
**Working in Self-Employment: The Case of Chinese Men in
Canada**

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Abstract

Using the 1991, 1996, 2001, and 2006 Census of Canada Confidential Masterfiles, this study explores two questions: 1) Are male Chinese-born immigrants more likely to be in self-employment relative to native-born Canadians? 2) Do male self-employed Chinese immigrants earn more than native-born in the Canadian labour market? According to the results, male Chinese immigrants had a higher self-employment rate than native-born from 1991 to 2006, but they earned on average a lower total earned income. Some sociodemographic characteristics such as age, age at immigration, education level, region of residence, period of landing, English proficiency, children in the family, and marital status are important to explain the propensity to be in self-employment. Furthermore, recent immigrants (who landed from 1991 to 2006) are more likely to be self-employed compared to immigrants who have resided in Canada for longer. In terms of earnings of self-employed workers, after correcting for self-selection into self-employment, the results reveal that Chinese immigrants earn lower total earned income than otherwise comparable native-born. As well, older age, younger age at immigration, longer period since landing in Canada, proficiency in English, more children at home, and being in a marriage resulted in a higher total earned income, as did being university educated and being resident in Ontario, Alberta, and B.C. The results of the analysis will provide some guidance as to reasons why experiences of self-

employment differ between immigrants and non-immigrants and so yield further insights into the transitions immigrants experience when entering the Canadian labour market.

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Table of Contents

Abstract	II
Acknowledgement	IV
Table of Contents	V
1. Introduction	1
2. Literature Review	8
3. Methodology	12
3.1 Descriptive Model	12
3.2 Logistic Regression Model	13
3.3 Heckman Sample Selection Model	14
4. Data	16
5. Results	18
5.1 Descriptive Results	18
5.2 Econometric Results	23
5.2.1 Logistic Regression Results	23
5.2.2 Heckman Sample Selection Results	28
6. Conclusion and Discussion	32
7. References	37
Appendix	39
Curriculum Vitae	

1. Introduction

Canada is one of the largest immigration countries in the world. According to the National Household Survey (2011) from Statistics Canada, 6,775,800 people were foreign-born immigrants in 2011, which represented 20.6% of the total population. As of 2001, Chinese immigrants had become the largest group of immigrants in Canada. Almost 800,000 Chinese immigrants landed in Canada from 1980 to 2000, making up 20% of total immigrants (Wang and Lo 2005). Chinese is also the largest proportion of all foreign-born mother tongue except English and French, representing about 1/5 (18.6%).

Immigrants are a very heterogeneous group, across a number of dimensions including country of birth, ethnicity, age at arrival, year of arrival, visa category, time spent in Canada, and other factors, some of which are unobservable in the Census data. In order to avoid restrictive assumptions, this study will focus the analysis on Chinese immigrants in Canada, who make up a significant percentage of foreign-born residents. Within this group those who were born in Mainland China will be distinguished from those who were born in Hong Kong, Macau or Taiwan, and in addition Canadian-born Chinese of Chinese parents will also be considered.

A major source of labour force opportunities for immigrants is self-employment, which also plays an essential role in job creation. Le (1999) suggested that self-employment could be seen as a possible method to solve

the unemployment and poverty problems. Self-employment is usually defined as “a form of labor market participation by which a person derives some income by engaging in a business or economic activities as a self-employed person” (Li 2001).

In general, an individual’s decision to be self-employed can result from both “pull” and “push” factors. On the one hand, some workers may be pushed into self-employment because of a lack of opportunities and other possible barriers to wage and salary work in the paid labour market, such as a lack of fluency in one or more official languages, discrimination, and so on. It is also referred to as the “blocked mobility hypothesis” (Frenette 2002). On the other hand, others may be pulled into self-employment because they may hold comparative advantages in serving the needs among the immigrants who have the same mother tongue, culture background, and so on. It is also referred to as the “enclave hypothesis” (Frenette 2002).

The goals of this paper are twofold: 1) to investigate factors associated with the status of being in self-employment among Chinese men in Canada; and 2) to compare the economic performance of Chinese men in Canada. In both cases, comparisons will be made relative to non-immigrant white men (White) for three subgroups of Chinese men: immigrants who were born in Mainland China (Ch1), immigrants who were born in Hong Kong, Macau, or Taiwan (Ch2), and second generation Chinese men who were born in Canada (Ch3).

There are two questions are addressed in this research. First, “Are male

Chinese-born immigrants more likely to be self-employed compared to males who are Canadian-born Chinese, as well as with the Canadian-born Whites? If so, what factors lead to the situation that male Chinese-born immigrants are becoming self-employed?" There is limited research on this particular immigrant group, although some research has shown that recent immigrants (who landed in the last five years) are as likely to be in self-employment as the native-born (Frenette 2002). Focusing on particular immigrant groups recognizes the heterogeneity of Canada's immigrant population but can also yield insights into what might explain broader observed patterns.

The second question to be addressed is "Do the male self-employed Chinese-born immigrants perform better in the Canadian labour market in terms of earnings relative to Canadian-born Chinese males, as well as to the Canadian-born white males? If not, what are the underlying reasons resulting in these significant differences?" Total earned income could be seen as a proxy of the self-employed workers' performance in the Canadian labour market, which is also one of the most important factors influencing an individual's decision to be in self-employment. A number of previous papers have examined self-employment income of immigrants, such as Frenette (2002). Furthermore, on the basis of the last question, exploring the factors that may lead to the difference in total earned income between Chinese immigrants and Canadian-born will help to better understand the Chinese immigrants' performance in Canada's labour market.

The self-employment rate has increased significantly through the 1980s and 1990s before falling slightly in the late 1990s and 2000s (Hou and Wang 2011). However, entering self-employment does not necessarily mean immigrants will earn income commensurate with their skills and training. Previous evidence suggests that compared to the members of the general population of Canada, Chinese immigrants experienced different economic outcomes in the labour market. Lindsay (2001) estimated that Chinese immigrants earned around \$5000 lower average total income than the general population (\$30,000) and that the unemployment rate of Chinese immigrants (8.4%) was higher than that of the general population (7.4%). Wang and Lo (2005) further explored whether Chinese immigrants still experienced the much lower self-employment income than the general self-employed population and the earnings differentials between Chinese immigrants and the general population of Canada were found across all age groups, both genders, and Chinese immigrants from Mainland China, Hong Kong, Taiwan, and Viet Nam.

These differences indicate there is a need for more research on the economic outcomes of Chinese self-employed immigrants in the Canadian labour market. Specially, there is a need to examine whether male Chinese-born immigrants are more likely to be in self-employment compared to Canadian-born Chinese males, as well as to Canadian-born white males. The motivation for the male Chinese-born immigrants to enter self-employment

and the implications for earnings and income are both important questions for understanding outcomes in the broader labour market. Compared to other research that paid more attention to the propensity to be in self-employment of immigrants and the outcomes of self-employed immigrants, this paper tracks a particular group “Chinese immigrants” and mainly focused on those performance of male self-employed workers that is not explored before. Apart from Chinese immigrants, the second generation of Chinese immigrants (Canadian Chinese) was also seen as a comparison group in this study since differences in labour market outcomes across generations can be indicative of barriers to full integration into the labour market. In short, it is important to understand the reasons that affect male Chinese immigrants’ decision to be in self-employment and the reasons that affect the earnings of male self-employed Chinese immigrants. In addition, policy changes have influenced the composition of immigrants. Since the 1980s, the economic class of immigrants rose faster than the other two classes, family and humanitarian immigrants (Wang and Lo 2004) and so there is interest in examining the extent to which period of arrival in Canada has affected these labour market outcomes as the average skill level of recent immigrant arrivals has increased.

This paper uses the Census 1991, 1996, 2001, and 2006 Confidential Masterfiles to set up the descriptive data and the regression models. Four distinct groups are our primary considerations in the models, which are identified as follows:

- 1) Mainland Chinese-born immigrants (Ch1) are the respondents who are immigrants, Chinese ethnicity, and born in mainland China;
- 2) Other Chinese-born immigrants (Ch2) are the respondents who are immigrants, Chinese ethnicity, and born in Hong Kong, Macau, or Taiwan;
- 3) Canadian-born Chinese (Ch3) are the respondents who are non-immigrants, Chinese ethnicity, and born in Canada;
- 4) Canadian-born Whites (White) are the respondents who are non-immigrants, White ethnicity (in other words, not a member of a visible minority), and born in Canada.

