Performance of East and South Asian Immigrants in the Paid and the Self-Employed Labour Markets of Toronto and Vancouver

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Abstract

This study uses the 2001 Census data to examine the labour market performance of the paid and the self-employed immigrants from China, Hong Kong, India, Vietnam and the Philippines in the cities of Toronto and Vancouver, in terms of the entry and the assimilation effects. A comparison with immigrants from the rest of Asia and all other immigrants is also conducted. Furthermore, the study investigates the propensity for self-employment among the major immigrant groups. The research finds that immigrant men from Hong Kong who resided in Toronto had the highest predicted probability of being self-employed compared to the native-born. For Vancouver, immigrants from the rest of Asia and all other immigrants had the highest predicted probabilities. In both metropolitan areas, immigrant men from the Philippines had the lowest predicted probability of being self-employed. For women, in both metropolitan areas, immigrants from the rest of Asia had the highest predicted probability of being self-employed, and women from the Philippines had the lowest predicted probability. In the self-employed labour market, women generally reached income equality with the Canadian born somewhat faster in Vancouver, due to a higher assimilation rate. For self-employed men the results were inconclusive. In the paid labour market, male immigrants reached earnings equality more rapidly in Vancouver than in Toronto, due primarily to a higher assimilation rate. For the women the results depended on the particular group. The performance of Asian immigrants in the paid labour market was marginally superior to that of the self-employed labour market. Finally, immigrant women have a somewhat lower earnings disadvantage and a higher assimilation rate than men and reached earnings equality with the Canadian born more rapidly.

1. Introduction

Canada relies heavily on immigrants to fill vacancies in the labour force and "About 1.8 million people living in Canada in 2001 were immigrants who arrived during the previous 10 years, between 1991 and May 15, 2001" (Statistics Canada, The Daily: January 21, 2003). Generally the numbers of immigrants admitted annually have been rising and in 2006, about 266,000 immigrants were granted entry into the country (Statistic Canada, The Daily: September 27, 2006). Canada's per capita immigration rate is about three times greater than that of the United States, and Canada has the highest rate of immigration among the major industrialized nations. Of the foremost reasons for allowing a large number of immigrants includes first, a low fertility rate of 1.5 children per woman, which is below the replacement rate of 2.1 children per woman, and second, an aging population (Weeks, 2005: 55-56). According to Statistics Canada in 2006 roughly 13.7% of the population was over 65 years of age, which is an increase from 13.0% in 2001 (Statistics Canada, The Daily: July 17, 2006). Immigration accounted for a major percentage of the demographic growth in Canada: it represented more than 60% of Canada's population growth since 2001 and comprised 46.2% of the country's demographic growth from 1990 to 1995 (Statistics Canada, The Daily: September 27, 2006).

An increasingly important source of immigrants to Canada is from South and East Asia and this research will focus on groups from that geographic area. More specifically, the paper will examine immigrants from China, Hong Kong, India, Vietnam, the Philippines, the rest of Asia, and all other immigrants in order to analyse how they are performing in the Canadian labour market. Furthermore, the research will analyse both

the paid and the self-employed labour market, the latter of which has not been studied often. The majority of the Asian immigrant groups who reside in Toronto and Vancouver are examined, and the focus of the paper will be on those two metropolitan areas.

The research is based on the public use 2.7% sample Census microdata for 2001. The theoretical framework and the empirical methodology are borrowed from Bloom, Grenier and Gunderson (1995) and from Frenette (2002, 2004). The models employed in the analysis are modified versions of the human capital earning equations similar to that of Bloom et al. These multiple regression models will analyse paid and self-employment attainment of the immigrant groups specified above. Furthermore, the research will examine the propensity for self-employment among the selected immigrant groups, and it is done through a logistic regression model similar to the one employed by Frenette. The focal point of the research will be on specific immigrant groups, while Bloom et al examined broad immigrant categories: Asians, Blacks and Latin Americans in one category and Europeans and Americans in another. Frenette's study involved a single broad category of exclusively male visible minorities, as defined by Statistics Canada. Another distinction is that the above authors used several Census files, while this research will concentrate on the 2001 Census only. Since the research will use one Census, the assimilation and cohort effects cannot be separately identified.

The paper is structured in six parts. In the second section background information is provided about the five major immigrants groups in the study, starting with Chinese immigrants. In section three, a comprehensive literature review is conducted which includes Bloom, Grenier and Gunderson's study and Frenette's research. In section four, the data and the models are explained in detail. In section five the analysis of the results

are given in the following order: descriptive statistics for men and women, followed by logistic regression results and then multiple regression results for the self-employed and the paid employed groups. Section six will conclude with the examination of the findings and briefly discuss the major results.

2. Background on Asian Immigrants

2.1. Immigrants from China

In the 20th century the influx of Chinese immigrants was curtailed through the enactment of the Chinese Immigrant Act of 1923. This exclusion was based on the "doctrine that whites and Chinese were wholly different and could not work toward the same goals" (Powell, 2005: 61). With the implementation of the Chinese Immigration Act, virtually no new Chinese immigrants were allowed entry into Canada between 1924 and 1946 (Powell, 2005: 61). During this period most jobs were closed to the Chinese, and they started to open their own businesses. In British Columbia, Saskatchewan, and Ontario, Chinese employers were not allowed to hire white females, thus most Chinese businesses tended to be exclusively Chinese (Wikipedia).

The Chinese Immigrant Act was repealed in 1947, since it contravened the UN Charter of Human Rights that Canada signed after the end of the Second World War (CBC News). After the rescission of the Act, Chinese Canadians could apply to Immigration Canada to bring their spouses and minor children into the country. During the 1940s only about 5 percent were Canadian or British citizens of Chinese origin of the total population of the country (Powell, 2005: 61). Consequently by the 1950s most immigrants from China were wives and children of men already settled in Canada, and

Chinese communities started to become less overwhelmingly male. During this period, the Cold War anti-Communist rhetoric was on an upsurge, thus anti-Chinese sentiments did not dampen, and the immigration policy still favoured Europeans over Asians.

Eventually geo-politics changed: International relations took a different direction. Trade between East and West began to flourish. Treating all races on equal terms became an international norm and a characteristic of civilized society. In 1967, the points system was introduced for selecting immigrants, and Canada began admitting Chinese using the same criteria as for any other applicant (CBC News Online). During the 1980's and early 90's, the number of Chinese immigrants to Canada increased from 289, 245 in 1981 to 633,933 in 1991 (Li, 2003: 2). "By 2001 a total of 1,029,400 individuals identified themselves as Chinese, up from 860,100 in 1996. They accounted for 3.5% of the total national population and 26% of the visible minority population" (Statistics Canada, The Daily: January 21, 2003). In 2001, almost 75% of Chinese immigrants (including immigrants from Hong Kong) were in Toronto or Vancouver, and they accounted for 17% of Vancouver's population and 9% of Toronto's population (Wikipedia).

2.2. Immigrants from Hong Kong

There was a rapid increase in the arrival of wealthy entrepreneurs from Hong Kong in the 1980's and early 1990's. This was mainly due to immigrant-friendly political changes to the Canadian immigration law in 1978 and 1985, and the uncertainty of the status of the colony. These entrepreneurs had to demonstrate a net worth of at least $500,000 and investment in a Canadian business venture of at least $250,000. The

changes to the immigration laws in Canada were introduced to facilitate the entry of wealthy immigrants from Hong Kong who were concerned about the approach of the July 1997 handover of the colony to the Peoples Republic of China (CBC News Online). However, according to Peter Li, "In reality, the rising volume of Hong Kong emigration in the late 1980s and early 1990s was prompted by the 1989 Tiananmen Square incident and its aftermath, and the booming economy of the early 1990s that created the wealth and the means for many middle class Chinese to emigrate" (Li, 2003: 1).

As a result of the above reasons, the arrivals from Hong Kong and China differed substantially: "by 1986 business immigrants accounted for about two-thirds of all economic immigrants from Hong Kong...Between 1991 and 1995, business immigrants accounted for 42 to 64 per cent of all economic immigrants from Hong Kong each year. In contrast, business immigrants made up only a small percentage of the total immigration from China" (Li 2003: 7). The people of Hong Kong differed from the Mainland Chinese immigrants in other aspects too. They spoke English fluently, as well as Cantonese, since Hong Kong was ruled by the British for more than a century, while Chinese immigrants spoke mainly Mandarin, another version of the Chinese language.

With the changes to the immigration law and the political situation in mainland China, the volume of annual immigration from Hong Kong increased rapidly, reaching 30,000 a year in 1990, and continuing an upward trend until it peaked at 44,000 in 1994 (Li, 2003: 4). From 1994 onwards, the number of immigrants from Hong Kong decreased annually, "dropping to 30,000 in 1996, and then 8,000 in 1998; by 2001 less than 2,000 immigrants arrived from Hong Kong" (Li, 2003: 4). In the 2001 Census,

240,045 individuals identified themselves as being from Hong Kong (Statistics Canada 2007).

2.3. Immigrants from India

In 1897, East Indian Punjabi soldiers returning after providing services to the Queen Victoria's Diamond Jubilee in London passed through Canada. These Punjab Sikhs, all first-time visitors, were attracted by the landscape and vegetation of British Columbia (Wikipedia). Soon after, young Sikh men began arriving in B.C. to earn a living, leaving their families behind. Sikh immigrants found work in lumber mills, railway construction, and forestry. The first significant wave of Indian immigration came between 1903 and 1918, when more than 5,000 Sikhs arrived. Because Indians were denied the right to participate in the national political process, they focused on local community organizations and staged protests against the denial of their rights (Powell, 2005: 146-147).

