, and zero for unmarried respondents. House ownership is equal to one for those households who own their dwelling. Individuals who did not answer the related questions are dropped from the dataset.

To measure education, CCHS has a question on the highest level of education acquired by the respondent. Four levels of education are on the questionnaire: “less than secondary school graduation”, “secondary school graduation, no post-secondary education”, “some post-secondary education” and “post-secondary degree or diploma”.

The measure of physical health, mental health and emotion health are all based on the respondents’ own judgment. Health and mental health ranged from zero to four; a higher score indicates a better status. Emotion health status refers to a person’s emotional well-being, which is based on different levels of happiness and interest in life. It ranges from one to five with a higher value indicating worse emotional health status. The variable includes the following categories: “happy and interested in life”, “somewhat happy”, “somewhat unhappy”, “very unhappy” and “so unhappy that life is not worthwhile”.

Table 1 shows the summary statistics on each variable for both immigrants and native born. For most variables, the mean values are statistically significant different from immigrants and the native born, except age and race. The mean of immigrants’ age is about one year older than the mean of natives’ age, while the mean of race for immigrants is 0.18 smaller than the natives’ race variable. There are 6 percent more

immigrants are married, 3 percent more immigrants own their dwelling. The mean of education for immigrants is 0.25 larger than the native born.

Table 2 demonstrates the proportion of different variables for immigrants and native-born people. The proportion of the sample that are aged 55-59 is 7.41 percentage larger for immigrants relative to the native born, while the proportion of the sample that are aged 70-74 is 4.5 percentage greater for immigrant relative to the native born. The race differences between immigrants and natives are easy to understand. As most of the Canadian-born people are migrants from Europe and recent immigrants are from all over the world, immigrants are more racial diverse. From the proportion of education, immigrants are relatively higher educated than native-born individuals. Although they have similar proportion of population on secondary school graduation and some post-secondary education, only 14.59 percent of immigrants have less than secondary school education, which are 8.19 percent less than their counterparts. Meanwhile, compared to Canadian-born citizens, 8.63 percent more immigrants complete post-secondary school.

Table 3 illustrates the proportion of immigrants and the native born by retirement status by different age groups. Compared to the native born, immigrants who are 55 to 69 years old are less likely to be retired. However, the percentage of 70 to 74 year olds that retired is very close for immigrants and the native born.

CHAPTER 4 EMPIRICAL MODEL

As most of the immigrants start their careers later than native-born people in Canada, they might have lower wages than the native born which leads to the result that they do not accumulate as much CPP as the native-born people by the normal retirement age (60-64) (Rathje 2003). In addition, immigrants are potentially in better health than native-born people when they first arrive in Canada (Kennedy et. al. 2006). Since health status is one of the most important determinants for people's retirement decision, people in better health would stay in the labor force longer. Under this assumption, immigrants should be more likely to stay in the work force after the normal retirement age.

I use a probit model to test the assumption I had made:

Equation 1:

$$Y_i = \beta_0 + \beta_1 immigrant_i + \beta_2 age_i + \beta_3 house\_ownership_i + \beta_4 race_i + \beta_5 education_i + \beta_6 gender_i + \beta_7 marital\_status_i + \beta_8 health_i + \beta_9 mental\_health_i + \beta_{10} emotion\_health_i + \varepsilon_i$$

The definition for retirement in this paper is based on the question: "what is the main reason that you have not worked at a job or business in the past three months?" People who answers "retired" are the ones considered retired in this paper.

The dependent variable Y_i has value 1 or 0. Y_i equals to 1 if the individual is retired. Otherwise, Y_i is equal to 0. The other independent variables including immigrant, age, house ownership, race, education, gender, marital status, health, mental health and

emotional health are possible variables that could affect an individual's retirement decision. β_i is the vector of regression coefficients.

Genders have different perspectives on retirement, which deserves special consideration. So I also estimate equation 1 separately by gender.

An OLS regression is also used to analyze of the effect of immigrant status on an individual's retirement decision. Province fixed effects are included in this model.

Equation 2:

$$Y_i = \beta_0 + \beta_1 immigrant_i + \beta_2 age_i + \beta_3 house\_ownership_i + \beta_4 race_i + \beta_5 education_i + \beta_6 gender_i + \beta_7 marital\_status_i + \beta_8 health_i + \beta_9 mental\_health_i + \beta_{10} emotion\_health_i + \alpha_p + \varepsilon_i$$

The dependent variable Y_i is individual's retirement status. α_p is a vector of provincial fixed effect.

CHAPTER 5 EMPIRICAL RESULTS

The sample includes all individuals aged 55 to 74 in CCHS. There are 15,926 observations (2,540 immigrants and 13,386 Canadian-born people). Table 4 reports the coefficients of the probit regression. The coefficients provide information on what may and may not be affecting the retirement decision. Table 5 shows the marginal effects of the variables in the probit regression. After controlling for age and the other covariates, including gender, race, marital status, house ownership, education, health, mental health and emotion health, the immigrant dummy is always negatively related with the probability of retirement at the one percent significance level. The marginal effect of the immigrant dummy is around -0.055 which means that immigrants are 5.5 percent less likely to be retired than native-born on average. Not surprisingly, older people are more likely to retire than younger people. Compared to 55-59 years old individuals, people who are 60-64 years old are 28 percent more likely to be retired, 59 percent for 65-69 years old individuals and 72 percent for those who are 70- 74 years old.