The descriptive statistics show that Ch1 and Ch2 had a higher self-employment rate than Ch3 and White from 1991 to 2006, but Ch3 and White engaged in self-employment earned a higher average total earned income than Ch1 and Ch2. Earlier arriving cohorts displayed a higher self-employment rate and higher net self-employment income than more recent cohorts except in 2006, which might be explained by the earlier cohorts transferring from full-time to part-time or retiring from the field by that most recent Census year. In contrast to some of the descriptive statistics, the regression results indicated that Ch1, Ch2, and Ch3 were all less likely to be in self-employment relative to White, after controlling all other variables at their mean values. One explanation is that Chinese immigrants are over-represented in subcategories more associated with self-employment, but

they actually have an underlying tendency to be less likely in self-employment after controlling for all other variables.

In order to avoid the potential for non-random sample selection bias in the Ordinary Least Squared (OLS) model, the Heckman Sample Selection model is used, which showed that Ch1 and Ch2 had a lower self-employment income than White after controlling for unobservables associated with being in self-employment. An alternative approach would be to estimate an earnings equation over all paid workers and include an indicator variable for self-employment status. This variable would be treated as endogenous and Instrumental Variable (IV) method could be used. Finally, the most recent cohorts (y90 and y00) of Chinese immigrants were more likely to be in self-employment relative to the earlier ones after controlling all other variables at their means.

The remainder of this paper is divided into six sections. The next section is an overview of the pertinent literature. Section 3 describes the general descriptive analysis and the Heckman Sample Selection Model methodology, which are used to address the econometric issues that arise. This is followed by a detailed description of the Census data used in the analysis. Next, the results are presented and discussed in detail. Finally, the conclusion of this study is presented along with implications for future policy.

2. Literature Review

The analysis of immigrants and native-born labour market outcomes has been the subject of many research papers and a number have focused on the probability of self-employment for immigrants relative to the native-born.

Clark and Drinkwater's (2009) research paper, "Immigrant self-employment adjustment – ethnic groups in the UK" examined how the probability of self-employment for male immigrants changes over time compared to the native-born and how the probability of self-employment for male immigrants differs from that of the UK-born members of each ethnic group. On the basis of UK Labour Force Survey data, the descriptive statistics clearly showed that Chinese and Pakistanis have higher self-employment rates than other ethnic groups and immigrants have a higher self-employment rate than native-born among all ethnic groups except Black Africans. Furthermore, they used the maximum likelihood probit model to examine the propensity of self-employment for each main ethnic group in UK. They found that immigrants had a significant increasing trend in self-employment over time relative to UK-born for all ethnic groups except the Black African and Black Caribbean groups. In addition, immigrants had a higher average self-employment rate compared to the UK-born in each ethnic group. It is worthwhile to note that "Asian" immigrants are more likely to be in self-employment compared to UK-born. Clark and Drinkwater (2009) explored

the two probabilities of self-employment from seven main ethnic groups in the UK, but the outcomes of self-employment were not examined in their paper. However, the performance of immigrants in the UK does not necessarily indicate the same performance in Canada.

Similar to Clark and Drinkwater's (2009) Probit model, Li (2001) used a Logistic regression model to predict the probability of engaging in self-employment in the 1995 tax-year in his paper entitled "Immigrants' Propensity to Self-Employment: Evidence from Canada". Relying on the Longitudinal Immigration Data Base (IMDB), his descriptive results showed that immigrants who arrived in Canada earlier or spent longer in Canada both had a higher tendency to be in self-employment. In addition, the landing time of immigrants, period of landing, age at immigration, country of origin, and level of education at landing also affected the likelihood of engaging in self-employment. As well, male immigrants were more likely to be in self-employment than females for the same entry cohort and tax year. The Logistic regression model he used clearly indicated that odds of self-employment for immigrants increased with longer time spent in Canada. In addition, the odds of self-employment were higher for those immigrants who were older at immigration and with higher educational level. Furthermore, immigrants who arrived in Canada during times of better economic conditions, and who were selected to enter Canada through the skilled immigrant stream were more likely to be in self-employment.

Similar to Clark and Drinkwater (2009) and Li (2001), Frenette (2002) also used a logistic model to examine the incidence of self-employment in his paper entitled “Do the Falling Earnings of Immigrants Apply to Self-employed Immigrants?”. He also examined the success of immigrants in paid and self-employed labour market by using an ordinary least squared (OLS) log earnings model. Frenette (2002) used the 1981, 1986, 1991, and 1996 Census files and found that immigrants generally were more likely to be in self-employment over time. Moreover, his descriptive statistics indicated that all cohorts had positive assimilation rate into self-employment, but recent immigrants have lower net self-employment income than the native-born. Furthermore, the econometric results showed that the recent immigrants (those in the country for less than 5 years) were as likely to be in self-employment as the native-born. They performed worse relative to the native-born workers in the paid labour market, but the gap of self-employment income has not expanded over time although their self-employment incomes were still lower than those of native-born. Frenette (2002) defined “success of immigrants in the self-employed labour market” to be when net self-employment income is greater or equal to 80% of the market earnings or non-negative net self-employment earnings of self-employed workers. In the end, Frenette (2002) concluded that one important factor for why new immigrants were more likely to be in self-employment was the changing source regions of immigrants and that opportunities in the paid labour market were stagnant

for immigrants from non-English speaking countries. This is consistent with Li's (2002) results; the likelihood of engagement in self-employment was affected by the period of landing and country of origin.

Frenette's (2002) analytical framework that defines assimilation and cohort effects is a useful starting points for the current analysis. Frenette (2002) also recognized potential self-selection issues with an OLS regression of self-employment earnings since self-employment is not a randomly assigned state and may reflect unobservable personal characteristics also important to earnings. Therefore, a Heckman sample selection model is employed by Abada, Hou, and Lu (2012) to address this concern.

Similarly, Abada, Hou, and Lu (2012) reported that the ordinary least squared (OLS) model may be biased and inconsistent if unobserved factors affecting income were correlated with unobserved factors affecting the incidence of self-employment, because individuals cannot be selected into self-employment or paid-employment randomly. In order to test the earning differentials between self-employment and paid-employment, they used the same Heckman sample selection model in their study. Although we do not need to examine the earning differentials between self-employed and paid-employed, the Heckman sample selection model is still a good way to examine the earnings of those "non-randomly selected" self-employed individuals.

3. Methodology

3.1 Descriptive Model

In the literature, Frenette (2002) pointed out the importance of identifying both assimilation and cohort effects. Assimilation effects refers to changes in economic outcomes with time spent in Canada, while cohort effects refers to the idea that different arrival period cohorts of immigrants might have labour market outcomes because of unobserved period-specific factors such as immigration visa category and other compositional changes as well as economic conditions at arrival. Identifying cohort effects separately from assimilation in the absence of panel data requires a synthetic cohort approach and the pooling of multiple cross sections of data. For example, a particular cohort such as the 1961 – 1970 cohort could be observed across consecutive Census years in 1991, 1996, 2001, and 2006. The differences between these years could be seen as an assimilation effect. In contrast, the outcome of the 1961 – 1970 cohort observed in 1991, and the 1971 – 1980 cohort observed in 2001 could be compared to each other in order to assess cohort effects, because they had the same period of residence in Canada. In both cases, the years since immigration are 21 to 30 years, which allowed us to analyze the cohort effects. Controlling for calendar year effects must be through an identifying restriction that Census year effects are constant between immigrants and non-immigrants.

In order to better understand the two effects among immigrants, we set up the cohorts for every ten years from 1941 to 2006, except the first cohort y50 that is from 1941 to 1960. This is not only to compare the Ch1 and Ch2 cohorts, but also to show the differences between Ch1, Ch2, Ch3, and White. Moreover, the descriptive tables will show the self-employment rate and mean total earned income for every group.