In 1947, Indians in Canada were granted citizenship rights. Furthermore the "Immigration Act (1952) provided for reunification of immediate family members, and the subsequent order-in-council (P.C 1956-785) allowed an annual quota of 150 Indians beyond those eligible under the category of immediate-family sponsorship" (Powell, 2005: 147). When Canada relaxed social and ethnic barriers in the 1960's, more East Indians began to immigrate, and the majority of them opted to settle in Ontario or Quebec. By the mid 1980's, Indian immigration started to rise more dramatically. Before 1981, India was the seventh main source of immigration to Canada, but during the 1980's and 1990's, it became the third main source after China and Hong Kong. By 2001,

713,330 individuals identified themselves as being Indians, 58% of them living in Ontario and nearly 26% living in British Columbia, and they ranked as the second largest visible minority group in Canada (Asiapacific.ca). Indians were proficient in English and were able to adapt more easily to life in Canada than other immigrants who were not proficient in either of the Canadian official languages.

2.4. Immigrants from Vietnam

The first documented arrival of Vietnamese to Canada was in the 1950's, when a handful of students were given grants to study at Canadian universities. Because of Vietnam's French colonial background, most of the students attended universities in Quebec. However, when France cut ties with Vietnam in 1965, there was a surge of interest in Canadian universities, leading to the creation of many small Vietnamese enclaves in Montreal, Quebec City, Sherbrooke, Ottawa, Moncton, and Toronto. Many of these immigrants stayed on as professionals after their training, and by 1974 there were about 1,500 Vietnamese in Canada, most living in the province of Quebec (Powell, 2005: 310).

After the American withdrawal from Vietnam, many South Vietnamese fled the country, the majority emigrating from Vietnam to the United States or Canada. "Between 1975 to 1985, 110,000 settled in Canada (23,000 in Ontario; 13,000 in Quebec; 8,000 in Alberta; 7,000 British Columbia; 5,000 in Manitoba; 3,000 in Saskatchewan and 2,000 in the Maritimes)" (Wikipedia). The next wave of Vietnamese migration came in the late 1980's and 1990's, most of whom were refugees and immigrant class applicants of the post Vietnam War. "Some of these immigrants were ethnic Chinese from Saigon in

southern Vietnam. These groups settled in urban areas, in particular Toronto, Montreal, Calgary and Vancouver" (Wikipedia). In the 2001 Census, 151, 410 individuals identified themselves as being Vietnamese: Nearly 45% lived in Ontario and 18% of them lived in British Columbia (Asiapacific.ca).

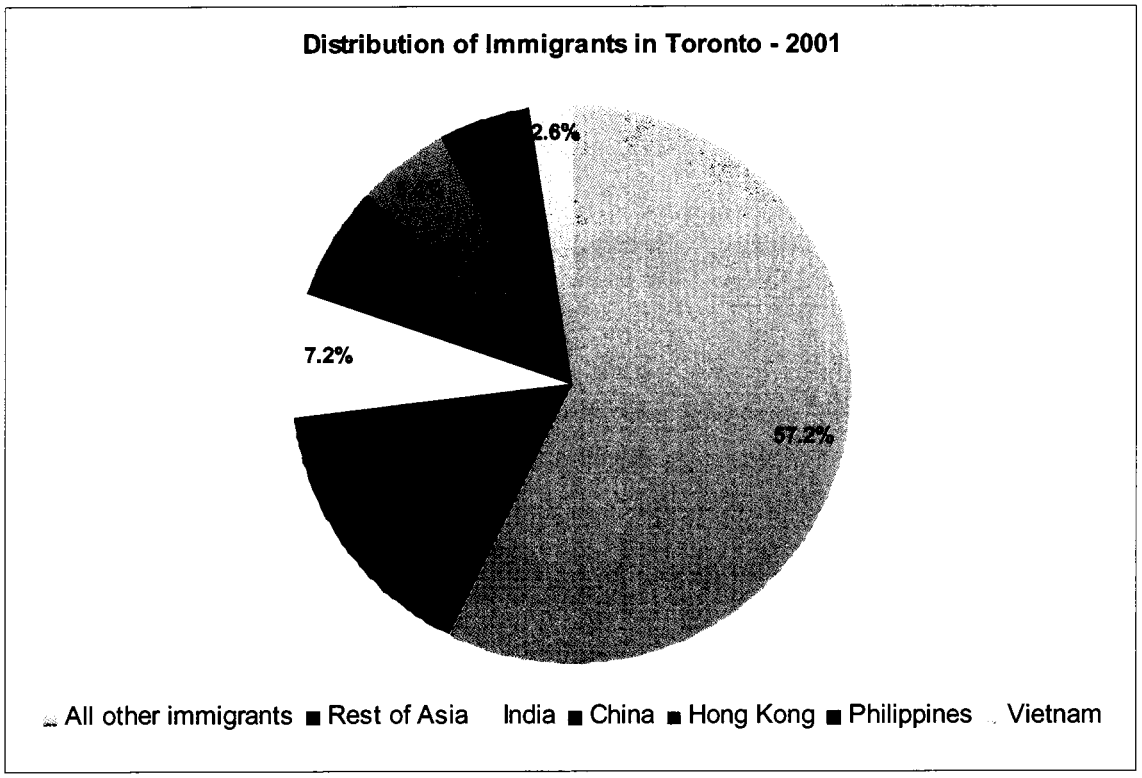
2.5. Immigrants from the Philippines

According to Powell, "It is difficult to arrive at precise figures for Filipino immigration to Canada. Filipinos were grouped under the category of "Other Asians" until 1967, but they also followed a distinctive pattern of immigration." (Powell, 2005: 97). There were very few Filipino immigrants to Canada prior to WWII, with less than 100 by 1964. However, with the introduction of the points system in 1967, more Filipino immigrants came to Canada, especially in high demand areas like health care. Most Filipino immigrants were women who came for job opportunities in the medical fields and by the 1990's Filipina women composed about 60 percent of the immigrant population (Powell, 2005: 97). "Between 1971 and 1992, total immigration from the Philippines placed them in the top 10 of source countries, and between 1994 and 2002, the country ranked from second to sixth each year, with a total of about 110,000 immigrants" (Powell, 2005: 97). In the 2001 Census, 327,550 individuals identified themselves as being Filipino: Over 50% lived in Ontario and nearly 22% of them lived in British Columbia and they were the third largest visible minority group in Canada (Asiapacific.ca).

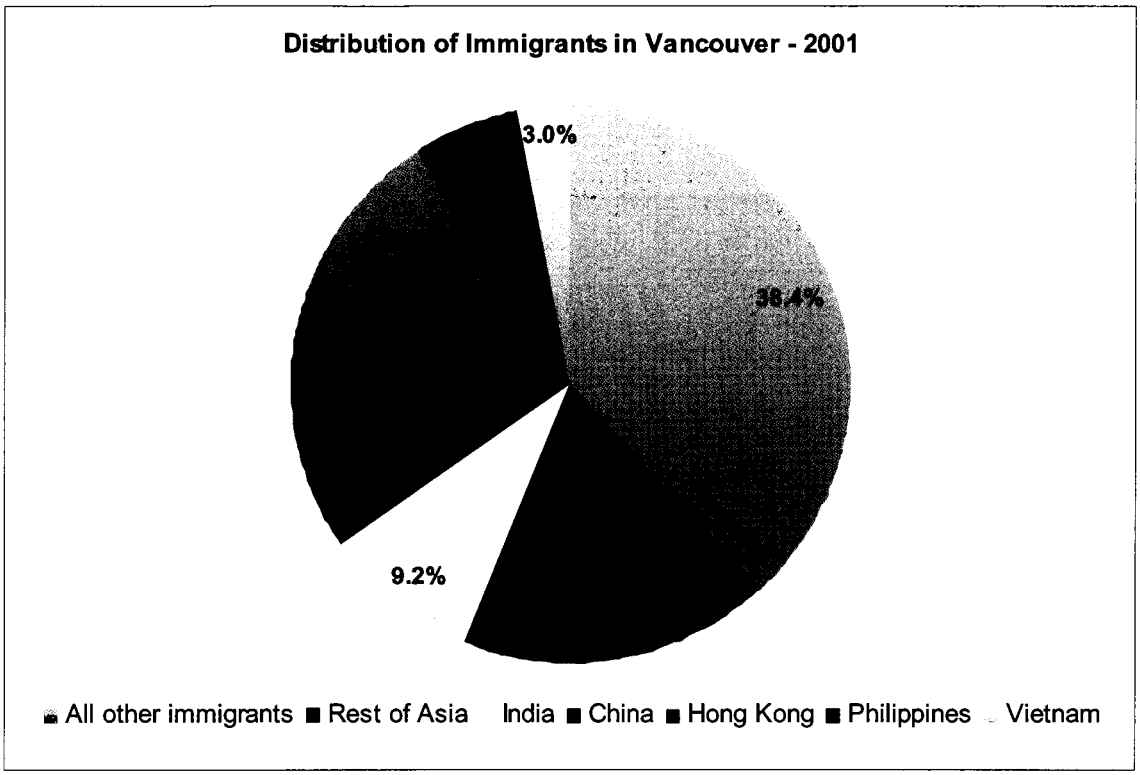
2.6. The Distribution of the Immigrant Population of Toronto and Vancouver

Graphs 1 and 2 and Table 1A of the appendix show the distribution of the immigrant population of Toronto and Vancouver for 2001 (Statistics Canada 2007). As expected, in Vancouver the proportion of Chinese and Hong Kong immigrants exceeded other nationalities. The Chinese comprised 13.8% of the immigrant population of Vancouver, and immigrants from Hong Kong comprised 11.6%. In the Vancouver region, immigrants from the Asia Pacific region comprised 61.6% of the immigrant population, whereas in Toronto they comprised only 42.8%.