Gender plays an important role on the retirement decision. Men are 13 percent less likely to be retired than women conditional on age. Race seems have no impact on the probability of being retired. This might due to the fact that I did not control for the non-white Canadian-born people. People who are married are more likely to be retired than those who are not married. Interestingly, owning a dwelling is not significant when it is first included in the regression. However, it becomes significant at the ten percent level when education is controlled for and stays significant at the five percent significant level after health, mental health and emotional health are controlled for. Since it is positively

related to the probability of retirement, people who do not own their dwelling tend to work longer. Education has a great influence on the probability of retirement in this regression. Compared to individuals who are less than secondary school education, individuals with higher education are more likely to be retired. People with some post-secondary school education have the lowest probability to be retired.

People in better health are less likely to be retired. Nevertheless, mental health seems to have no impact on people's retirement decision. Emotional health is positively related with the probability of retirement significant at the 10 percent level. The result shows that people who are less happy are more likely to retire earlier.

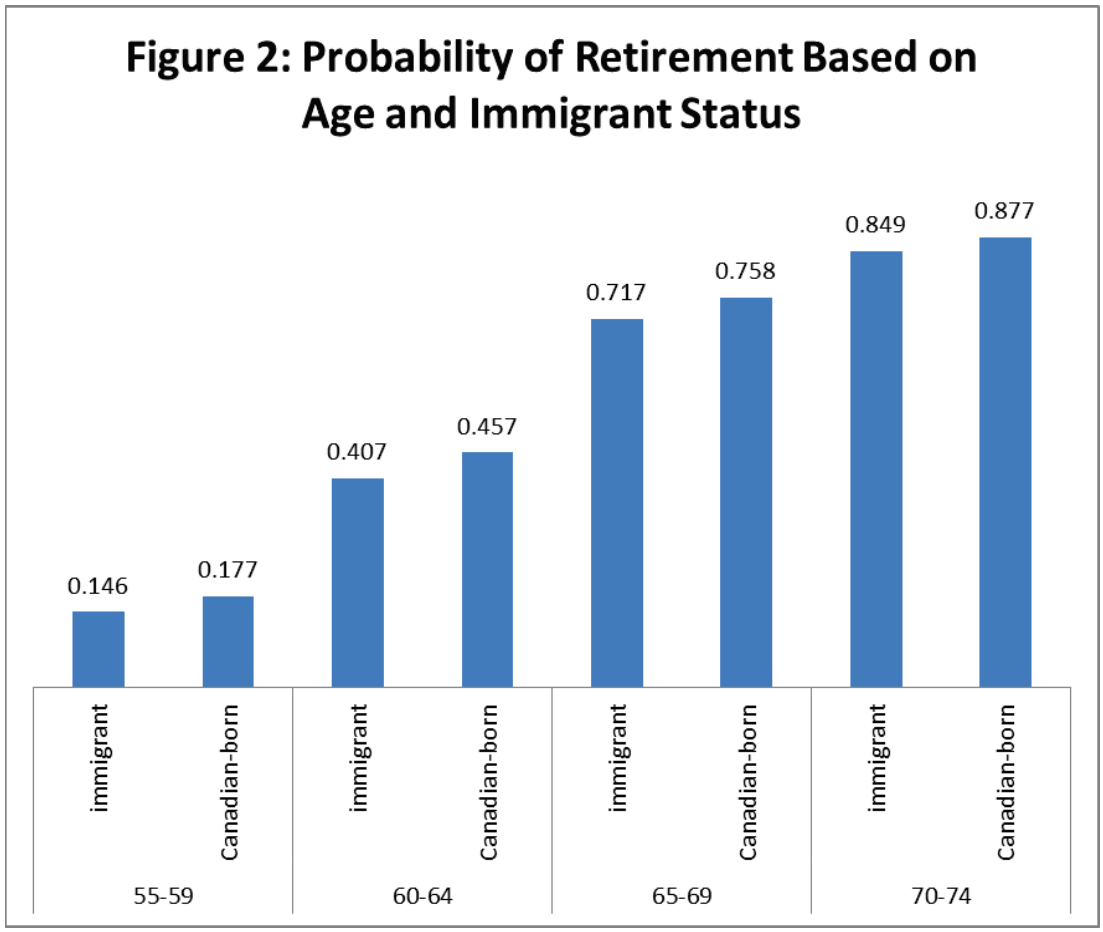


Figure 2 shows the estimated probability of retirement based on age and immigrant status. It indicates that immigrants are less likely to retire than Canadian-born workers at each age category. For respondents aged 55 to 59, the Canadian born are 3.1 percent more likely to be retired, 5 percent, 4.1 percent and 2.8 more likely to be retired for respondents aged 60 to 64, 65 to 69 and 70 to 74 respectively.