3.2 Logistic Regression Model

In order to examine whether male Chinese immigrants are more likely to be in self-employment than the native-born, a logistic regression model is assembled as follows:

$$\Pr(\text{SE}) = F_0(\pi_0 + \pi_i X_i + \epsilon_i)$$

Where $\Pr(\text{SE})$ is the probability that the individual is in self-employment and X is a set of personal characteristics. X includes the general socio-demographic characteristics of the individual, such as age, age at immigration, years since immigration, official language, marital status, number of children in the census family, the highest certificate, diploma, or degree, the geographic region, the year at immigration cohort, and the immigrant group (Ch1, Ch2, Ch3, and White). F is the Logistic distribution function.

3.3 Heckman Sample Selection Model

As discussed in the literature review, to deal with the potential selection problem of male Chinese immigrants self-selecting into self-employment based on unobserved characteristics, a Heckman sample selection model is used. The predicted earnings for self-employed workers are based on the model of earnings among the self-employed, and the earnings equation includes a correction factor for the possibility that self-employed may have different characteristics than the paid-employed that are also relevant to earnings. Furthermore, to improve identification of the first stage effects, an instrumental variable (IV) approach is applied in which variables that are correlated with the decision to enter self-employment but uncorrelated with earnings in self-employment are used to improve identification of the selection term over and above identification by functional form. “EMR” (employment rate) is defined as the employment rate of every census metropolitan area or census agglomeration (CMA), which is calculated by $(\text{number of employed people}^1) / (\text{total number of people})$ for every CMA. Therein, “not in CMA” was further divided into 8 regions because of its large number of observations. Therefore, the “EMR” reflects some of the macro factors that might affect more or less an individual’s decision to enter self-employment and does not have a direct effect on the second stage of earnings

¹ All people are restricted to 18 to 64 years old.

among the self-employed, which is qualified to use in the model as the “IV”. The EMR variable used for identification may not satisfy the second restriction since the macro environment reflected by the employment rate will also affect earnings in both self-employment and wage/salary-employment. Relative to unemployment rate, employment rate is more stable and less cyclical. As well, it captures longer trends in the labour force, which is another important reason that the EMR is used in the model.

So the estimation equations could be written as follows:

The First Stage² (selection equation):

$$\text{Pr(SE)} = F[\alpha_0 + \alpha_i X_i + \alpha_{i+1}(\text{EMR}) + e_1]$$

A probit model is used to examine the probability that the individual is in self-employment rather than paid-employment in this stage. Here, Pr(SE) is the incidence that an individual with X characteristics would like to be in self-employment rather than paid-employment. The social-demographic characteristics in the X are almost the same as the logistic model except EMR, which represents the employment rate in the census metropolitan area or census agglomeration of current residence.

² The inverse mills ratio from the first stage is included in the second stage, which is an adjustment for the selection sample.

The Second Stage (observation equation, which is estimated only for the self-employed subsample):

$$\mathbf{Log (TotInc)} = \beta_0 + \beta_i \mathbf{X}_i + e_2$$

Where the TotInc is the summation of net self-employment income and wages/salaries. Some self-employed workers earned self-employment income only and the others earned both self-employment income and wages/salaries but higher self-employment income than wages/salaries. The socio-demographic characteristics in the X are the same as in the first stage.

4. Data

The data used in this paper are the Census Confidential Masterfiles from 1991, 1996, 2001, and 2006. The Census file is the only available large Canadian data source covering a long period of time. It allows one to separate immigrants from the native-born, self-employed from the paid workers, and the paid earnings from the net self-employment income (Frenette 2002). Furthermore, we combine the four cross-sectional datasets, Census 1991, 1996, 2001, and 2006 together and impose our sample restrictions (gender, country of birth, and ethnicity) to get the working datasets of pooled cross sections.

For the purpose of this analysis, the Chinese-born immigrants are further

classified into seven arrival cohort groups, which are y50 (1941-1960), y60 (1961-1970), y70 (1971-1980), y80 (1981-1990), y90 (1991-2000), and y00 (2001-2006). Earlier cohorts are excluded from the analysis because they do not exist in the most recent census. As the benchmark, the “1941-1960” is omitted from the regression model.

Self-employed workers (SE) are defined as individuals who only have net self-employment income or whose net self-employment income is equal to or greater than their paid-income (wages/salaries). Total earned income of individuals is the summation of their net self-employment income and wages/salaries. The income is deflated to be based on the 2006 Canadian dollar, which calculated by the consumer price index data from Statistic Canada. Temporary residents, unpaid family workers (working without pay for a relative in a family business, farm or professional practice), and people with aboriginal origins are excluded from the sample. As well, dropping individuals who are not in the labour force (neither have net self-employment income nor wages/salaries) because it is easier to compare the differences between self-employed workers and paid-employed but not self-employed workers and others. Thus, the sample only includes the self-employed and paid-employed workers. Furthermore, this analysis is restricted to “male”, “age 18-64 years old”, and “age at immigration less than 65 years old”.

The other explanatory variables included in this paper are given as follows. English proficiency (could conduct a conversation in English or not) and

marital status (legally married or not) are the two simple dummy variables used in the analysis. Education level is defined by category of highest achievement (not any degree, diploma, or certificate; high school; college or trade school; university or medicine; master or higher) and region is defined by the province or territory of current residence (the Atlantic Provinces, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, B.C., and Territories). As the benchmark group, the “no high school” and “the Atlantic Provinces” are omitted from the model because of collinearity. Moreover, the immigrants groups (Ch1, Ch2, Ch3, other non-immigrants, and other minority groups) are also included in the model. In order to compare the Chinese groups to native-born, “White” was excluded from the model as well.

It should be noted that the effects of “age at immigration” and “years since immigration” are identified in the estimating equation that also includes age because of the assumption that age effects are common to both immigrants and non-immigrants. Thus, age effects are identified by the presence of non-immigrants in the sample whose values for age at immigration and years since immigration are both zero.

5. Results

The main purpose of this paper is to determine if male Chinese immigrants are more likely to be in self-employment relative to native-born males and to

examine whether they perform better than native-born in the self-employed males labour market in Canada.

Table 1 shows the sociodemographic characteristics of Ch1, Ch2, Ch3, and White. The means and the percentage of continuous and categorical variables are shown.

5.1 Descriptive Results

(Table 1. Sociodemographic characteristics of Ch1, Ch2, Ch3, and White)

Relative to White, Ch1 are on average older, have more children at home, are worse in English-speaking skills, have a university degree or higher, are likely to be married and are more likely to live in Ontario and B.C., but less in other provinces or territories except Alberta. For Ch2, individuals are of similar age to White, are more proficient in English, have more children at home, are more likely to have a university degree or higher, are more likely to be married and are also more concentrated in Ontario, B.C., and Alberta, and less in other provinces or territories. Compared to White, Ch3 are younger, are better at conducting an English-speaking conversation, more likely to get a higher education level, but less likely to be married and preferred to stay in Alberta and B.C., more than in other provinces and territories except Ontario. Comparisons are also made between Ch1 and Ch3, and Ch2 and Ch3. Ch1

are older than Ch3, have more children at home, with lower English-speaking ability and education level, are more likely to be in a marriage, and are concentrated in Quebec and Ontario. Relative to Ch3, Ch2 are older and have more children at home as well, are slightly worse at English conversation, are more likely to have a university degree or higher, are more likely to be married, and are concentrated at Ontario and B.C.