Graph 1



Graph 2



3. Literature Review

Many previous studies have examined outcomes for immigrants on the paid labour market, but a very few have examined the self-employed labour market. In the paid labour market, immigrant earnings have decreased compared to the Canadian born earnings. This is an especially worrisome trend, since it might discourage prospective immigrants to Canada, which relies heavily on immigrants to fill vacancies in the labour force. Recent studies have shown that the wage gap between immigrants and native-born Canadians has increased with each new cohort.

3.1. Baker and Benjamin (1994)

Baker and Benjamin utilized the 1971, 1981 and 1986 Census files to examine the labour market performance of immigrants to Canada. The authors employed a standard earnings function with cohort specific intercepts. The natural log of earnings was regressed on a vector of human capital indicators, years since migration, a dummy variable for marital status, a dummy variable for blacks and cohort dummy variables. The focus was on males aged 16 to 64 who worked 40 weeks or more in the previous year the Census was taken (Baker and Benjamin, 1994: 371-372).

Their findings indicate that recent immigrant cohorts have a larger negative entry effect than previous cohorts. "For example, the 1971/1981 results suggest the IM7680 cohort's entry earnings are between 11% and 18% lower than those of the IM6670 cohort. A similar deficit is observed between the IM7175 and IM6165 cohorts. The 1981/1986 results confirm the trend. The entry earnings of the IM8186 cohort are between 19% and 20% lower than those of the IM7680 cohort" (Baker and Benjamin, 1994: 394). The composition of immigrants started to change in the 1960s, as more immigrants came from none traditional source countries, and this affected the labour market performance of recent immigrants. "We conclude that the changing composition of immigrants accounts for up to one-half of the decline in the labor market outcomes of the post-1970 cohorts" (Baker and Benjamin, 1994: 396).

3.2. Bloom, Grenier and Gunderson (1995)

Bloom, Grenier and Gunderson (1995; hereafter B.G.G.) used pooled data in Canada for 1971, 1981 and 1986 Census files and examined the entry, assimilation and

cohort effect of immigrants. The purpose of the paper is to determine "the extents to which immigrants assimilate into the Canadian labour market in the sense that their earning patterns come to match the earnings patterns of otherwise comparable Canadian-born individuals" (B.G.G: 988). Their model was similar to Chiswick (1978) but augmented to allow for cohort specific effect as emphasized by Borjas (1985). The natural log of earnings was regressed on a vector of human capital indicators, years since migration, a dummy variable for immigrants, and cohort dummy variables. The study was restricted to men and women aged 19 to 64, and the reference category was immigrants who arrived before 1960 (B.G.G: 990-991). The paper shows interesting results, especially regarding the differences between immigrant men and women.

For the immigrant men, the negative entry effect was on average 5 percent for the 1971 Census, and it would take them 15 years to catch up to the Canadian born men. In the 1981 Census the entry effect was approximately 14%, and it required almost 24 years to equal the Canadian born men in earnings. The deteriorating entry effect continued with the 1986 Census: entry effect of 22% and these new immigrants would need 26.4 years to catch up to the Canadian born. Immigrant women did substantially better on arrival (entry effect), but their assimilation rates were much lower; thus they required more time to reach income equality than the men for the 1981 Census. For immigrant women, the entry effect was 3.3% for the 1971 Census, and they required 3.2 years to catch up the Canadian born women. The entry effect for the 1981 Census was 10.4%, and the women required 29.3 years to catch up to the Canadian born women (assimilation rate was only 0.35%, compared to 0.58% for the men). While the entry effect was 10.63% for the 1986 Census, the assimilation rate was higher at 0.44% and it would take 24.0 years to equal

the incomes of the Canadian born women. The entry effect was deteriorating rapidly, assimilation effect for both the men and women improved from 1971 to 1986: From 0.35% to 0.84% for the men and 0.10% to 0.44% for the women (B.G.G: 996-998). The authors suggested several reasons for the deteriorating labour market conditions of new immigrants: The "quality" of immigrants was reduced because policies targeted refugees and family reunification, increased invisible discrimination by the employers as the composition of immigrants changed toward visible minorities, and the inability of the labour market to absorb all the new entrants due to a prolonged recession at the time (1982-83).

3.3. Schaafsma and Sweetman (2001)

Schaafsma and Sweetman used the 1986, 1991 and 1996 Canadian Census microdata files to observe the impact the age of immigration had on men's earnings. Each Census was treated as a separate cross-section, and the sample was limited to males aged 16 to 64 years old who worked more than 40 weeks in the previous year. The authors used a distinct age-earnings profile for immigrants and the Canadian born. "We are reluctant to impose this common age-earnings profile on both groups. Our approach provides analysis that we believe to be 'cleaner.' What defines an immigrant is not age, but age at immigration and year of immigration" (Schaafsma and Sweetman, 2001: 1071).

The authors found that immigrant annual earnings had fallen in their most recent Census. "Immigrant annual earnings in 1986 and 1991 [dollars of 1995] average exceeded the earnings of Canadian born by some $2,000 but fell short of Canadian-born

earnings by $442 by 1996 as a result of a much larger drop in the average real earnings for immigrants than for Canadian born" (Schaafsma and Sweetman, 2001: 1073). The age of immigration had a pivotal role in the earnings potential of immigrant men. The study found that those men who immigrated between the ages of 45 and 64 years earned substantially less than those who immigrated before the age of 5 (earning 32 percent less in 1996) (Schaafsma and Sweetman, 2001: 1077). Furthermore, "Those who immigrated in their late teens (13 to 19 in 1996; 15 to 19 in 1986 and 1991) have consistently lower earnings than both those who immigrated at a slightly younger and those who were slightly older" (Schaafsma and Sweetman, 2001: 1082).

3.4. Aydemir and Skuterud (2005)

A more recent study conducted by Aydemir and Skuterud (2005) found worsening labour market conditions for the 1990-1994 cohort, but some improvements for the 1995-1999 cohort. Aydemir and Skuterud used the Census files of 1981, 1986, 1991, 1996 and 2001 (using the complete 20% microdata files) to explore the causes of the deterioration in the entry earnings of immigrants. For their research, two versions of a modified human capital earnings function were used, with the usual socio-economic factors affecting income. In the first equation it is assumed that both the natives and the immigrants have equal returns to schooling and experience; in the second model this assumption is relaxed. Their study restricts the sample to people aged 18 to 54 who worked a full-year full-time and those who arrived between 1965 and 2001. (Aydemir and Skuterud, 2005: 644-7).

The results of the study indicated that the gap between immigrants and the native-born for the most part was continuing to widen. Using the first model the following results were reported: "The coefficient on the 1990-1995 cohort*immigrant interaction term indicates that by the early 1990s, new immigrant men to Canada had earnings that were 61 log points lower than the entry earnings of immigrant men arriving in the late 1960s" (Aydemir and Skuterud, 2005: 648). A similar figure was noted for the female sample at 63 log points. This is compared with the 1980's cohorts, who had entry earnings that were between 28 and 40 (men) and 36 and 40 (women) log points lower than the 1965-69 cohort. The cohorts of the 1970's were better off: Their entry earnings were between 8 and 14 (men) and 13 and 23 (women) log points lower than the 1965-69 cohort. The widening earnings gap declined somewhat for the 1995-99 cohort: 51 log point for both the men and the women. This marginal improvement in the earnings gap can be credited to improving labour market conditions and the efforts of policy makers to improve the immigrant selection process (Aydemir and Skuterud, 2005: 648).

For the second model, the assumption of equivalent returns to experience and schooling for both native-born and immigrants are relaxed, and comparative results were reported. The 1970's cohort entry earnings were 6 and 11 (men) and 9 and 18 (women) log points below the 1965-69 cohort. The 1980's cohort entry earnings were 24 and 25 (men) and 36 and 40 (women) log point below and the 1990's cohort entry earnings were 55 and 43 (men) and 52 and 39 (women) log points below the 1965-69 cohort (Aydemir and Skuterud, 2005: 648).

What were the causes of the deteriorating labour market earnings of new immigrants? They attributed "between one-quarter and one-half of the overall-

deterioration in entry earnings of Canada's immigrant men and women can be explained by declining income returns to foreign labour market experience" (Aydemir and Skuterud, 2005: 668). Surprisingly, they found little or no evidence that declining returns to foreign education are responsible for the deterioration. However, the decline in entry earnings was experienced more strongly by men from non-traditional source countries: About one-third of the deterioration was explained by the shift away from traditional European source countries to non-traditional Asian countries, and the shift in the knowledge of an official language and mother tongue of new immigrants (Adyemir and Skuterud, 2005: 668). In conclusion "we find that any cohort effects that remain after controlling for the knowledge of an official language, mother tongue, and region of birth and allowing the returns to foreign experience to vary between cohorts, can be explained with reference to the broader deterioration in entry earnings experienced by native-born labour market entrants" (Adyemir and Skuterud, 2005: 669). With the challenges faced by immigrants in the paid labour force, a greater proportion of them may choose self-employment opportunities. With the deteriorating earnings in the paid labour market for each successive cohort of immigrants, more could choose the self-employed labour market.