A separate analysis has also been done for females and males. Table 6 and Table 7 report the coefficients of the probit regression and marginal effects for women. Table 8 and Table 9 present the coefficients of the probit regression and marginal effects for men. The coefficients of the immigrant dummy are always negative and significant for both men and women after controlling for age and the other covariates. However, the coefficient is only significant at 5 percent level instead of the 1 percent level for women after controlling for education. Race is still not statistically significance for either men or women. Nevertheless, some notable differences are found between men and women. Marriage plays a very important role for women with regards to their retirement decision. Married women are more likely to be retired more than those who are unmarried conditional on age. On the contrary, the coefficient of marital status for men is negative, which means that unmarried men tend to retire earlier. However, this result is not statistically significant for men. A female individual who has her own dwelling is more likely to be retired while the house ownership has no impact on Men's retirement decisions. Higher educated women tend to retire later than women who have less than secondary school education. The results are all significant at 1 percent level. Surprisingly, the education dummies for men are not statistically significant different from the base

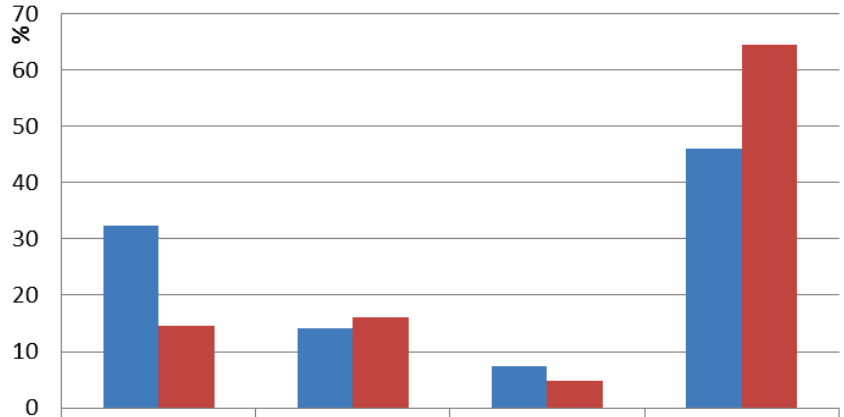
category except for those who have a post-secondary degree, and only stays at the 10 percent significant level after controlling for health status. Both men and women with better health are willing to stay in the labor force longer. Mental health still has no influence on retirement decision of males and females. Emotional health appears to be an important determinant of the retirement decision for females. Women who are more satisfied with their life are less likely to be retired conditional on age; however, emotional health may be endogenous. Conversely, emotional well-being is not important to the retirement decision of males.

Table 10 contains the result of the OLS regression analysis of the effect of immigrant status on individual's retirement decision. Provincial fixed effects are included in this table. Column 1 presents the immigrant effect on retirement without provincial fixed effects. The coefficient is positive but statistically insignificant. After the province fixed effects are controlled for, the coefficient becomes significant at the 10 percent level and still positive; the coefficient suggests that immigrants have a 1.9 percent higher probability of being retired than native-born Canadians. This result may be biased because of omitted variables. The next four regressions in Table 10 include additional potential determinants of retirement along with provincial fixed effects. Column 3 shows the immigrant coefficient is -0.033 and it is significant at the 1 percent level after the age category variables are controlled for. The coefficient indicates that immigrants are 3.3 percent less likely to be retired than Canadian-born people conditional on age. This result does not change much after additional covariates are added to the regression. Gender, marital status and health are always significant at the 1 percent level. The coefficient of

gender is -0.097 after all the variables are included in the regression, which implies that males are 9.67 less likely to be retired. People who are married are 3.8 percent less likely to be retired than those who are unmarried conditional on age. Healthy people tend to retire later. Race is no longer statistically significant after education is controlled for. Since the non-white Canadian-born people have an averagely lower education while non-while immigrants have a higher education (see figure 3)[2]. This result could be bias for the reason that the non-white Canadian-born people are not controlled for separately. House ownership is positive and significant at the 1 percent level after education and health status are controlled for instead of at the 10 percent level. People with some post-secondary school education tend to retire later than others. Compared to people who have less than secondary school education, those who have secondary school education are less likely to be retired. However, the coefficient is not statistically significant at conventional levels after health status is controlled for. The coefficients of mental health and emotion health are -0.004 and 0.007. Both of them are not statistically significant when the provincial fixed effects are included.

[2]The observations in figure 3 include 578 non-white Canadian-born citizens and 587 non-white immigrants.

Figure 3: Education of Non-White Canadian Born and Non-White Immigrant (%)



	Less than secondary school graduation	Sendcondary school graduation	Some post-secondary	Post sencondary
Non-white Canadian born	32.35	14.19	7.44	46.02
Non-white immigrant	14.65	16.18	4.77	64.4