	Ch1				Ch2				Ch3				White			
	1991	1996	2001	2006	1991	1996	2001	2006	1991	1996	2001	2006	1991	1996	2001	2006
Age	44.8485	44.0385	42.0675	42.3685	36.1370	38.6965	39.7480	41.3955	29.7360	30.2350	30.2940	30.2655	37.2160	38.1265	38.6700	40.3760
Age at immigration	28.9115	29.5550	30.0935	30.4650	25.2960	26.7835	25.6895	23.7620								
Years since immigration	16.0610	14.4450	12.1240	12.0495	10.9450	11.8745	14.2205	17.7850								
Children at the family	1.8470	1.6805	1.1620	1.3060	1.6255	1.6690	1.0260	1.5510	1.7595	1.7605	0.3590	1.6965	1.4150	1.4120	0.8110	1.2920
No children	13.73%	13.98%	32.84%	16.97%	17.27%	14.53%	44.26%	14.49%	18.37%	14.90%	80.75%	13.24%	25.31%	24.91%	56.70%	29.71%
1 -5 children	78.95%	81.08%	65.26%	81.84%	78.69%	81.90%	54.56%	83.60%	73.45%	79.22%	18.62%	83.76%	71.26%	71.87%	41.54%	67.54%
5 or more children	7.32%	4.93%	1.91%	1.18%	4.04%	3.58%	1.18%	1.91%	8.18%	5.88%	0.62%	2.99%	3.43%	3.22%	1.75%	2.75%
English-speaking	79.81%	77.99%	82.17%	83.97%	97.08%	95.17%	96.11%	96.46%	99.63%	99.42%	99.59%	99.23%	85.38%	86.21%	87.19%	86.36%
Education level																
No degree	42.92%	35.69%	25.56%	12.57%	13.91%	14.48%	14.27%	6.63%	12.46%	10.79%	8.50%	4.64%	30.62%	25.23%	22.68%	14.91%
High school	18.96%	20.37%	15.55%	18.15%	21.01%	20.22%	21.93%	22.80%	34.11%	32.63%	31.10%	31.81%	25.19%	25.88%	25.83%	27.75%
College or	14.13%	13.50%	11.19%	10.44%	21.03%	22.40%	20.11%	19.16%	23.15%	22.04%	20.92%	20.54%	28.94%	31.18%	32.65%	36.08%

Trade school																	
University or Medicine school	16.58%	18.29%	27.88%	36.80%	33.88%	33.78%	34.13%	41.85%	27.28%	30.87%	35.25%	38.25%	12.46%	14.43%	15.43%	17.40%	
Master or higher	7.40%	12.15%	19.83%	22.03%	10.16%	9.14%	9.57%	9.56%	3.00%	3.68%	4.21%	4.75%	2.79%	3.28%	3.41%	3.86%	
Married	88.44%	87.86%	83.38%	87.35%	76.35%	75.08%	66.50%	67.87%	38.95%	36.48%	26.00%	31.28%	68.56%	65.58%	52.03%	59.11%	
Regions of Residence																	
the Atlantic Provinces	0.91%	0.87%	0.68%	0.68%	0.59%	0.45%	0.27%	0.19%	2.39%	2.08%	1.35%	0.96%	10.52%	10.20%	9.12%	9.47%	
Quebec	6.26%	6.64%	5.94%	7.13%	3.39%	3.12%	2.57%	3.04%	6.31%	6.17%	4.75%	5.77%	28.54%	28.33%	27.99%	27.65%	
Ontario	42.84%	43.24%	52.01%	51.44%	52.94%	49.36%	49.47%	48.70%	34.32%	34.49%	38.41%	40.50%	33.38%	33.64%	33.62%	34.42%	
Manitoba	1.96%	1.71%	1.14%	0.97%	1.39%	0.81%	0.79%	0.60%	2.39%	2.15%	2.12%	1.58%	3.89%	3.67%	3.50%	3.37%	
Saskatchewan	1.56%	1.42%	0.92%	0.86%	0.72%	0.62%	0.39%	0.42%	2.11%	2.06%	1.23%	1.48%	3.58%	3.39%	3.29%	3.18%	
Alberta	12.18%	10.49%	8.91%	9.61%	11.04%	8.79%	8.16%	8.12%	13.26%	13.38%	13.77%	14.49%	9.27%	9.68%	10.96%	11.01%	
B.C.	34.19%	35.55%	30.33%	29.25%	29.87%	36.81%	38.31%	38.91%	39.04%	39.57%	38.23%	35.08%	10.45%	10.85%	11.29%	10.68%	
Others	0.08%	0.08%	0.08%	0.06%	0.05%	0.04%	0.03%	0.03%	0.15%	0.15%	0.14%	0.12%	0.37%	0.24%	0.23%	0.22%	

Finally, Ch1 are older and are older at immigration compared to Ch2, have more children at home, are much poorer in English-speaking ability, has lower education level, are more likely to get married, and are concentrated in Quebec, Ontario, and Alberta but less in B.C.

The following table shows the self-employment rate of Ch1 and Ch2 by arrival cohort with different cohort comparison and Ch1, Ch2, Ch3, and White for an overall comparisons.

SE rate	1991		1996		2001		2006	
	Ch1	Ch2	Ch1	Ch2	Ch1	Ch2	Ch1	Ch2
y50	14.58%	10.53%	15.70%	14.93%	12.91%	10.00%	10.88%	10.26%
y60	11.23%	10.32%	11.43%	14.19%	13.12%	13.51%	12.88%	13.12%
y70	10.31%	7.78%	10.44%	9.05%	11.12%	10.68%	13.41%	11.94%
y80	6.23%	5.24%	9.40%	9.84%	10.21%	9.50%	12.67%	11.28%
y90			8.56%	10.31%	6.54%	11.40%	10.69%	10.61%
y00							6.77%	9.67%
Ch1	9.56%		10.11%		8.44%		10.07%	
Ch2	6.82%		10.16%		10.81%		11.11%	
Ch3	5.30%		5.01%		4.24%		5.43%	
White	5.89%		6.98%		6.81%		8.22%	

In 1991 and 1996, earlier cohorts of Ch1 and Ch2 had higher self-employment rates, but in 2001 and 2006, the cohort y60, y70, and y80 showed higher self-employment rates. This might be explained by some of y50 entering retirement or semi-retirement once they enter the 2000s. The table also represents that y50 and y60 had a positive assimilation rate into self-employment from 1991 to 2006, but declined after that. The other cohorts also demonstrated a positive assimilation rate except y90 of Ch1 from 1996

to 2001 and y90 of Ch2 from 2001 to 2006. As a whole, Ch1 and Ch2 apparently had a higher self-employment rate than other groups over time, and Ch3 had the lowest self-employment rate among all groups over time. In addition, all groups showed different degrees of negative assimilation rate in self-employment from 1996 to 2001. In short, earlier cohorts had higher self-employment rate than recent ones for both Ch1 and Ch2 in each year.

However, the higher self-employment rate does not mean higher income.

The earnings outcomes of all groups of individuals classified as self-employed are displayed in the following table.

	1991		1996		2001		2006	
	Ch1	Ch2	Ch1	Ch2	Ch1	Ch2	Ch1	Ch2
y50	38984.50	90733.83	26019.10	53411.43	35529.81	79333.19	43611.50	37979.05
y60	51204.00	101694.95	39509.93	63667.85	39969.19	61641.89	55803.68	101907.80
y70	54363.20	68750.52	35879.57	55406.04	42103.82	68112.37	42159.32	73526.90
y80	49483.50	35702.48	19173.39	30524.42	33785.53	37216.48	17070.00	43092.84
y90			21854.96	22857.09	24812.14	24624.94	17824.48	17919.77
y00							13838.50	27444.12
Ch1	48743.83		26616.68		31798.51		21465.43	
Ch2	61996.98		37669.69		39309.94		40150.50	
Ch3	54666.54		54405.86		50882.91		54062.08	
White	51748.60		43092.20		46979.73		46182.30	
Note: CONSUMER PRICE INDEXES FOR CANADA, MONTHLY (V41690973 series) is provided by Statistics Canada.								

The earlier cohorts (y60 and y70) of Ch1 and (y50, y60, and y70) Ch2 both had a higher average total earned income relative to other cohort groups over time. However, the cohorts showed a big drop from 1991 to 1996, especially for earlier cohorts. Most of them then rose from 1996 to 2006, but cohort y90

fell from 2001 to 2006 again. Followed by the four consideration groups, all groups showed varying degrees of decline from 1991 to 1996, and then increased from 1996 to 2006 except Ch1 which fell from 2001 to 2006. White got a higher average total earned income than Ch2 since 1996. Ch3 just maintained a sustainable average total earned income over time, and had the highest average total earned income from 1991 to 2006. Last but not least, Ch1 showed a very unstable condition in average total earned income. Their income fell from 1991 to 1996 and 2001 to 2006, but rose from 1996 to 2001. Furthermore, Ch1 held the lowest average total earned income among all groups over time and Ch2 had lower income than White except in 1991.

It is notable that the volatility also existed in the medians of total earned income, so the observed differences across years are not being driven by outliers. One of the possible explanations could be the sample sizes in particular cells are small. Another one might be that macroeconomic conditions differed significantly across Census years. This will be accounted for in the regression analysis.