3.5. Borjas (1986)

One of the foremost studies on self-employment was done by Borjas (1986). The paper examined the probability of self-employment for men, and if immigrant men were more likely to become self-employed the longer they resided in the United States. Borjas used the 1970 (1/100 sample, men 10 to 54 years) and 1980 US (5% random sample, men

28 to 64 years) Census. The six major immigrant groups used in the study were Mexican, Cuban, other Hispanic, and Asian, white and black. The class of worker variables in the Census was used to define an individual who was self-employed (Borjas, 1986: 493). Did Borjas study find that immigrants were more likely to become self-employed?

The 1980 Census results showed that white male labour force participant's probability of self-employment was 11.7% for the native-born white males and 16.5% for the foreign born white males. For the Asian immigrants the rate was 12.1 percent for the native-born Asians and 12.6 percent for the Asian immigrants. The self-employment probabilities were the lowest (4 to 5 percent) for both native-born and immigrant blacks and Mexicans (Borjas, 1986: 486). The following research conducted by Peter Li (1997) shows similar results in Canada for self-employed immigrants.

3.6. Li (1997)

According to Li (1997), the literature provides two different explanations as to why some immigrants chose self-employment over paid employment. One of theories is the "blocked mobility" thesis: self-employment for some immigrants and minority members represents an alternative to seeking work in the labour market, where they find limited opportunity of employment and advancement. The second theory is stated as follows: "Similarly, research on the enclave economy and immigrant firms indicates that immigrant business owners receive economic returns on past human capital investment which are similar to those of immigrant workers in the open market, thus suggesting that some immigrants may choose self-employment for the attractive economic returns" (Li,

1997: 105). Therefore, both arguments imply that self-employment for immigrants yield better returns than employment (Li, 1997: 105).

Li used the microdata files on individuals from the 1991 Census of Canada. The study analyzes the patterns of self-employment for visible minority immigrants, white immigrants and native-born Canadians, and then compares their earnings. The purpose of the analysis was to see if self-employment provides immigrants with an earnings advantage or disadvantage as compared with other groups in the labour market. The study used individuals 15 years old and over, who worked in 1990 in the private sector (non-government) in the secondary and tertiary industries (non-primary) were included. The groups used in the analysis include "visible minority immigrants", "white immigrants", "native-born visible minorities", and "native-born white Canadians" and aboriginals (Li, 1997: 106). A modified version of the human capitals earnings function was used with the usual socio-economic factors affecting earnings. Furthermore, Li used the Multiple Comparative Analysis (Andrews et al 1976) to analyze the gross and net differences in earnings among the groups in the study.

The research found that the self-employment rate for the total labour force was 7.8 percent, but the rate of self-employment varied substantially among some groups. Foreign-born white Canadians had the highest rate of self-employment (12.0%) and Aboriginal peoples had the lowest rate (4.7%). While the foreign-born visible minorities' self-employment rate was 8.9 percent, the native-born visible minorities' rate was much lower at 6.1 percent. The native-born white Canadians had a self-employment rate of 7.2 per cent, which was substantially lower than among the white immigrants (12.0%). Therefore, visible minority and white immigrants were more likely than their native-born

counterparts to engage in self-employment, but visible minority immigrants were less likely than white immigrants to be self-employed (Li, 1997: 109).

The study found that self-employed people had higher earnings than comparable wage earners:

> The data show that self-employed persons had average earnings higher than wage workers, when differences in visible minority status and nativity have been controlled. For example, self-employed native-born white Canadians had an earning that was $6,565 above the national mean, as compared to an earning of $728 below the mean for native-born white Canadians who were wage workers. The average earning advantage of self-employed white immigrants over white immigrant wage workers was about $4,000. Similarly, native-born visible minorities in self-employment earned $6,976 above the national average, whereas their counterparts in wage employment earned $5,881 below the national average. Visible minority immigrants in self-employment also earned more than their counterparts who were wage workers; the earning difference was over $7,000. These statistics clearly indicate that self-employed persons earned substantially more than wage workers, when differences in racial original and nativity have been held constant (Li, 1997: 111).

The research indicates that visible minorities enter the self-employment labour market because of economic returns and blocked mobility in the labour market. While there are economic returns for white immigrants, they do not face blocked mobility in the labour market compared to visible minority immigrants (Li, 1997: 116).

3.7. Frenette (2004)

Frenette (2004) examines if immigrants are more likely to turn to self-employment compared to the native-born Canadians, and if the falling earnings of immigrants also apply to self-employed immigrants. He uses micro data for Census years 1981, 1986, 1991 and 1996. He focuses on the male sample between 20 and 59 years of age, working 40 or more weeks per year. A self-employed person was defined as anyone deriving at least 95% or more of their income from self-employment, and whose earnings are positive. A worker who derives at least 95% of their income from paid work is

considered to be a paid worker, and the intermediate group is considered to partially self-employed (Frenette, 2004: 211).

The methodology Frenette employed in specifying his logistic regression model is involved. He examines the choice of one's class of work through a multinomial logit model with three outcomes: paid work (reference category), partial self-employment and self-employment. According to Frenette, the selection of employment decision could lead to sample selection bias, and he uses the Heckman two-stage correction procedure to correct the bias. In order to generate predicted probabilities he uses a robust method developed by Mellor (1998) (Frenette, 2004: 216). "Rather than evaluate the differences in predicted outcomes at one particular point (e.g. the means), the difference is evaluated for each individual *i* in the sample (given their values of Xi), and this difference is averaged out for the entire sample of N people" (Frenette, 2004: 216). The methods he employed are beyond the scope of this paper. The variables examined in the study are the usual social economic indicators such as the level of education, years of labour market experience etc. He also uses regional dummy variables as a proxy to analyse if regional conditions influence the decision to become self-employed. He found that few immigrants and native-born workers were partially self-employed, between 2 to 3 percent. But there were marked differences in the propensity of immigrants and the native-born to become self-employed: In the first 3 years of data (1980, 1985, and 1990), immigrants who arrived in the previous 5 years were far less likely to be self-employed than were the native-born (Frenette, 2004: 218). "By 1995, recent immigrants were as likely to be self-employed as the native-born. Following immigrants through time, we

also see that they become more likely to turn to self-employment, the longer they remain in the host country" (Frenette, 2004: 218).

In the paid labour force, Frenette found a steady decline in the relative earnings of immigrants: "Between 1980 and 1990, recent immigrants went from earning about 0.20 log points less than the native-born, to about 0.35 log points less than the native-born. Between 1985 and 1995, the earnings gap rose from 0.31 log points to about 0.45 log points" (Frenette, 2004: 220). Were there similar trends witnessed in the self-employment market? According to Frenette, recent cohorts of immigrants choosing self-employment have generally "not fared any worse than previous cohorts have (in relative terms). The pattern seems to follow the economic cycle, as opposed to the long-term downward trend observed in the paid workforce. The relative fortunes of self-employed recent immigrants have been better during peaks (i.e. 1980 and 1990), and worse during times of recovery (i.e. 1985 and 1995)" (Frenette, 2004: 221). The relative stability of the earnings gap between 1985 and 1995 was 0.30 and 0.33 log points compared to 0.31 to 0.45 log points for the paid labour force. This supports the theory that immigrants were pushed into the self-employment labour market because of a deteriorating outcome in the paid labour force (Frenette: 221).

3.8. Frenette (2002)

Frenette (2002) used a logistic regression model with two outcomes: Employed in the paid or self-employed labour market. Self-employed individual had "paid earnings >=80% of market earnings, and non-negative self-employment income" (Frenette, 2002: 5). He said "the 1991-1995 cohort was 30% more likely to be self-employed than the

native-born in 1996" (Frenette, 2002: 10). For the 1991-1995 cohort, the parameter estimate for the logistic regression for visible minorities was -0.2075 and he calculated that the predicted probability of self-employed for the group is 0.182 (Frenette, 2002: 15 and 18).

3.9. Brief Summary of the Literature

Baker and Benjamin (1994) found that entry earnings of recent immigrant cohorts were deteriorating and they attributed about half of this deterioration to the changing composition of recent immigrants. Bloom, Grenier and Gunderson (1995) also concluded that entry earnings were declining for new arrivals. For the 1971 Census, immigrant men had an earnings disadvantage of 5 percent, and by the 1986 Census it had jumped to a 24 percent disadvantage (3.3% to 10.63% respectively for the women). Interestingly, Schaafsma and Sweetman (2001) found that the earnings potential of immigrant men depended on the age of their arrival to the host country. Younger immigrant men performed considerably better than their older counterparts. The recent study by Aydemir and Skuterud (2005) obtained similar results those of Bloom, Grenier and Gunderson. They found an increasing earnings gap for each successive cohort, with the exception of the most recent cohort. The earnings gap declined somewhat for the 1995-99 cohort: 51 log point for both the men and the women.

Borjas' (1986) study of the US self-employed labour market showed that foreign born immigrants were more likely to be self-employed than their native-born counterparts. He found that white immigrants had the highest self-employment rate, and their native-born counterparts were close behind. For Asian native-born immigrants, the

rate was 12.1 percent and 12.6 percent for their Asian immigrant counterparts. In the Canadian labour market, Peter Li (1997) found similar results to Borjas (1986). The foreign-born visible minorities' self-employment rate was 8.9 percent, and the native-born visible minorities' rate was much lower at 6.1 percent. Frenette's (2004) research on self-employed men in Canada found that the longer immigrants remained in a host country, the more likely they were to become self-employed. While the earnings disadvantage was growing through time for the paid labour force, it was not witnessed in the self-employed labour market. Frenette pointed out to a relative stability of the earnings gap between 1985 and 1995 at 0.30 and 0.33 log points for self-employed immigrants, compared to 0.31 to 0.45 log points for the paid labour force.