CHAPTER 6 CONCLUSION

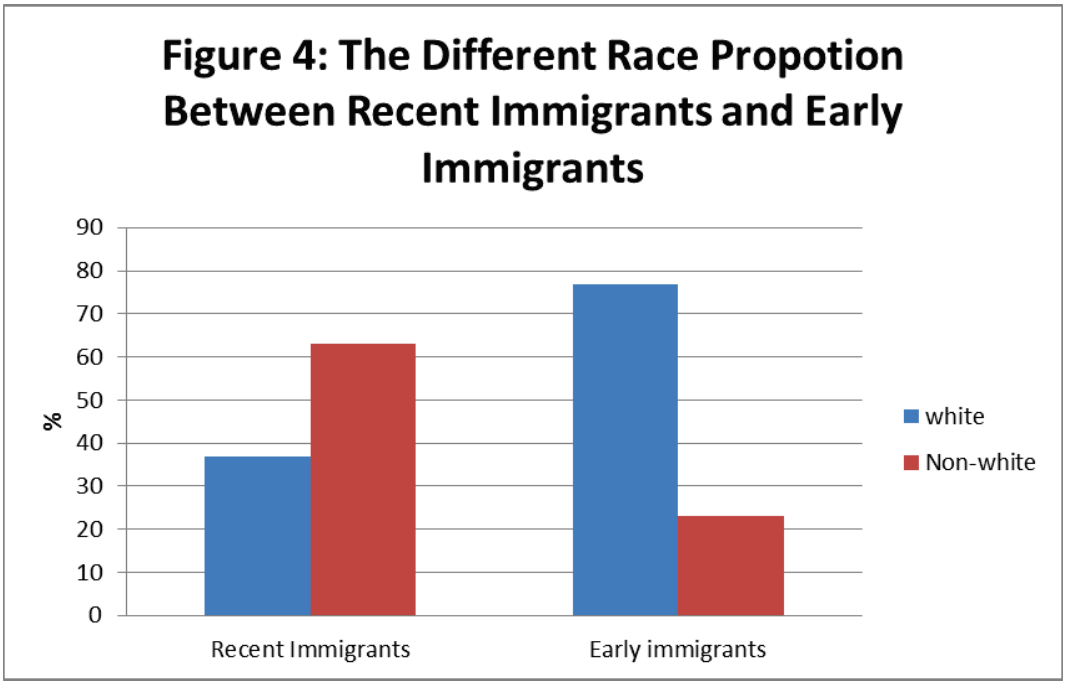
In this paper, I study the differences in the preferences of the age of retirement of immigrants and Canadian-born workers. To do so I use a probit model to estimate the probability of retirement for both immigrants and Canadian-born workers at different age groups, using a very large dataset – Canadian Community Health Survey (CCHS). Compared to other studies, I have a larger dataset, which also contains better information on retirement, ensuring a more accurate study.

I find that there are important differences in terms of the timing of retirement between immigrants and the native born. Immigrants tend to be less likely to be retired relative to native-born Canadians conditional on age. Age, gender, marital status, education and physical health are key determinants of the retirement decision. This is consistent with previous research (Lund 2005, Villandsen 2005, Denaeghel et al 2002, Bingley and Lanot 2007, Zucchelli et al. 2007, Sickles and Tauban 1984). However, race and mental health seem to have no effect on the probability of retirement. This result might be biased because of insufficient observations.

There are important gender differences that vary by marital status. Married women are more likely to retire earlier while married men are willing to stay in the labor force longer. This result is in line with Dentinger and Clarkbege (2002). They found that wives tend to retire earlier when their spouse needs care and men are more likely to delay their retirement to support their love ones' needs. House ownership, education and emotional health are all important determinants of women's retirement decisions, but they do not

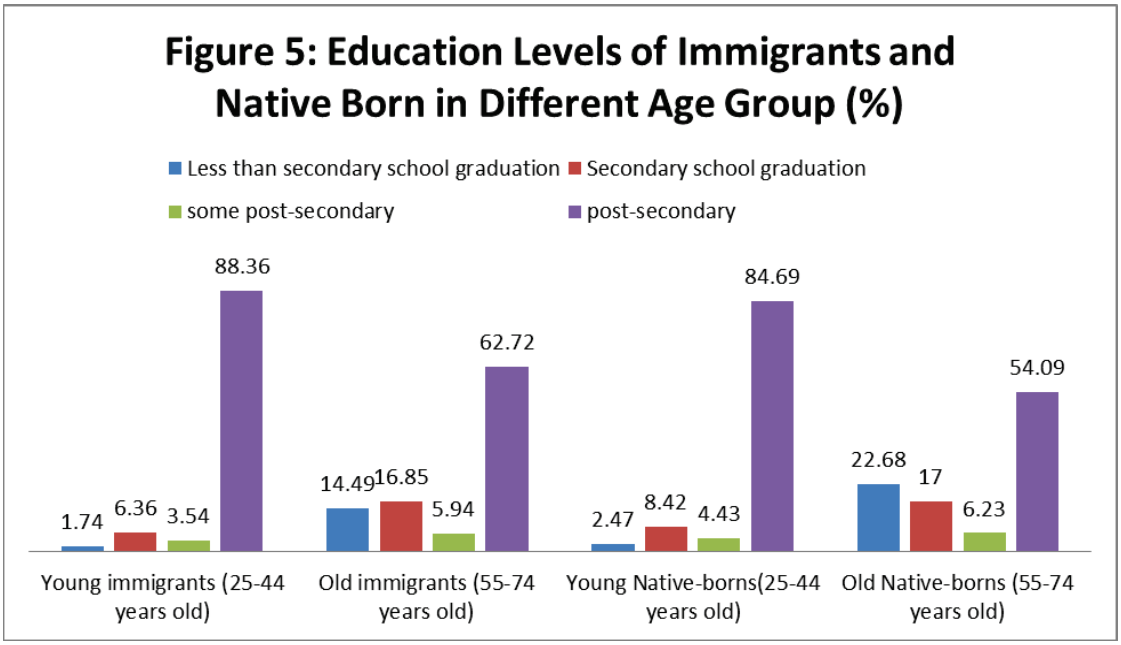
have an important impact on men's retirement decisions. Bingley and Lanot (2007) mentioned that spouse's leisure is found to be always complemented. Female participation in retirement responds much more to the male spouse's income. It is similar to the result that house ownership impacts the retirement decision of females more. Both male and female immigrants tend to retire later than the native-born of the same gender.