5.2 Econometric Results

5.2.1 Logistic Regression Results

For the regression analysis, the predicted marginal probabilities of being self-employed are shown in Table 4. This table is made up two parts: one is

the logistic results and the other is the average marginal effect (AME) of every corresponding variable based on the Logistic results. AME is a quite useful, informative, and easy way to understand the effect of an explanatory variable on $\Pr(SE=1)$ (Jann 2013). Moreover, it clearly shows how $\Pr(SE=1)$ changes as the explanatory variable changes because the model contains mean values for other explanatory variables (William 2015).

	Logit		Average Effect dy/dx	Marginal Effect P>z
	Coef.	P>z		
SE				
Age	0.1202	0.000	0.0082	0.000
Age squared	-0.0968	0.000	-0.0066	0.000
Age at immigration	-0.0072	0.000	-0.0005	0.000
Years since immigration	0.0364	0.000	0.0025	0.000
Years since immigration squared	-0.0331	0.000	-0.0022	0.000
English proficiency	0.2015	0.000	0.0137	0.000
Be married	0.0109	0.000	0.0007	0.000
Children in the family	0.0387	0.000	0.0026	0.000
No degree				
High school	-0.0575	0.000	-0.0039	0.000
College or Trade school	-0.0517	0.000	-0.0035	0.000
University or Medicine school	0.3378	0.000	0.0229	0.000
Master or higher	0.0094	0.015	0.0006	0.015
the Atlantic Provinces				
Quebec	0.1080	0.000	0.0073	0.000

Ontario	0.1891	0.000		0.0128	0.000
Manitoba	0.1832	0.000		0.0124	0.000
Saskatchewan	0.2772	0.000		0.0188	0.000
Alberta	0.0823	0.000		0.0056	0.000
B.C.	0.3873	0.000		0.0263	0.000
Others	0.2478	0.000		0.0168	0.000
Cohort y50					
Cohort y60	0.2121	0.000		0.0144	0.000
Cohort y70	0.3850	0.000		0.0261	0.000
Cohort y80	0.7605	0.000		0.0516	0.000
Cohort y90	1.0322	0.000		0.0701	0.000
Cohort y00	1.1747	0.000		0.0798	0.000
Ch1	-0.8847	0.000		-0.0601	0.000
Ch2	-0.7936	0.000		-0.0539	0.000
Ch3	-0.1635	0.000		-0.0111	0.000
White					
Other non-immigrants	-0.0262	0.001		-0.0018	0.001
Other immigrants	-0.8267	0.000		-0.0561	0.000
_cons	-6.1939	0.000			

The results are as follows. First, the analysis indicates that increases in the age of individual increases the incidence of self-employment by 0.82%. In addition, immigrants who were younger at immigration and who spent more years in Canada were also more likely to be in self-employment. For those older at landing, the probability was 0.05% lower but 0.25% higher per year for those who stayed longer in Canada. As well, individuals who had more children in the family had a 0.26% higher probability to be in self-employment.

Furthermore, in terms of language ability and marital status, the table shows a 1.37% higher probability to be in self-employment if the individual could conduct a conversation in English and 0.07% more if the individual was

married.

Next, education is found to be an essential factor affecting an individual's decision to be self-employed. Relative to "No degree", "High school" had a 0.39% and "College or Trade school" a 0.35% lower probability to be in self-employment, while "University or Medicine" and "Master or higher" had a 2.29% and a 0.06% greater probability to enter self-employment.

With respect to the geographic region, it was revealed that all regions had different levels of preference to be self-employed compared to "Maritime+Newfoundland". B.C. had 2.63% higher probability to be self-employed, the highest effect among the provinces.

In addition, all cohorts were found to have a higher incidence of self-employment compared to the earliest arrival cohort y50. The cohort y60, y70, y80, y90, and y00 were 1.44%, 2.61%, 5.26%, 7.01%, and 7.98% respectively, more likely to enter self-employment, which indicated that immigrants who landed most recently had a higher propensity to be in self-employment.

After controlling all other variables at their mean values, two predicted probabilities to be in self-employment for Ch1 and Ch2 cohorts figures displayed the propensity to be self-employed.

Figure 1. Self-employment Probability of Ch1, Ch3, and White

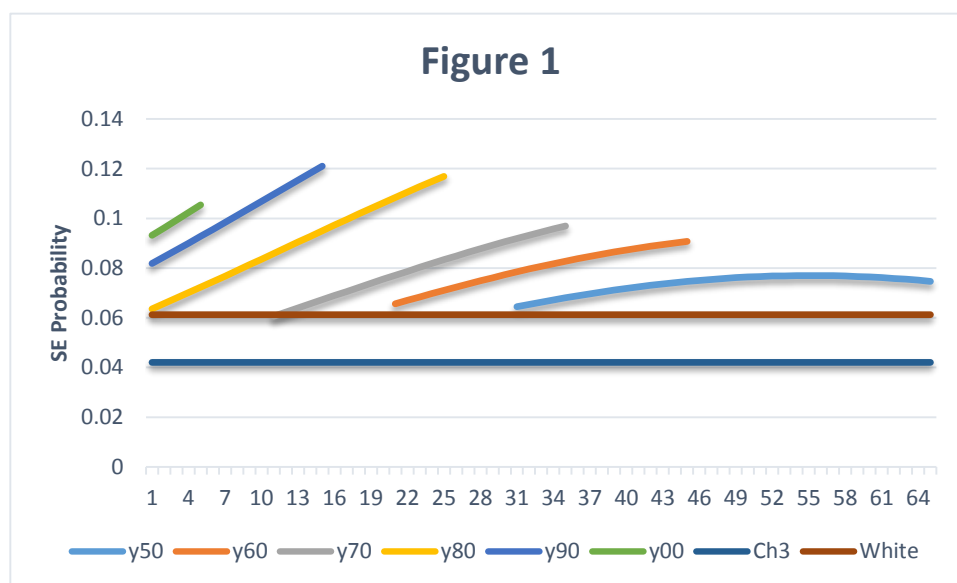
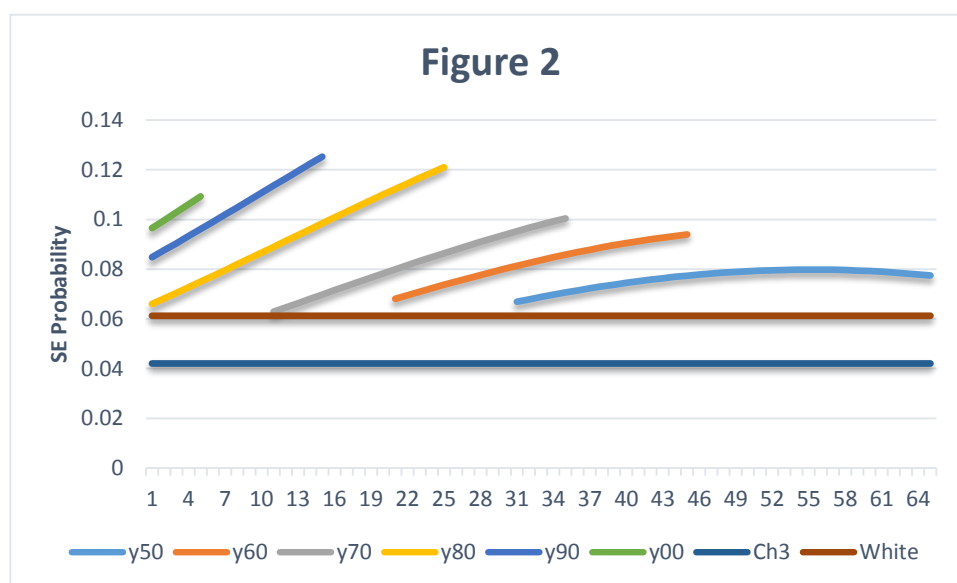


Figure 2. Self-employment Probability of Ch2, Ch3, and White



Although the marginal effects on the immigrant variables are negative, the estimated effects of both years since migration and age at migration are positive. Thus, in order to determine the net effect of these marginal effects on the probability of self-employment, the results are used to generate in-

sample predictions for immigrants by arrival cohort, over the relevant ranges of YSM values. From the graphs, it can be seen that all arrival cohorts have a higher incidence of self-employment than non-immigrant whites and that the gap increases with additional time in Canada.