4. Empirical Framework: Data and Model

The theoretical framework and empirical methodology are borrowed from Bloom, Grenier and Gunderson (1995) and Frenette (2002, 2004). The focus will be on immigrant groups residing in Toronto and Vancouver. The study will use cross-sectional data, and therefore the cohort and assimilation effects are not separately identified. The paper will examine immigrants from China, Hong Kong, India, Vietnam, the Philippines, the rest of Asia and all other immigrants. The 2001 Canadian Census public microdata file is used, and a 2.7% sample is taken for both males and females aged 19 to 64 who reported positive earnings and who worked 40 or more weeks in 2000. Frenette's (2004) definition will be utilized for identifying an individual who is self-employed. A self-employed person is defined as an individual deriving 95% or more of his or her income from self-employment and whose earnings are positive. In the study, an individual is

either employed in the paid labour market or self-employed; the small intermediate group (2 to 3% according to Frenette) is not considered in the study. Frenette (2004) described the partially self-employed as those who earn "between 5 per cent and 95 per cent of their earnings are derived from self-employment" (Frenette, 2004: 218). The method of using two categories instead of three follows Frenette (2002):

> Some studies (Maxim [1992], Li [1997], and Li [2000]) looked at the success of self-employed immigrants by looking at total market earnings (including paid earnings). **In order to circumvent the problems associated with comparing paid earnings to net self-employment income**, this study will examine the paid earnings (net self-employment income) of immigrants who focused primarily on paid (self-) employment. This obviously comes at the cost of eliminating those who spent considerable amounts of time in both forms of employment, but it does **yield the "cleanest" comparison groups**. In any event, the restriction is not very binding. In 1996, for example, only 3% fell into the "intermediate" category (not primarily paid nor self-employed) (Frenette, 2002: 4-5, emphasis added).

The choice of one's class of work is examined through a logistic regression model with two outcomes, which are paid-employment (reference category) and self-employment. Logistic regression applies the method of maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependent variable occurring or not). Thus logistic regression estimates the probability of a certain event occurring. The logistic regression (model one) is:

$$\ln(P_j/1\text{-}P_0) = X\gamma+\beta_1\text{China}+\beta_2\text{Hong Kong}+\beta_3\text{India}+\beta_4\text{Vietnam}+ \beta_5\text{Philippines}+ \beta_6\text{Rest of Asia}+\beta_7\text{Immigrant}+ \delta\text{YSM}+\xi$$

The natural logarithm of the probability of (P) of event "j" relative to the probability of the reference category (0) is regressed on a vector X of standard human capital indicators: education, experience, marital status and the ability to speak official language(s), dummy variables for immigrant groups, and years since migration (YSM).

There are five country specific dummy variables, a dummy variable for the rest of Asia, and a dummy variable for all other immigrants (excluding the 6 group dummy variables). Table 2A of the appendix defines all the variables used in the analysis. The change in odds (odds after a unit change in the predictor/original odds) is calculated using the exponential function as illustrated by Field (Field, 2005: 241). The predicted probabilities are calculated using the parameter estimates from the model.

The second regression (model two) uses Ordinary Least Squares (OLS) and is borrowed from the methodology of Bloom, Grenier and Gunderson (1995):

$$\ln Y = X\gamma+\beta_1 China+\beta_2 Hong\ Kong+ \beta_3 India+\beta_4 Vietnam+\beta_5 Philippines+\beta_6 Rest\ of\ Asia+\beta_7 Immigrant+\delta YSM+\xi$$

Where "lnY" is the natural logarithm of earnings and the other variables are as described in the first model. Vector X is also composed of the same human capital indicators as the previous model, and the reference group is native-born Canadians. This regression model is used to calculate the entry and assimilation effect. Bloom, Grenier and Gunderson (1995) define "the entry effect [as] simply the difference in earnings between immigrant cohorts and otherwise comparable Canadian-born individuals" (B.G.G: 991).

One would expect the entry effect to be negative because new immigrants' educational credentials may not be recognized, they may be unable to communicate in either of the official languages, and they could lack knowledge of the Canadian labour market and could be discriminated against in the labour market. The assimilation effect is defined as "the average percentage change in immigrants' earnings for each year spent in Canada, over and above any increases associated with other labour market

characteristics (such as experience) that both immigrants and Canadian-born individuals enjoy" (B.G.G: 991). One would expect the assimilation effect to be positive, reflecting increased knowledge of the Canadian labour market and the greater proficiency in the ability to converse in either official language. Furthermore, new immigrants will probably acquire experience which is recognized by Canadian employers the longer they remain in Canada, and they will build social networks to land employment which better matches their skill sets and desires.

In the model the entry effect is represented by the betas, and the assimilation rate (δ) is represented by delta. Years to income equality, an estimate of the number of years it requires immigrants cohorts to catch up with the earnings of Canadian born individuals, is calculated using - (β_i/δ) where $\beta_{i=(}$ i = 1, 2, 3, 4, 5, 6, 7) < 0 and $\delta > 0$. Since actual work experience is not included in the Census microdata, it is approximated by potential experience equal to age minus education minus six, which is an estimate of the number of years an individual was working but not in school. The dummy variable "married" is set to 1 for married individuals and 0 for individuals who are not considered to be married. The dummy variable "nolanguage" is used to identify individuals who can speak one of the official languages and those who cannot. Separate regressions are run for men and women in the self-employed and the paid labour markets.

Whether a worker chooses to be in the paid or self-employed labour market is not necessarily random decision, and consequently there may be a selection bias. The Heckman two-stage procedure is sometimes used to correct this bias. There are several issues to consider when employing this method, and consequently this method was not utilized in this paper: "The Heckman procedure does not perform well when the errors are not distributed normally, the sample size is small, the amount of censoring is small, and the degree of

collinearity between the explanatory variables in the regression and selection equations is high" (Kennedy, 2003: 291).

5. Empirical Results and Interpretations

5.1. Descriptive Statistics for Men

Male characteristics are largely similar in both Toronto and Vancouver (Tables 3A and 4A in the appendix). For the self-employed individuals, the average years of education and experience are 14.4 and 14.0 years and 23.7 and 24.1 years respectively for Toronto and Vancouver. In the paid labour force, the average years of education are the same in both cities at 14.1 years and similar years of experience at 20.1 and 20.5 years for Toronto and Vancouver respectively. This implies that important observable labour market characteristics in both metropolitan areas are comparable, and differences in regression results could be related to other factors, such as country of origin and size of the immigrant enclaves in a particular city.

5.2. Descriptive Statistics for Women

Female characteristics are similar in both Toronto and Vancouver (Table 3A and 4A in the appendix). For the self-employed women, the average years of education are 14.5 and 14.2 years and years of experience is 23.2 and 23.8 years respectively for Toronto and Vancouver. The average years of education for paid workers are 14.2 in both Toronto and Vancouver, and years of experience are equivalent at 19.7 years. This implies that essential labour market characteristics in both metropolitan areas are comparable and that differences in regression results could be related to other factors such as country of origin

and the size of the enclave of immigrants (these enclaves could provide support in assimilating new immigrants into the Canadian labour market).

5.3. Logistic Regression for Self-Employed Men

Table 1 gives the results of the logistic regression for self-employed men, Table 2 gives the odds and Graphs 3 and 4 gives the predicted probabilities. For Toronto, the parameter estimates for immigrants from China, India and the rest of Asia are not significant at the 5% level of significance, which means that their propensity to be self-employed is not different from that of the Canadian born. Immigrant men from Hong Kong have the highest log odds of being self-employed at 0.50 compared to the Canadian born. Immigrants from Vietnam and the Philippines are the least likely to be self-employed, having negative log odds. Table 2 shows the odds of being self-employed $\sigma = P / (1 - P)$, where P is the probability, and the odds after five years is σ^5. The method employed by Professor Gerard E. Dallal at Tufts University (referenced) was used to derive the odds after 5 years. As Table 2 indicates, the odds of self-employment increase the longer immigrants from Hong Kong remain in Canada (after 5 years, the odds increases to 12.5). For immigrants from Vietnam and the Philippines, the odds of self-employment approach zero after five years in Canada. Graph 3 shows that the predicted probability for self-employment for Hong Kong men at 12.9%, while both Vietnam and the Philippines have low predicted probabilities. Men from Hong Kong are 54% more likely to be self-employed than the Canadian born men.