Immigrants have approximately five percent lower probability of retiring than Canadian-born workers for the same age category. It is not a large difference beween immigrants and Canadian born. However, most of the immigrants who participated in this survey could be early immigrants. Recent immigrants are more diverse since more immigrants are non-white (see Figure 4[3]).



[3] The data comes from CCHS (Canadian Community Health survey, 2010). I regard young immigrants as recent immigrants, which include participants aged 25-44 years (12324 observations included). Early immigrants are old immigrants who are aged 55-74 years (15926 observations included).

Their preferences on retirement timing could be different compared to early immigrants. Nevertheless, it is hard to determine since most of the recent immigrants are still young. Figure 5[4] shows the different education levels of immigrants and native born in different age groups.



Comparing the education level between young immigrants and old immigrants, it shows that those young immigrants have higher education levels than old immigrants. I believe the preferences on retirement timing of young immigrants are even later than the old immigrants. Meanwhile, young Canadian-born people have a relatively lower education level than the young immigrants, which could lead to a result that recent immigrants have a larger probability to retire later than Canadian-born workers. If that is the case, the government could implement more flexible immigration policies to increase the immigrant population to slow down the fast decreasing work participation rate of elder

[4] The data comes from CCHS (Canadian Community Health survey, 2010). 1178 young immigrants, 2540 old immigrants, 10585 young Native born, 13386 old Native born are included.

workers in the future. Whether the Canadian government benefits more to allow more immigrants to come to Canada still needs more research. As the recent immigrants typically find that they need a longer time to join the labor force, which might lead to a long run cost to Canada's social welfare system (Hum and Simpson, 2009). Meanwhile, old immigrants also rely on old age security, which increases the financial burden on Canadian government. The negative impact on old age security (OAS) and guaranteed income supplement (GIS) may dominate the benefit of the increased labor force participation rate. Further research is also needed to deteremine if government shoud change policies on pensions (or CPP/QPP) or social insurance to affect the retirement rate.

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Appendix

Table 1: Summary Statistics of Variables

Variable	Immigrant				Natives				diffrences
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev	Min	Max	
Age	64.79	5.35	57	72	63.77	5.4	57	72	-1.02***
Gender	0.45	0.5	0	1	0.44	0.5	0	1	-0.01
Race	0.77	0.42	0	1	0.95	0.2	0	1	0.18***
Marital Status	0.64	0.48	0	1	0.58	0.49	0	1	-0.06***
Dwelling	0.86	0.35	0	1	0.83	0.38	0	1	-0.03***
Education	3.17	1.16	1	4	2.92	1.27	1	4	-0.25***
Health	2.51	1.07	0	4	2.53	0.99	0	4	0.02
Mental Health	3.09	0.9	0	4	3.06	0.89	0	4	0.03
Emotion Health	1.24	0.52	1	5	1.22	0.49	1	5	-0.02

Note: 15,926 observations (2,540 immigrants and 13,386 Canadian-born people) are included in the sample.

Table 2: Summary Statistics of Proportions on Variables (%)

Specification	Immigrant	Natives
Age		
55-59	20.75	28.16
60-64	26.77	27.73
65-69	28.39	24.53
70-74	24.09	19.59
Gender		
Female	55.24	55.73
Male	44.76	44.27
Race		
White	76.89	95.68
Non-white	23.11	4.32
Marital status		
Married	63.82	58.19
unmarried	36.18	41.81
Dwelling		
Owned	85.55	82.81
Do not owned	14.45	17.19
Education		
Less than secondary school graduation	14.49	22.68
Secondary school graduation	16.85	17
some post-secondary	5.94	6.23
post-secondary	62.72	54.09
Health		
Poor	3.27	2.73
Fair	11.14	11.7
Good	34.76	31.71
Very good	32.52	37.02
Excellent	18.31	16.84
Mental Health		
Poor	0.71	0.64
Fair	3.43	3.63
Good	21.57	21.52
Very good	34.41	37.14
Excellent	39.88	37.07
Emotion Health		
Happy and interested in life	79.41	80.18
somewhat happy	17.64	17.66
somewhat unhappy	2.48	1.78
very unhappy	0.31	0.3
so unhappy that life is not worthwhile	0.16	0.08

Table 3: Summary of Retirement Proportions on Immigrant and Natives by Different Age Groups

	Immigrant		Natives	
Age	Retired	Not retired	Retired	Not retired
55-59	13.66	86.34	16.85	83.15
60-64	37.94	62.06	45.77	54.23
65-69	71.71	28.29	76.06	23.91
70-74	87.25	12.75	87.95	12.05