Figure 1 and Figure 2 both indicate that the more recent arrival cohorts of Ch1 and Ch2 were more likely to be in self-employment for the same years since immigration than earlier cohorts, but that all cohorts of each Ch1 and Ch2.

Ch3 are found to be less likely to be in self-employment than White. Interestingly White is in turn more likely to be in self-employment than second generation Chinese Ch3. Comparing results between Ch1 and Ch2 showed little difference in propensity to work in self-employment for these two groups, despite the significant differences in the stage of development of their countries of origin.

A previous study by Li (2002) found that recent cohorts of self-employed immigrants have not performed worse than self-employed native-born. However, Chinese immigrants did not follow the pattern. Heckman Sample Selection model results are displayed in the following table, which could describe the performance of Chinese immigrants in Canada's labour market.

5.2.2 Heckman Sample Selection Results

Table 5. Heckman Sample Selection Model
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second stage	Coef.	P>z		first stage	Coef.	P>z
Total earned income				SE		
Age	0.1326	0.000		Age	0.0581	0.000
Age squared	-0.1505	0.000		Age squared	-0.0481	0.000
Age at immigration	-0.0054	0.000		Age at immigration	-0.0025	0.000
Years since immigration	0.0091	0.000		Years since immigration	0.0211	0.000
Years since immigration squared	-0.0156	0.000		Years since immigration squared	-0.0192	0.000
English-speaking	0.1105	0.000		English-speaking	0.1048	0.000
Married	0.2639	0.000		Married	0.0064	0.000
Children in the family	0.0480	0.000		Children in the family	0.0193	0.000
No degree				No degree		
High school	0.0479	0.000		High school	-0.0260	0.000
College or Trade school	0.0675	0.000		College or Trade school	-0.0293	0.000
University or Medicine school	0.8142	0.000		University or Medicine school	0.1752	0.000
Master or higher	0.6947	0.000		Master or higher	0.0078	0.000
the Atlantic Provinces				Newfoundland + Maritime		
Quebec	0.1617	0.000		Quebec	0.0790	0.000
Ontario	0.2504	0.000		Ontario	0.0984	0.000
Manitoba	0.0694	0.000		Manitoba	0.0735	0.000
Saskatchewan	-0.0301	0.000		Saskatchewan	0.1158	0.000
Alberta	0.1756	0.000		Alberta	0.0194	0.000
B.C.	0.1711	0.000		B.C.	0.2063	0.000
Others	0.1476	0.000		Others	0.0870	0.000
Cohort y50				Cohort y50		
Cohort y60	0.0005	0.945		Cohort y60	0.1102	0.000
Cohort y70	-0.0687	0.000		Cohort y70	0.2030	0.000
Cohort y80	-0.2304	0.000		Cohort y80	0.3991	0.000
Cohort y90	-0.4072	0.000		Cohort y90	0.5426	0.000
Cohort y00	-0.6794	0.000		Cohort y00	0.6065	0.000
Ch1	-0.2515	0.000		Ch1	-0.5175	0.000
Ch2	-0.1283	0.000		Ch2	-0.4686	0.000

Ch3	-0.0210	0.193		Ch3	-0.0652	0.000
White				White		
Other non-immigrants	-0.1160	0.000		Other non-immigrants	-0.0074	0.042
Other immigrants	-0.0206	0.231		Other immigrants	-0.4850	0.000
				EMR	0.0958	0.000
_cons	6.1310	0.000		_cons	-4.0783	0.000

The table reveals several important factors that affect outcomes for self-employed workers. First of all, the higher total earned income is associated with older age, a younger age at immigration, and more years spent in Canada. Conducting a conversation in English and being married are also associated with higher earnings, as they are for earnings generally in the working population. More children in the family is also associated with higher total earned income. Moreover, higher income is also associated with higher education levels among the self-employed except for those with master or higher degrees. This situation could be explained by the paid labour market having a higher demand for the higher educated, especially in better economic conditions (Kangasharju and Pekkala 2001). Regarding the geographic regions, “Ontario” is associated with the highest total earned income relative to “the Atlantic Provinces”. In addition, recent cohorts earns less than the earlier ones and the most recent earns the least, confirming the pattern of declining earnings found more generally among successive cohorts of immigrants arrivals. Furthermore, Chinese self-employed immigrants had a lower total earned income than native-born.

There are two figures that describes the predicted income for every cohort

of Ch1 and Ch2, Ch3, and White by years since immigration, after controlling all other variables at their means, shown as follows:

Figure 3. Predicted Total Earned Income of Ch1, Ch3, and White

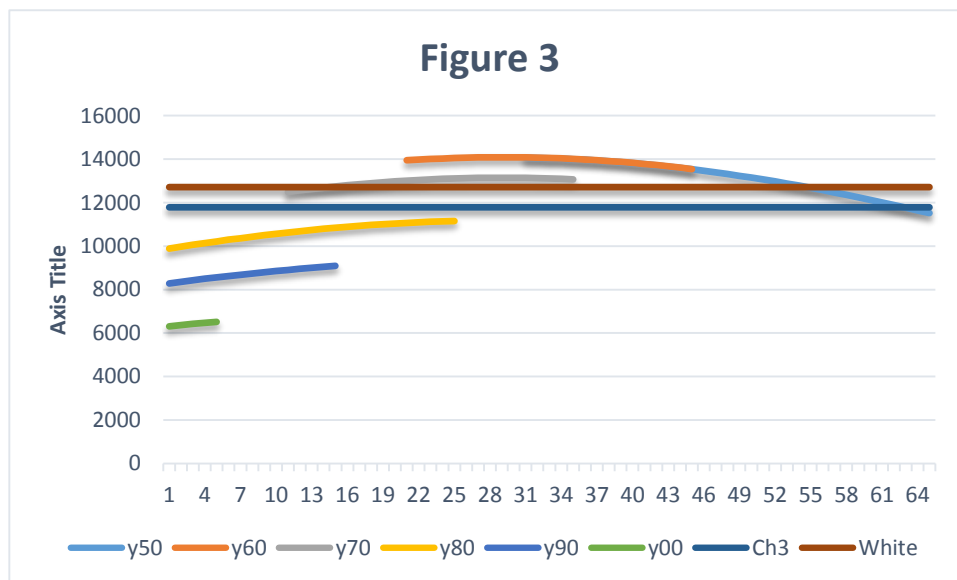
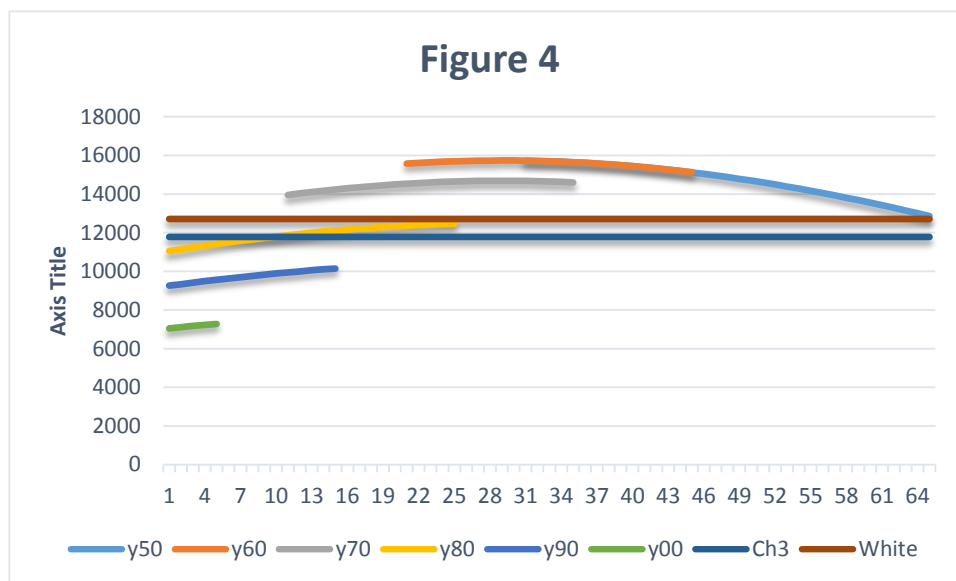


Figure 4. Predicted Total Earned Income of Ch2, Ch3, and White



In Figure 3, the recent arrival cohorts of Ch1 (y80, y90, and y00) earned lower total earned income than White, and some of y50 and y70 also had a lower total earned income than White. On the other hand, the earlier cohorts had higher total earned income than recent ones for the same years since immigration.