Table 1

Logistic Regression Results for Self-Employed Men				
	Toronto		Vancouver	
Variable	Parameter Estimate (β)	t-value	Parameter Estimate (β)	t-value
Intercept	-4.5742	-30.43	-3.7917	-15.80
Educ	0.0611	7.42	0.0095	0.70
Exp	0.0872	10.56	0.0806	6.13
Exp^2	-0.0012	-6.91	-0.0011	-4.08
Marriage	0.0476	0.91	-0.0685	-0.84
Nolanguage	0.0481	0.23	0.2784	1.14
YSM	-0.0031	-1.15	-0.0126	-2.62
China	-0.0258	-0.17	0.0996	0.48
Hong Kong	0.5045	4.15	0.3676	1.99
Vietnam	-1.0851	-3.48	0.1599	0.46
Philippines	-1.3185	-5.11	-0.3942	-1.18
India	0.1649	1.41	0.3525	1.82
Rest of Asia	0.0769	0.71	0.8687	5.40
Immigrant	0.1818	2.34	0.5477	3.90
McKelvey-Zavoina Pseudo R^2	0.2272		0.1666	
N	28504		11455	

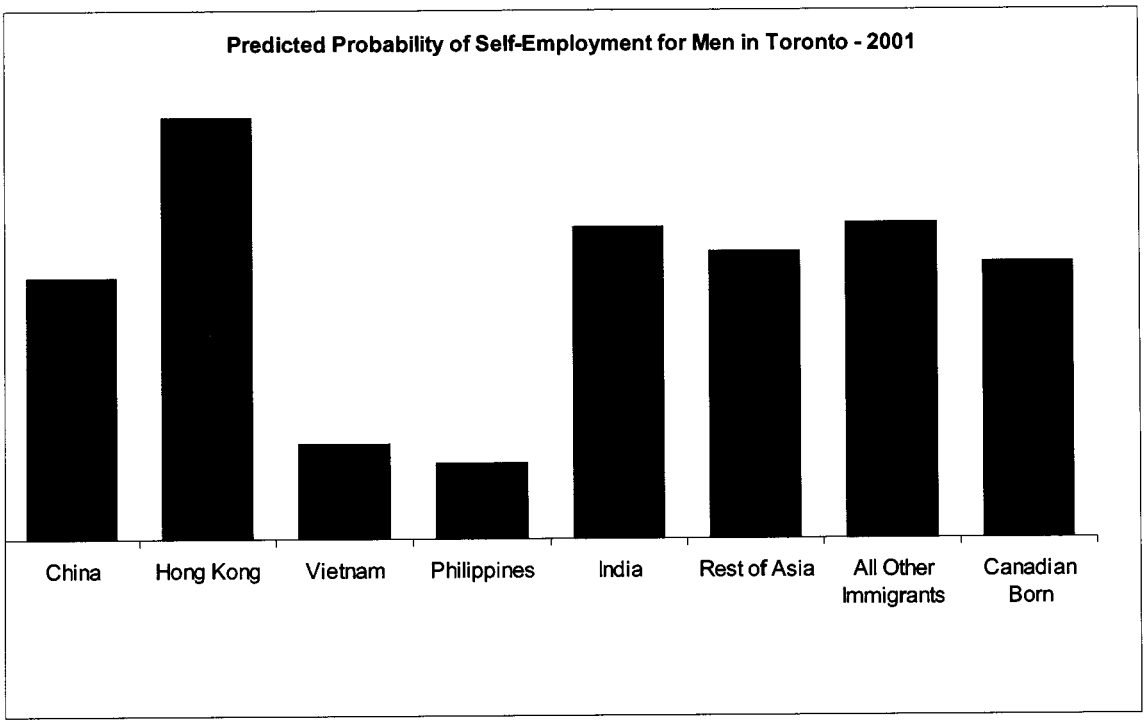
The majority of the business immigrants entering the country in the early 1990's were from Hong Kong. They brought a lot of wealth and could establish ventures quickly upon arrival. Most immigrants from the Philippines came to Canada to work in the field of health care or other related fields and were less likely to be self-employed. Vietnamese immigrants were more likely to be professionals than entrepreneurs.

For Vancouver, the parameter estimate for the Chinese, Vietnamese, Filipinos and Indian immigrants are not significant at the 5% level. Immigrants from the rest of Asia have the highest log odds of being self-employed, and the odds of being self-employed increases the longer immigrants remain in the country. The predicted probability of self-employment for immigrants from the rest of Asia is at 14.8%, and they are 97% more to be self-employed compared to the Canadian born men. The city of Vancouver is a hub for many Asian immigrants, and they are more likely to set up businesses (i.e. import-export ventures) with their native country.

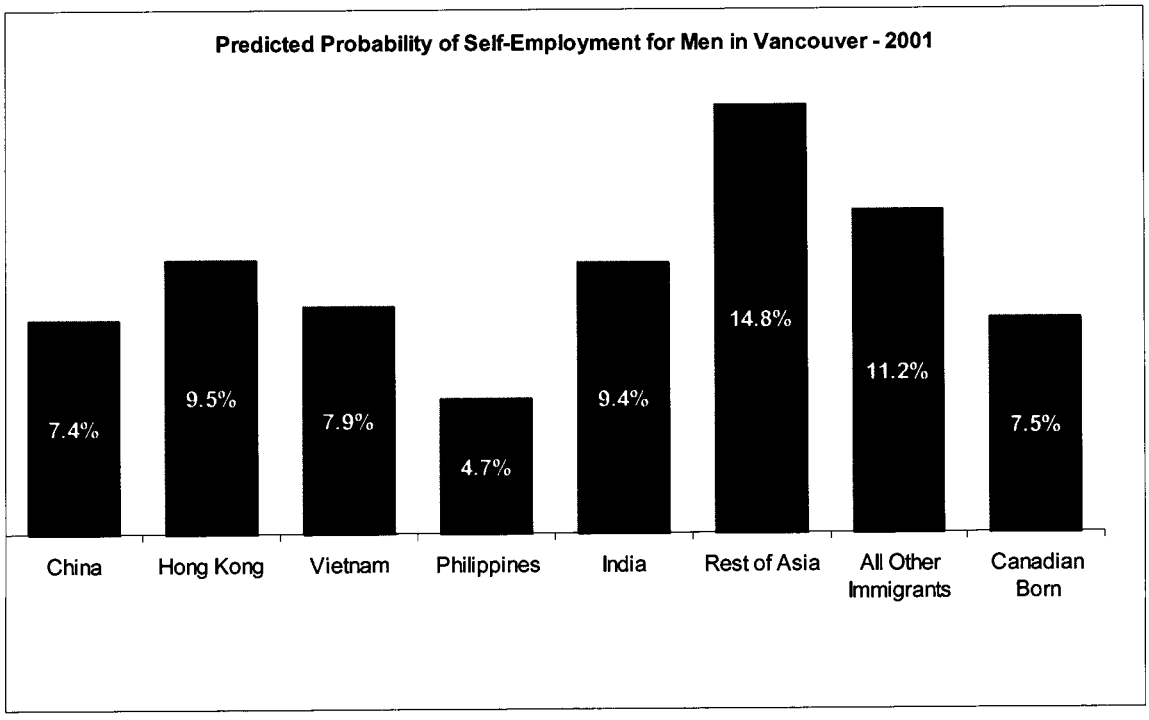
Table 2

Self-Employed Men - Calculating the Odds				
	Toronto		Vancouver	
Variable	Odds (σ)	Odds in 5 years	Odds (σ)	Odds in 5 years
	$[\exp^{(\beta)}]$	$\sigma^{(5)}$	$[\exp^{(\beta)}]$	$\sigma^{(5)}$
China	0.9745	0.8788	1.1048	1.6460
Hong Kong	1.6562	12.4613	1.4442	6.2826
Vietnam	0.3379	0.0044	1.1734	2.2245
Philippines	0.2675	0.0014	0.6742	0.1393
India	1.1793	2.2810	1.4226	5.8266
Rest of Asia	1.0800	1.4693	2.3839	76.9910
Immigrant	1.1994	2.4821	1.7292	15.4606

Graph 3



Graph 4



5.4. Logistic Regression for Self-Employed Women

Table 3 gives the results of the logistic regression for self-employed women, Table 4 gives the odds, and Graphs 5 and 6 gives the predicted probabilities. For Toronto, the parameter estimates for immigrants from China, Hong Kong, Vietnam and all other immigrants are not significant at the 5% level of significance. Immigrant women from the rest of Asia have the highest log odds of being self-employed at 0.40 compared to the Canadian born. Immigrants from the Philippines are the least likely to be self-employed, having negative log odds compared to the Canadian born. As Table 4 indicates, the odds of self-employment increase the longer immigrants from the rest of Asia reside in Canada (after 5 years, the odds increases to 7.5). For immigrant women from the Philippines, the odds decrease to almost zero after five years in Canada. Graph 5 shows the predicted probability for self-employment at 8.7% for immigrant women from the rest of Asia and 2.0% for the Philippines. Immigrants from the rest of Asia are 48% more likely to be self-employed than the Canadian born; immigrants from the Philippines are 300% less likely. Women from India are 160% less likely to be self-employed (results from Graph 5).

The differences in the predicted probabilities for self-employment are somewhat comparable between the immigrant women from the Philippines and India. Women from the Philippines, even more so than their male counterparts are likely to be in the health care sector. Indian women are unlikely to become entrepreneurs, because it is not a cultural norm.