Table 4: Probit Regression Models of Test Scores

Dependent variable: Retirement status

Regressor	1	2	3	4	5	6	7	8	9	10
Immigrant(dummy)	0.0263	-0.138***	-0.139***	-0.143***	-0.149***	-0.151***	-0.129***	-0.130***	-0.13***	-0.131***
	(0.027)	(0.031)	(0.031)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
Age(55-59 base)										
60-64		0.844***	0.847***	0.847***	0.85***	0.847***	0.837***	0.837***	0.837***	0.838***
		(0.029)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
65-69		1.67***	1.682***	1.682***	1.695***	1.689***	1.667***	1.661***	1.661***	1.662***
		(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)
70-74		2.153***	2.172***	2.173***	2.19***	2.182***	2.143***	2.131***	2.131***	2.133***
		(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.038)	(0.038)	(0.038)
Gender(dummy)			-0.31***	-0.31***	-0.33***	-0.325***	-0.323***	-0.337***	-0.337***	-0.338***
			(0.025)	(0.025)	((0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Race(dummy)				-0.0235	-0.0212	-0.0271	-0.0169	0.0023	0.0024	0.0014
				(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)	(0.045)
Marital Status (dummy)					0.118***	0.112***	0.111***	0.116***	0.116***	0.12***
					(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
Dwelling(dummy)						0.0259	0.0498*	0.0768**	0.0768**	0.0787**
						(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
Education (Less than secondary school graduation base)										
Secondary school graduation							-0.123***	-0.0923***	-0.0921***	-0.0936***
							(0.038)	(0.038)	(0.038)	(0.038)
some post-secondary							-0.308***	-0.281***	-0.281***	-0.283***
							(0.052)	(0.052)	(0.052)	(0.052)
post-secondary							-0.236***	-0.195***	-0.195***	-0.196***
							(0.03)	(0.03)	(0.03)	(0.03)
Health								-0.112***	-0.112***	-0.109***
								(0.012)	(0.013)	(0.013)
Mental Health									-0.0011	0.0062
									(0.014)	(0.014)
Emotion Health										0.0449*
										(0.025)
R-Squared	0	0.2395	0.2481	0.2481	0.2493	0.2493	0.2528	0.2569	0.2569	0.257

Note: 15,926 observations (2,540 immigrants and 13,386 Canadian-born people) are included in the sample. Significance Level: *: 10% **: 5% ***: 1%

Table 5: Marginal Effects of Variables in Probit Regression

Dependent variable: Retirement status

Regressor	1	2	3	4	5	6	7	8	9	10
Immigrant(dummy)	0.0105	-0.0551***	-0.0552***	-0.0569***	-0.0597***	-0.0599***	-0.051***	-0.517***	-0.0517***	-0.0522***
	(0.108)	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Age(55-59 base)										
60-64		0.282***	0.282***	0.283***	0.282***	0.282***	0.28***	0.282***	0.282***	0.282***
		(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.01)	(0.01)	(0.01)
65-69		0.591***	0.595***	0.595***	0.596***	0.596***	0.591***	0.59***	0.59***	0.59***
		(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
70-74		0.716***	0.72***	0.72***	0.722***	0.722***	0.714***	0.711***	0.711***	0.711***
		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Gender(dummy)			-0.12***	-0.123***	-0.128***	-0.128***	-0.127***	-0.133***	-0.133***	-0.135***
			(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Race(dummy)				-0.0093	-0.00838	-0.0107	-0.0067	0.0009	0.001	0.00053
				(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Marital Status (dummy)					0.047***	0.044***	0.044***	0.046***	0.0461***	0.0476***
					(0.009)	(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Dwelling(dummy)						0.0103	0.0198*	0.0305**	0.0305**	0.0313**
						(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Education (Less than secondary school graduation base)										
Secondary school graduation							-0.0478***	-0.036***	-0.036***	-0.0365***
							(0.015)	(0.015)	(0.015)	(0.015)
some post-secondary							-0.121***	-0.111***	-0.111***	-0.112***
							(0.02)	(0.021)	(0.021)	(0.021)
post-secondary							-0.0925***	-0.0766***	-0.0765***	-0.077***
							(0.012)	(0.012)	(0.012)	(0.012)
Health								-0.0443***	-0.0442***	-0.0432***
								(0.005)	(0.005)	(0.005)
Mental Health									-0.00043	0.0025
									(0.006)	(0.006)
Emotion Health										0.0178*
										(0.01)

Note: 15,926 observations (2,540 immigrants and 13,386 Canadian-born people) are included in the sample. Significance Level: *: 10% **: 5% ***: 1%