Comparing Figure 3 to Figure 4, the self-employed Ch2 performed better than Ch1 in the Canadian labour market, although the recent cohorts (y90 and y00) earned lower total earned income than White. As for Ch2, the earlier cohorts had the higher total earned income than the recent ones for the same years since immigration. There was also only modest growth in total earnings among the self-employed immigrants with additional years in Canada, suggesting that significant earnings gaps for more recent cohorts will not be narrowed over time.

6. Conclusion and Discussion

In this paper, two key questions were considered: “Are male Chinese immigrants more likely to be in self-employment relative to native-born, and to Chinese Canadian?” and “Do male self-employed Chinese immigrants perform better than native-born in the Canadian labour market?” There are a few important findings that can be summarized as follows:

First of all, Chinese immigrants exhibited a higher self-employment rate than the native-born, but a lower self-employment earnings. Moreover, there was significant variation within the subpopulation of Chinese immigrants by period of arrival. The earlier cohorts (y50 and y60) of Ch1 and Ch2 had a higher self-employment rate than the recent cohorts and they also had a higher total earned income compared to more recent cohorts.

Furthermore, the personal characteristics, such as age, years since immigration, number of children in the family, English-speaking ability, and marital status were all associated with a higher probability to enter self-employment. Moreover, well-educated individuals also had a higher incidence of self-employment. In addition, geographic region is a contributory factor that affects the probability to be in self-employment. Even though Chinese immigrants were less likely to be in self-employment than White, the recent cohorts of immigrants represented a higher probability to be in self-employment. As the previous part said, the difference between

descriptive and regression results is a consequence of controlling for all other variables.

Finally, higher total earned income is associated with a range of personal characteristics such as older age, younger at immigration, more years spent in Canada, stronger English-speaking ability, legally married, more children in the family, and well-educated. Chinese immigrants had a lower self-employment income than Whites but the earlier arrival cohorts of immigrants earned more than the recent ones.

In sum, although Chinese immigrants had a higher self-employment rate, they also had lower total earned income than native-born. The recent Chinese cohorts were more likely to be in self-employment. Furthermore, self-employed Chinese immigrants did not perform better than White in the Canadian labour market. One of the most important reasons is the weak English-speaking ability, which can be seen in the descriptive statistics.

More and more immigrants entered Canada in the economic class, which typically exhibited higher education qualification and proficiency in Canadian official languages. However, the results of this paper suggested that the performance of male self-employed Chinese immigrants is not as good as native-born in the Canadian labour market. The results also support the previous theories, “pull” and “push”. For example, Ch1 had the higher education level and were less proficient in English conversation, but they were more likely to be in self-employment and earned lower self-employed

earnings. One policy response might be providing more information on self-employment, such as self-employment labour market, to immigrants by government.

One limitation of this study is that the census files cannot show the reasons that individuals enter self-employment. For instance, some individuals who were “pulled” into the self-employed labour market would affect the self-employment income. Another limitation is that the instrumental variable (IV) may not be exogenous in the earnings equation. It cannot deny that EMR still could affect the self-employed earnings. So it is difficult to find an appropriate instrument in the Census data or broader economic aggregates that are available at the regional level. Therefore, one of the most important workings in the future is to find a more appropriate instrumental variable for the model.

In addition, there are few things that may attract us to explore more in the future research. First of all, it is interesting to figure out if waged/salaried Ch3 and White still earned higher income relative to those of Ch1 and Ch2. In this paper, the non-self-employment rate could be calculated depending on the self-employment rate of those four groups, which shows that Ch3 and White had a higher non-self-employment rate than Ch1 and Ch2. However, the earnings of waged/salaried workers have to estimate again.

Second, this study only focused on male Chinese immigrants relative to Canadian-born but the analysis could be extended to a comparison of female Chinese immigrants with male Chinese immigrants and/or female Canadian-

born in terms of the propensity to be in self-employment and the total earned income of self-employment. Moreover, self-employed Chinese immigrants also could be compared to other minority groups, such as Korean, Japanese, who have similar home country characteristics.

Third, the income gap between is another crucial reason that affect the probability to be in self-employment and total earned income. Therefore, comparing the income gap between self-employed Chinese immigrants and comparably educated and experienced non-self-employed could be one of the future workings. In addition, the difference of earnings between Chinese immigrants and Whites in self-employment and non-self-employment are also attract us to explore in future.

Finally, exploring the earning differentials between particular immigrant groups in particular types of labour force activity such as self-employment can help to inform what is driving declining returns to immigrant experiences more generally that have been identified in the literatures, leading to the ability to craft more targeted immigration policy.

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Appendix

Figure 5. Self-employment Probability of all groups

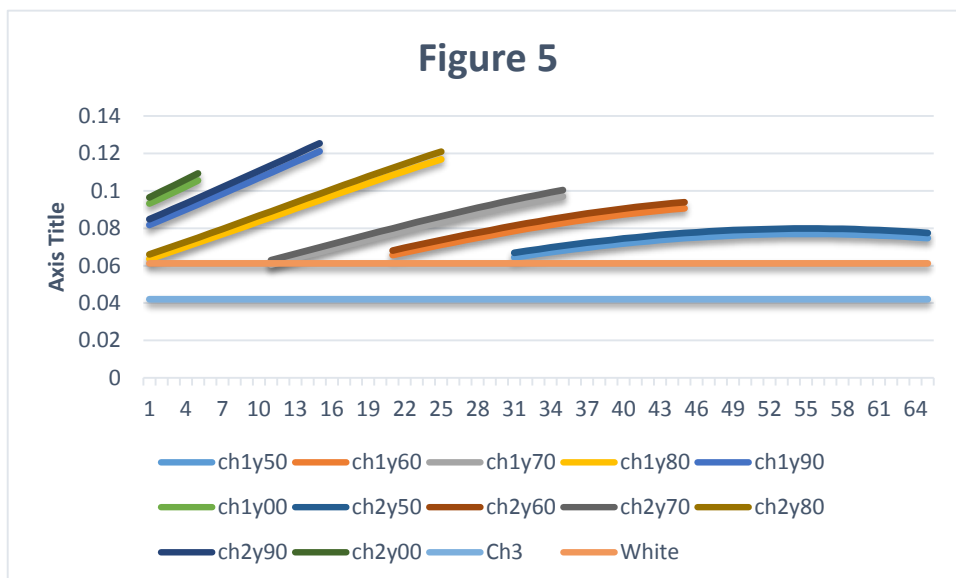


Figure 6. Predicted total earned income for all groups

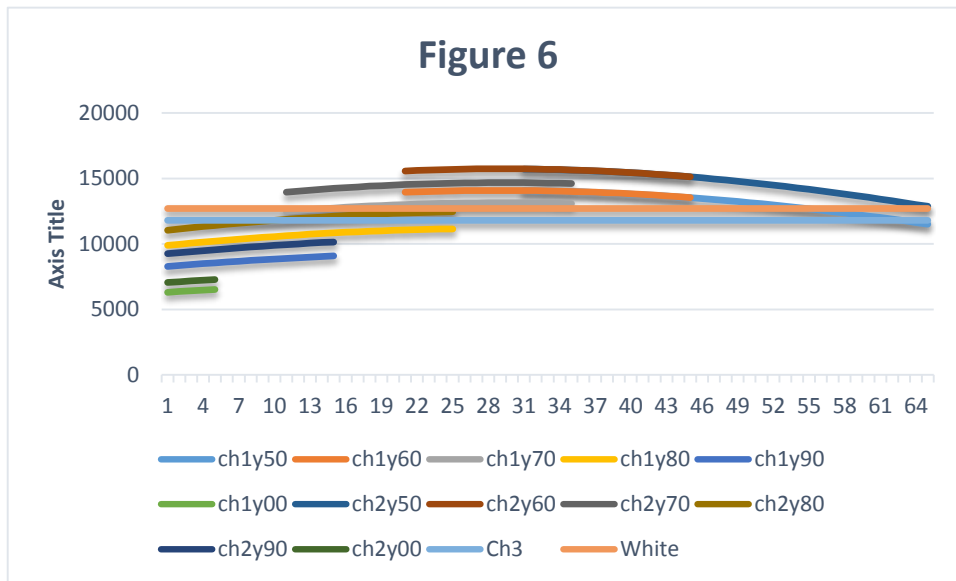


Table 6. Heckman vs. Heckman without IV vs. OLS								
	Heckman			Heckmand without IV			OLS	
	Coef.	P>z		Coef.	P>z		Coef.	P>z
Total earned income								
Age	0.1326	0.000		0.1267	0.000		0.1233	0.000
Age squared	-0.1505	0.000		-0.1456	0.000		-0.1427	0.000
Age at immigration	-0.0054	0.000		-0.0051	0.000		-0.0049	0.000
Years since immigration	0.0091	0.000		0.0070	0.000		0.0059	0.000
Years since immigration squared	-0.0156	0.000		-0.0137	0.000		-0.0126	0.000
English proficiency	0.1105	0.000		0.1009	0.000		0.0955	0.000
Be married	0.2639	0.000		0.2631	0.000		0.2626	0.000
Children in the family	0.0480	0.000		0.0461	0.000		0.0450	0.000