Table 3

Logistic Regression Results for Self-Employed Women				
	Toronto		Vancouver	
Variable	Parameter Estimate (β)	t-value	Parameter Estimate (β)	t-value
Intercept	-5.6161	-25.87	-4.8139	-15.62
Educ	0.0995	8.34	0.0495	2.89
Exp	0.0774	7.32	0.0859	5.59
Exp^2	-0.0010	-4.23	-0.0012	-3.52
Marriage	0.3304	5.14	0.2908	3.22
Nolanguage	0.1942	0.79	0.4732	1.72
YSM	0.0017	0.46	-0.0125	-2.17
China	0.0855	0.45	0.1633	0.72
Hong Kong	0.0553	0.32	0.2669	1.25
Vietnam	-0.3299	-1.08	-0.3092	-0.65
Philippines	-1.1164	-4.61	-0.9731	-2.77
India	-0.5139	-2.56	-0.0697	-0.24
Rest of Asia	0.4018	2.90	0.8124	4.43
Immigrant	-0.1026	-0.94	0.4692	2.78
McKelvey-Zavoina Pseudo R^2	0.2414		0.2588	
N	24926		10286	

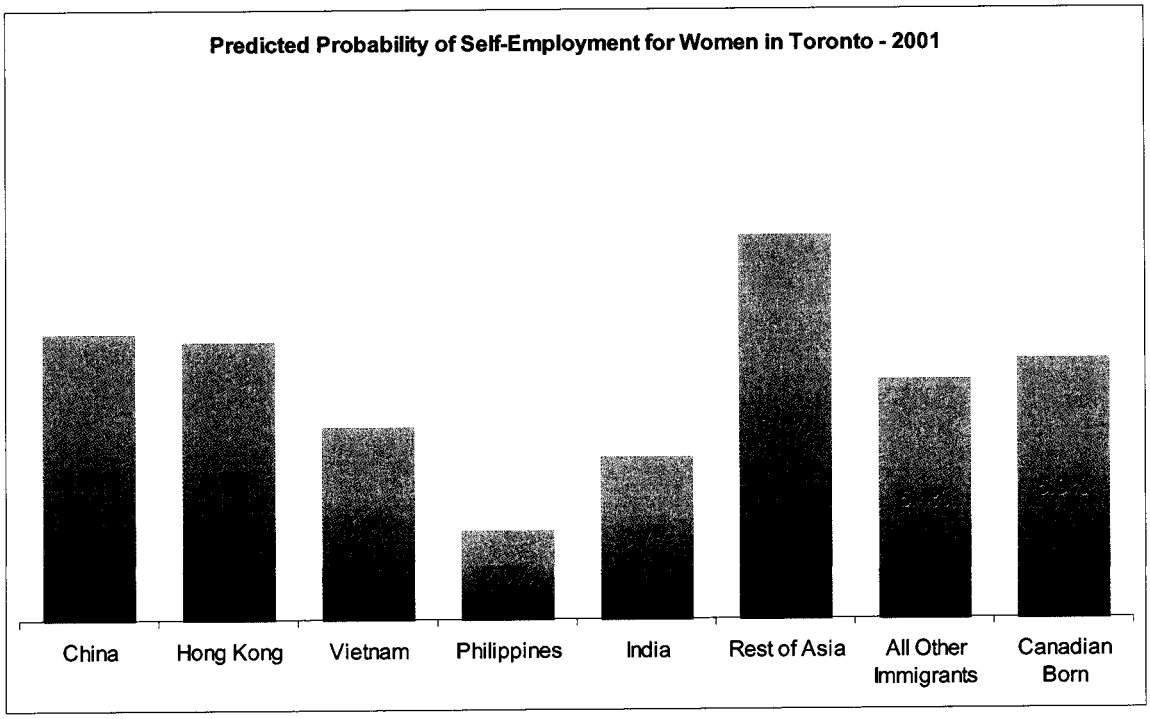
For Vancouver, the parameter estimates for Chinese, Hong Kong, Vietnamese and Indian immigrants are not significant at the 5% level of significance. Similar to Toronto, women from the Philippines are less likely to be self-employed, having negative log odds of 0.97. The odds decrease to nearly zero for Filipina women after 5 years in the country and the predicted probability of self-employment is 2.4%. Filipina women are 280% less likely to be self-employed compared to the Canadian born women. Both immigrants from

the rest of Asia (similar to Toronto) and all other immigrants are more likely to be self-employed.

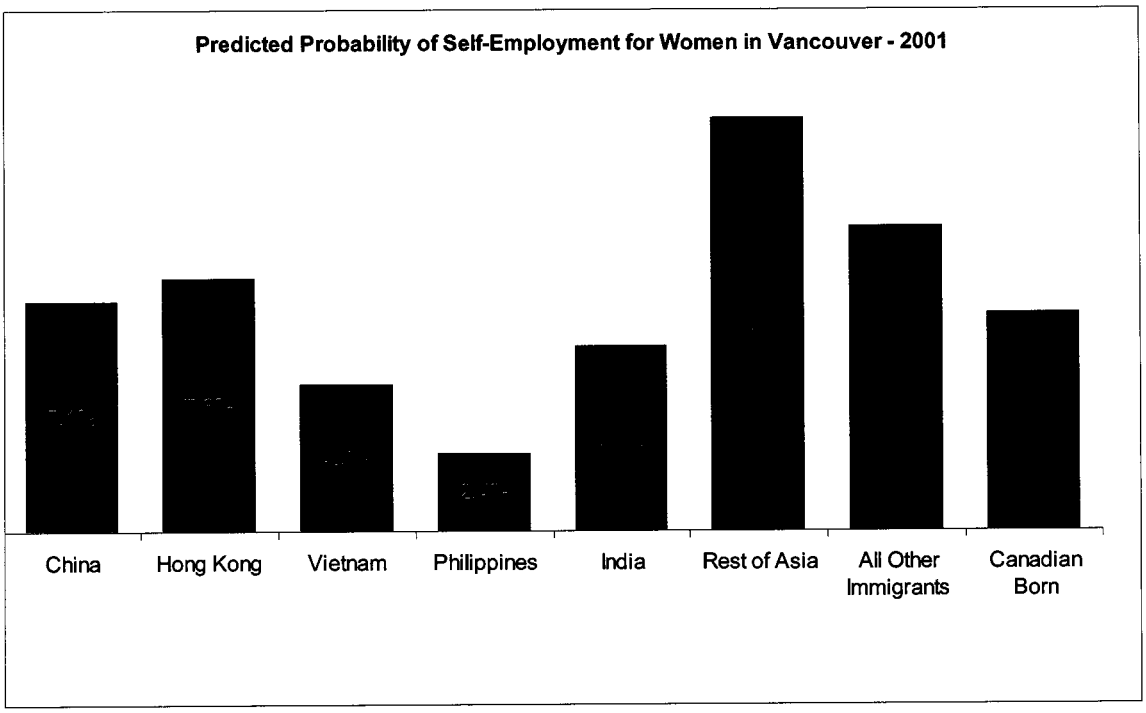
Table 4

Self-Employed Women - Calculating the Odds				
	Toronto		Vancouver	
Variable	Odds (σ)	Odds in 5 years	Odds (σ)	Odds in 5 years
	$[\exp^{(\beta)}]$	$\sigma^{(5)}$	$[\exp^{(\beta)}]$	$\sigma^{(5)}$
China	1.0893	1.5337	1.1773	2.2617
Hong Kong	1.0569	1.3188	1.3059	3.7980
Vietnam	0.719	0.1922	0.734	0.2130
Philippines	0.3275	0.0038	0.3779	0.0077
India	0.5982	0.0766	0.9327	0.7058
Rest of Asia	1.4945	7.4555	2.2533	58.0892
Immigrant	0.9025	0.5987	1.5987	10.4432

Graph 5



Graph 6



5.5. Earnings Regression Results for Men in the Self-Employed Labour Market

Table 5A in the appendix gives the regression results for men in the self-employed labour market and Table 5 gives the years to equality, i.e. the number of years required for immigrant earnings to catch up to the native-born. The assimilation rate in Toronto, which is assumed to be the same for all immigrants, is 1.16%. In Toronto, the parameter estimates for the entry effect of immigrants from Vietnam and the Philippines are not statistically significant at the 5% level. In Toronto, Chinese men in the self-employed labour force have an earnings disadvantage that is substantial at 78% on average at the time of their arrival in Canada relative to comparable Canadian born men. After arriving, their relative earnings grow at a rate of 1.16% annually, and it is estimated that they need 67.1 years to catch up with the earnings of Canadian born men. For Hong

Kong immigrants the negative entry effect is the highest among all immigrants groups at 85% and they need 73.5 years to reach income equality with the Canadian born. Indians perform somewhat better with a negative entry effect of 59%, but they require 50.4 years to reach income equality with the Canadian born.

Table 5

Entry and Assimilation Effect for Self-Employed Immigrant Men				
	Toronto	- [β/δ]	Vancouver	- [β /δ]
Variable	Parameter Estimate (β)	Years to Equality	Parameter Estimate (β)	Years to Equality
China	-0.7799	67.1	-0.3549	46.0
Hong Kong	-0.8544	73.5	-0.6461	83.8
Vietnam	-0.4885	42.0	-0.3652	47.4
Philippines	-0.4801	41.3	-0.5760	74.7
India	-0.5857	50.4	-0.2662	34.5
Rest of Asia	-0.7845	67.5	-0.4384	56.9
Immigrant	-0.4429	38.1	-0.0961	12.5
YSM (δ)	0.0116		0.0077	

It appears that self-employed immigrants from Asia will not reach income equality with the Canadian born in their lifetimes. Even immigrants from outside of Asia will not reach income equality with the Canadian born, since they require 38.1 years to reach income equality. The results indicate that Asian immigrants' performance in the self-employed labour market is as abysmal as in the paid labour market, if not worse. In Vancouver the assimilation rate is not statistically significant at the 5% level, and therefore the results are not significant.

5.6. Earnings Regression Results for Women in the Self-Employed Labour Market

Table 6A in the appendix gives the regression results for women in the self-employed labour market, and Table 6 gives the years to equality. The assimilation rate for all women immigrants in Toronto is 1.07%. The parameter estimate for female immigrants from the rest of Asia is not significant at the 5% level. Immigrant women from China have a negative entry effect of 48%, and they require 44.5 years to reach earnings equality with the Canadian born. For immigrant women from Hong Kong, the earnings disadvantage is lower at 36%, and they need 33.9 years to reach earnings equality. Immigrant women from India have the highest earnings disadvantage at 74%, and they need 69.0 years to reach income equality, while for all other immigrants, the earnings disadvantage is 33%, and they need 31.2 years to reach income equality with the Canadian born women.

These results indicate that immigrant women are unlikely to reach earnings equality in the self-employed labour market in Toronto. The best performers were all "other immigrants" and immigrants from Hong Kong, and they require more than 30 years to reach earnings equality with the Canadian born women. Generally, Asian immigrants are performing poorly in the self-employed market, especially the Indian immigrants with a 74% negative entry effect. The results indicate that female immigrants' performance in the self-employed labour market could be worse than in the paid labour market.