Table 6: Probit Regression Models of Test Scores for Female

Dependent variable: Retirement status									
Regressor	1	2	3	4	5	6	7	8	9
Immigrant(dummy)	0.037	-0.123***	-0.115***	-0.126***	-0.129***	-0.106**	-0.109**	-0.109**	-0.111**
	(0.037)	(0.042)	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)	(0.044)
Age(55-59 base)									
60-64		0.857***	0.855***	0.863***	0.864***	0.851***	0.849***	0.85***	0.85***
		(0.039)	(0.039)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
65-69		1.75***	1.749***	1.779***	1.78***	1.75***	1.74***	1.742***	1.743***
		(0.043)	(0.043)	(0.043)	(0.043)	(0.044)	(0.044)	(0.044)	(0.044)
70-74		2.326***	2.325***	2.37***	2.376***	2.326***	2.31***	2.312***	2.316***
		(0.053)	(0.053)	(0.053)	(0.054)	(0.054)	(0.054)	(0.055)	(0.055)
Race(dummy)			0.0439	0.0403	0.036	0.048	0.075	0.0754	0.0757
			(0.061)	(0.062)	(0.062)	(0.062)	(0.062)	(0.063)	(0.63)
Marital Status (dummy)				0.254***	0.243***	0.237***	0.242***	0.243***	0.249***
				(0.031)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
Dwelling(dummy)					0.0444	0.0815*	0.11**	0.111**	0.114***
					(0.043)	(0.043)	(0.043)	(0.044)	(0.044)
Education (Less than secondary school graduation base)									
Secondary school graduation						-0.193***	-0.162***	-0.16***	-0.161***
						(0.051)	(0.051)	(0.051)	(0.051)
some post-secondary						-0.481***	-0.453***	-0.452***	-0.455***
						(0.071)	(0.071)	(0.071)	(0.071)
post-secondary						-0.34***	-0.296***	-0.295***	-0.296***
						(0.042)	(0.043)	(0.043)	(0.043)
Health							-0.113***	-0.107***	-0.104***
							(0.016)	(0.017)	(0.018)
Mental Health								-0.0168	-0.0021
								(0.019)	(0.02)
Emotion Health									0.0831**
									(0.035)
R-Squared	0.0001	0.2661	0.2662	0.2717	0.2718	0.2788	0.2828	0.2828	0.2833

Note: 8,863 observations (1,403 immigrants and 7,460 Canadian-born people) are included in the sample. Significance Level: *: 10% **: 5% ***: 1%

Table 7: Marginal Effects of Variables in Probit Regression for Female

Dependent variable: Retirement status

Regressor	1	2	3	4	5	6	7	8	9
Immigrant(dummy)	0.0142	-0.0479***	-0.0447***	-0.049***	-0.05***	-0.041**	-0.42**	-0.0421**	-0.043**
	(0.014)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Age(55-59 base)									
60-64		0.3***	0.299***	0.3***	0.3***	0.299***	0.299***	0.299***	0.299***
		(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
65-69		0.618***	0.618***	0.626***	0.627***	0.618***	0.616***	0.616***	0.617***
		(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
70-74		0.737***	0.737***	0.747***	0.747***	0.737***	0.733***	0.734***	0.734***
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.011)	(0.011)	(0.011)
Race(dummy)			0.017	0.0156	0.014	0.018	0.029	0.0291	0.0292
			(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
Marital Status (dummy)				0.0975***	0.0936***	0.0908***	0.093***	0.093***	0.0955***
				(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Dwelling(dummy)					0.0171	0.0315*	0.0427**	0.043**	0.0442***
					(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Education (Less than secondary school graduation base)									
Secondary school graduation						-0.0699***	-0.059***	-0.0583***	-0.0588***
						(0.018)	(0.019)	(0.019)	(0.019)
some post-secondary						-0.183***	-0.173***	-0.172***	-0.173***
						(0.027)	(0.027)	(0.027)	(0.027)
post-secondary						-0.127***	-0.111***	-0.11***	-0.111***
						(0.015)	(0.015)	(0.015)	(0.015)
Health							-0.0435***	-0.0414***	-0.0399***
							(0.006)	(0.007)	(0.007)
Mental Health								-0.0064	-0.0008
								(0.007)	(0.008)
Emotion Health									0.0319**
									(0.014)

Note: 8,863 observations (1,403 immigrants and 7,460 Canadian-born people) are included in the sample. Significance Level: *: 10% **: 5% ***: 1%

Table 8: Probit Regression Models of Test Scores for Male

Dependent variable: Retirement status

Regressor	1	2	3	4	5	6	7	8	9
Immigrant(dummy)	0.0172	-0.154***	-0.172***	-0.17***	-0.17***	-0.156***	-0.155***	-0.156***	-0.156***
	(0.041)	(0.045)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)
Age(55-59 base)									
60-64		0.83***	0.832***	0.834***	0.834***	0.828***	0.833***	0.823***	0.832***
		(0.046)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
65-69		1.596***	1.598***	1.6***	1.6***	1.59***	1.588***	1.587***	1.587***
		(0.047)	(0.047)	(0.047)	(0.047)	(0.048)	(0.048)	(0.048)	(0.048)
70-74		2.02***	2.019***	2.02***	2.021***	2***	1.993***	1.992***	1.993***
		(0.053)	(0.053)	(0.053)	(0.053)	(0.054)	(0.054)	(0.054)	(0.054)
Race(dummy)			-0.098	-0.0979	-0.0985	-0.093	-0.081	-0.0829	-0.0827
			(0.065)	(0.065)	(0.065)	(0.066)	(0.067)	(0.066)	(0.066)
Marital Status (dummy)				-0.037	-0.039	-0.036	-0.032	-0.033	-0.0332
				(0.035)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
Dwelling(dummy)					0.0075	0.018	0.042	0.042	0.0418
					(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Education (Less than secondary school graduation base)									
Secondary school graduation						-0.0586	-0.0286	-0.0317	-0.0315
						(0.056)	(0.057)	(0.057)	(0.057)
some post-secondary						-0.1065	-0.0821	-0.0843	-0.0842
						(0.077)	(0.077)	(0.077)	(0.077)
post-secondary						-0.1143***	-0.0756*	-0.0782*	-0.078*
						(0.043)	(0.044)	(0.044)	(0.044)
Health							-0.11***	-0.114***	-0.114***
							(0.017)	(0.018)	(0.018)
Mental Health								0.0138	0.0134
								(0.02)	(0.021)
Emotion Health									0.0025
									(0.036)
R-Squared	0.0001	0.216	0.2162	0.2163	0.2163	0.2171	0.2214	0.2214	0.2214