No degree								
High school	0.0479	0.000		0.0509	0.000		0.0526	0.000
College or Trade school	0.0675	0.000		0.0706	0.000		0.0724	0.000
University or Medicine school	0.8142	0.000		0.7983	0.000		0.7888	0.000
Master or higher	0.6947	0.000		0.6952	0.000		0.6951	0.000
the Atlantic Provinces								
Quebec	0.1617	0.000		0.1563	0.000		0.1529	0.000
Ontario	0.2504	0.000		0.2417	0.000		0.2363	0.000
Manitoba	0.0694	0.000		0.0607	0.000		0.0554	0.000
Saskatchewan	-0.0301	0.000		-0.0428	0.000		-0.0506	0.000
Alberta	0.1756	0.000		0.1717	0.000		0.1690	0.000
B.C.	0.1711	0.000		0.1524	0.000		0.1411	0.000
Others	0.1476	0.000		0.1367	0.000		0.1296	0.000
Cohort y50								
Cohort y60	0.0005	0.945		-0.0098	0.223		-0.0157	0.048
Cohort y70	-0.0687	0.000		-0.0879	0.000		-0.0989	0.000
Cohort y80	-0.2304	0.000		-0.2685	0.000		-0.2903	0.000
Cohort y90	-0.4072	0.000		-0.4592	0.000		-0.4890	0.000
Cohort y00	-0.6794	0.000		-0.7382	0.000		-0.7720	0.000
Ch1	-0.2515	0.000		-0.2019	0.000		-0.1733	0.000
Ch2	-0.1283	0.000		-0.0831	0.000		-0.0573	0.002
Ch3	-0.0210	0.193		-0.0135	0.402		-0.0092	0.569
White								
Other non- immigrants	-0.1160	0.000		-0.1145	0.000		-0.1137	0.000
Other immigrants	-0.0206	0.231		0.0253	0.162		0.0517	0.002
_cons	6.1310	0.000		6.5300	0.000		6.7629	0.000

Variables	Type	Descriptions
Age	Num.	Single years of age of respondent
Age squared	Num.	Age squared
Age at immigration	Num.	Age at immigration of respondent
Years since immigration	Num.	Years since immigration of respondent
Years since immigration squared	Num.	Years since immigration squared
English-speaking	Dummy	=1, if the respondent could conduct a conversation in English; =0, otherwise
Married	Dummy	=1, if the respondent in a legally married status; =0, otherwise
Children in the family	Num.	Number of children in the census family
Education level		Highest certificate, diploma, or degree of the respondent
No degree	Dummy	=1, if the respondent had a certificate, diploma, or degree

		lower than high school; =0, otherwise
High school	Dummy	=1, if the respondent had a certificate, diploma, or degree of high school; =0, otherwise
College or Trade school	Dummy	=1, if the respondent had a certificate, diploma, or degree of trades and college; =0, otherwise
University or Medicine school	Dummy	=1, if the respondent had a certificate, diploma, or degree of university; =0, otherwise
Master or higher	Dummy	=1, if the respondent had a certificate, diploma, or degree of master or higher; =0, otherwise
Regions		Province or territory of current resident
the Atlantic Provinces	Dummy	=1, if the respondent is located in Maritime or Newfoundland; =0, otherwise
Quebec	Dummy	=1, if the respondent is located in Quebec; =0, otherwise
Ontario	Dummy	=1, if the respondent is located in Ontario; =0, otherwise
Manitoba	Dummy	=1, if the respondent is located in Manitoba; =0, otherwise
Saskatchewan	Dummy	=1, if the respondent is located in Saskatchewan; =0, otherwise
Alberta	Dummy	=1, if the respondent is located in Alberta; =0, otherwise
B.C.	Dummy	=1, if the respondent is located in B.C.; =0, otherwise
Others	Dummy	=1, if the respondent is located in other provinces or territories; =0, otherwise
Cohort y50	Dummy	=1, if the respondent landed in Canada from 1941 to 1960; =0, otherwise
Cohort y60	Dummy	=1, if the respondent landed in Canada from 1961 to 1970; =0, otherwise
Cohort y70	Dummy	=1, if the respondent landed in Canada from 1971 to 1980; =0, otherwise
Cohort y80	Dummy	=1, if the respondent landed in Canada from 1981 to 1990; =0, otherwise
Cohort y90	Dummy	=1, if the respondent landed in Canada from 1991 to 2000; =0, otherwise
Cohort y00	Dummy	=1, if the respondent landed in Canada from 2001 to 2006; =0, otherwise

Ch1	Dummy	=1, if the respondent is immigrant, Chinese minority, and born in mainland China; =0, otherwise
Ch2	Dummy	=1, if the respondent is immigrant, Chinese minority, and born in mainland China; =0, otherwise
Ch3	Dummy	=1, if the respondent is immigrant, Chinese minority, and born in Hong Kong, Macau, or Taiwan; =0, otherwise
White	Dummy	=1, if the respondent is non-immigrant, Chinese minority, and born in Canada; =0, otherwise
Other non-immigrants	Dummy	=1, if the respondent is other non-immigrant; =0, otherwise
Other immigrants	Dummy	=1, if the respondent is other immigrant; =0, otherwise
EMR	Num.	The employment rate of every census metropolitan area or census agglomeration

Curriculum Vitae

Wenjing Bi (Vicky)

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Profile Summary

- I am a dynamic, easy-going, friendly, and hard-working person.
- I am good at struggling with challenge and difficulties, solving problems, and working under pressures,
- I am excellent at reading and writing, communication with people, and working with others.
- I am a quick-learner, and I love to learn new things to enrich and improve myself.
- I am good at tasks planning and organizing, and highly responsible for my workings.

Education

Master of Arts in Economics, *University of New Brunswick*

Sept. 2012 – Now

- Expected graduate in September, 2015

Bachelor of Arts, *University of New Brunswick*

Sept. 2010 – August 2012

- Major in Economics
- Minors in Mathematics and Business Administration

Bachelor of Business Administration, *Shandong University*

Sept. 2008 – August 2010

Work Experience

Team Member, *Menchie's Frozen Yogurt*

Oct. 2014 – present

- Provide excellent services to customers and satisfy their all requirements.
- Hard working on all things, such as cleaning, making yogurt, etc.

Teacher Assistant (TA), *University of New Brunswick*

Sept. 2012 – August 2013

- Handle the responsibility to assist professors in homework and quiz correcting and marking
- Advise student on matters pertaining to the examination procedure.

Team Member, *Tim Hortons Inc.*

Sept. 2011 – July 2012

- Satisfy every customer's request and ensure that they receives outstanding services by providing a friendly environment.
- Assist manager in stocking and doing paper work.

Volunteer Experience

- Halloween Night volunteer in Saint John Zoo, University of New Brunswick
2011
- Beijing Olympic Games volunteer in Qingdao, Shandong
2008

Other Skills

Language

- Proficient in English and Mandarin.

Software

- Excellent at Microsoft Office suite: Words, Power Point, Excel, and Outlook.
- Excellent at using STATA 12.