Note: 7,063 observations (1,137 immigrants and 5,926 Canadian-born people) are included in the sample. Significance Level: *: 10% **: 5% ***: 1%

Table 9: Marginal Effects of Variables in Probit Regression for Male

Dependent variable: Retirement Status

Regressor	1	2	3	4	5	6	7	8	9
Immigrant(dummy)	0.0069	-0.061***	-0.068***	-0.0671***	-0.067***	-0.062***	-0.061***	-0.0617***	-0.0617***
	(0.016)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Age(55-59 base)									
60-64		0.258***	0.258***	0.259***	0.259***	0.258***	0.26***	0.25***	0.26***
		(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
65-69		0.554***	0.555***	0.555***	0.555***	0.553***	0.552***	0.552***	0.552***
		(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.014)
70-74		0.684***	0.685***	0.686***	0.686***	0.681***	0.679***	0.679***	0.679***
		(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Race(dummy)			-0.039	-0.039	-0.039	-0.037	-0.0324	-0.033	-0.033
			(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)	(0.026)
Marital Status (dummy)				-0.0148	-0.0155	-0.0143	-0.0126	-0.0131	-0.013
				(0.014)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Dwelling(dummy)					0.003	0.007	0.0166	0.0167	0.0166
					(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Education (Less than secondary school graduation base)									
Secondary school graduation						-0.0234	-0.0114	-0.0126	-0.0126
						(0.02)	(0.02)	(0.022)	(0.022)
some post-secondary						-0.0424	-0.0327	-0.0336	-0.0335
						(0.031)	(0.031)	(0.031)	(0.031)
post-secondary						-0.0455***	-0.03*	-0.0311*	-0.0311*
						(0.017)	(0.017)	(0.017)	(0.017)
Health							-0.0435***	-0.0454***	-0.0455***
							(0.007)	(0.007)	(0.007)
Mental Health								0.0055	0.0053
								(0.008)	(0.008)
Emotion Health									0.001
									(0.014)

Note: 7,063 observations (1,137 immigrants and 5,926 Canadian-born people) are included in the sample. Significance Level: *: 10% **: 5% ***: 1%

Table 10: Regression Analysis of the Effect of Immigrant Status on Individual's Retirment Decision

Dependent variable: Retirement status

Regressor	1	2	3	4	5	6
Immigrant(dummy)	0.01	0.019*	-0.0333***	-0.0386***	-0.0339***	-0.0346***
	(0.011)	(0.011)	(0.009)	(0.009)	(0.01)	(0.009)
Age(55-59 base)						
60-64			0.2779***	0.2754***	0.2723***	0.2719***
			(0.009)	(0.009)	(0.009)	(0.009)
65-69			0.5847***	0.5843***	0.577***	0.5729***
			(0.009)	(0.009)	(0.009)	(0.009)
70-74			0.7123***	0.7131***	0.7***	0.6931***
			(0.01)	(0.01)	(0.01)	(0.01)
Gender(dummy)				-0.0942***	-0.093***	-0.0967***
				(0.007)	(0.007)	(0.007)
Race(dummy)				-0.0217*	-0.0186	-0.013
				(0.013)	(0.013)	(0.013)
Marital Status (dummy)				0.0365***	0.3638***	0.0389***
				(0.007)	(0.007)	(0.007)
Dwelling(dummy)				0.0172*	0.023**	0.0317***
				(0.009)	(0.009)	(0.009)
Education (Less than secondary school graduation base)						
Secondary school graduation					-0.0274**	-0.0166
					(0.011)	(0.011)
some post-secondary					-0.0758***	-0.0665***
					(0.015)	(0.015)
post-secondary					-0.0615***	-0.048***
					(0.009)	(0.009)
Health						-0.0318***
						(0.004)
Mental Health						-0.004
						(0.004)
Emotion Health						0.008
						(0.007)
Province effects?	no	yes	yes	yes	yes	yes
R-squared	0.0001	0.0184	0.3159	0.3256	0.3282	0.3316

Note: 15,926 observations (2,540 immigrants and 13,386 Canadian-born people) are included in the sample. Significance Level: *: 10% **: 5% ***: 1%