For Vancouver, the parameter estimates for immigrant women from China, Vietnam, Philippines and India are not significant at the 5% level of significance. The

assimilation rate for all women immigrants in Vancouver is 1.55%. Immigrant women from Hong Kong have an earnings disadvantage of 53%, and they need 34.3 years to reach income equality with the Canadian born women. For immigrant women from the rest of Asia, the earnings disadvantage is 44%, and they need 28.1 years to reach income equality, while for all other immigrants, the negative entry effect is 47%, and they need 30.3 years to reach income equality with the Canadian born women. While immigrant women in Vancouver have a faster assimilation rate (1.55% versus 1.07%) than for Toronto, they also have a higher negative entry effect, which offsets the greater assimilation rate.

Table 6

Entry and Assimilation Effect for Self-Employed Immigrant Women				
	Toronto	- [β/δ]	Vancouver	- [β/δ]
Variable	Parameter Estimate (β)	Years to Equality	Parameter Estimate (β)	Years to Equality
China	-0.4763	44.5	-0.0441	2.8
Hong Kong	-0.3622	33.9	-0.5319	34.3
Vietnam	-0.6682	62.4	0.4115	-26.5
Philippines	-0.5496	51.4	-0.4224	27.2
India	-0.7379	69.0	-0.2959	19.1
Rest of Asia	-0.1899	17.7	-0.4364	28.1
Immigrant	-0.3336	31.2	-0.4695	30.3
YSM (δ)	0.0107		0.0155	

In general, the all "other immigrant" group performed better in both metropolitan areas than their Asian counterparts and reach income equality more rapidly. How do the self-employed women compare to the men? In Toronto, self-employed women generally

have a lower negative entry effect and reach income equality faster than the men. Other studies on the paid labour market indicate that generally women perform better than the men, and this appears to hold in the self-employed labour market. Unfortunately, the assimilation rate for the men was not significant at the 5% level and therefore the result is not robust.

5.7. Earnings Regression Results for Men in the Paid Labour Market

Table 7A in the appendix gives the regression results for men in the paid labour market, and Table 7 gives the values for years to equality. The assimilation rate for all immigrants in Toronto is 1.13%. For the Toronto results, all the parameter estimates for the immigrants groups and the assimilation rate are statistically significant at the 5% level of significance. The negative entry effect was the highest for Chinese men at 74% and they require 65.4 years to reach income equality; Hong Kong men had the lowest earnings disadvantage at 50%, and they need 43.7 years to reach earnings equality with the Canadian born men. For the rest of Asia the earnings disadvantage is also high at 70% and they need 61.6 year to reach income equality; while for all other immigrants, the earnings disadvantage is 45%, and they require 39.5 years to reach income equality with the Canadian born men.

The length of time to reach income equality is above 40 years for the Asian immigrant groups, and they will not reach income equality in their lifetimes. Hong Kong immigrants had the best performance among the Asians, which could be due to factors such as the ability to speak English and a higher educational attainment. Asian male immigrants in Toronto perform better in the paid labour market than the self employed

labour market, sometimes reaching income equality about 30 years faster in the case of immigrants from Hong Kong.

For the Vancouver results, all parameter estimates for the immigrants groups and the assimilation rate are statistically significant at the 5% level of significance. The assimilation rate for all immigrants in Vancouver is 1.40%. Chinese immigrant men have the highest negative entry effect at 79%, and they require 56.3 years to reach income equality; Hong Kong immigrants have a negative entry effect of 64% and need 45.5 years to reach earnings equality with the Canadian born men. Indian men have the best performance amongst the Asian immigrants: 58% negative entry effect and they require 41.1 years to reach income equality. Men from the rest of Asia have a negative entry effect of 69% and require 49.2 years to reach income equality, while for all other immigrants the negative entry effect is 48% and they require 34.0 years to reach income equality with the Canadian born men.

Table 7

Entry and Assimilation Effect for Men in the Paid Labour Market				
	Toronto	-[β/δ]	Vancouver	-[β/δ]
Variable	Parameter Estimate (β)	Years to Equality	Parameter Estimate (β)	Years to Equality
China	-0.7407	65.4	-0.7911	56.3
Hong Kong	-0.4952	43.7	-0.6386	45.5
Vietnam	-0.4692	41.5	-0.6819	48.6
Philippines	-0.6382	56.4	-0.6642	47.3
India	-0.5534	48.9	-0.5776	41.1
Rest of Asia	-0.6973	61.6	-0.6907	49.2
Immigrant	-0.4467	39.5	-0.4768	34.0
YSM (δ)	0.0113		0.0140	

The results indicate that Asian immigrants require more than 40 years to reach earnings equality with the Canadian born men, and they will not reach earnings equality in their lifetimes. For most immigrant groups, immigrant men in Vancouver performed marginally better than those in Toronto due to a higher assimilation rate; the assimilation rate in Toronto was 1.13% and 1.40% for Vancouver.

5.8. Earnings Regression Results for Women in the Paid Labour Market

Table 8A in the appendix gives the regression results for women in the paid labour market, and Table 8 gives the values for the years to equality. The assimilation rate for all immigrant women in Toronto is 1.37%. For the Toronto results, the parameter estimates for all the immigrant groups and the assimilation rate are statistically significant at the 5% level. The negative entry effect for Chinese women is 58%, and they require 42.3 years to reach income equality. Hong Kong women have the best performance with a negative entry effect of 38%, and they need 28.0 years to reach income equality with the Canadian born women. For immigrants from the rest of Asia, the negative entry effect is large at 64% and they need 47 years to reach income equality; for all other immigrants the negative entry effect is 51%, and they require 37.1 years to reach income equality with the Canadian born women.

While all the female immigrant groups in Toronto fared better than their male counterparts, they are unlikely to reach income equality in their lifetimes. The women required roughly 40 years to reach income equality. Immigrants from the rest of Asia have the longest duration to reach income equality at 47 years. The results of the study

corroborate findings by other researchers, who generally find that immigrant women perform somewhat better than their male counterparts.

Table 8

Entry and Assimilation Effect for Women in the Paid Labour Market				
	Toronto	-[β/δ]	Vancouver	-[β/δ]
Variable	Parameter Estimate (β)	Years to Equality	Parameter Estimate (β)	Years to Equality
China	-0.5772	42.3	-0.6731	45.7
Hong Kong	-0.3819	28.0	-0.5303	36.0
Vietnam	-0.5371	39.3	-0.7085	48.1
Philippines	-0.5236	38.3	-0.4700	31.9
India	-0.4802	35.2	-0.5564	37.8
Rest of Asia	-0.6414	47.0	-0.5933	40.3
Immigrant	-0.5067	37.1	-0.4971	33.8
YSM (δ)	0.0137		0.0147	

The assimilation rate for all immigrant women in Vancouver is 1.47%. For the Vancouver results, the parameter estimates for all the immigrant groups and the assimilation rate are statistically significant at the 5% level. Chinese women have an earnings disadvantage of 67% and require 45.7 years to reach income equality; the Hong Kong women have an earnings disadvantage of 53% and require 36.0 years to reach income equality with the Canadian born women. Immigrant women from Vietnam have the highest negative entry effect of 70%, and they need 48.1 years to reach income equality. For women from the rest of Asia, the negative entry effect is 59% and they need 40.3 years to reach earnings equality; for all other immigrant women, the negative entry effect is 50%, and they require 33.8 years to reach income equality with the

Canadian born women. All women immigrant groups in Vancouver had a better performance than their male counterparts. However, with years to income equality over 30 years in most cases, they are unlikely to reach income equality in their lifetimes.

6. Conclusion

With an aging population and a low fertility rate, Canada relies heavily on immigration to fill vacancies in the labour market and to ensure future economic growth and prosperity. Due to the vital role immigrants play in the Canadian economy, the study of their performance is important to ensure that policies are altered or created to better accommodate them. In recent decades, the proportion of immigrants from Asia has been increasing, and this paper focused on the groups from Asia. Furthermore, while numerous studies have been undertaken on the paid labour market, only a handful investigated the self-employed labour market. Therefore, the paper included analyses of both the self-employed and the paid labour market. Specifically, the research explored the performance of Chinese, Hong Kong, Indian, Vietnamese, Filipino, immigrants from the rest of Asia and all other immigrants in the metropolitan areas of Toronto and Vancouver to examine the entry and assimilation rates of these groups. Additionally, the study analysed the propensity of these groups to be self-employed.

The research found that immigrant men from Hong Kong who resided in Toronto had the highest predicted probability of being self-employed compared to the native-born. Immigrants from the Philippines had the lowest predicted probability of being self-employed. For Vancouver, immigrants from the rest of Asia and all "other immigrants" had the highest predicted probability of being self-employed compared to the native-born.

For the women, in both metropolitan areas, immigrants from the rest of Asia had the highest predicted probability of being self-employed, and immigrants from the Philippines had the lowest predicted probability compared to the Canadian born.

In the self-employed labour market, the results for the men in Vancouver were not robust because the assimilation rate was not statistically significant at the 5% level. In Toronto, most immigrant groups required more than 50 years to reach income equality, while immigrants from Hong Kong required 73.5 years to reach income equality. Immigrants from the rest of the world required the smallest span of years to reach income equality at 38.1 years. While the immigrant women in general did better than the men, they are unlikely to reach income equality in their lifetimes. In Toronto, most groups of immigrant women required more than 40 years to reach income equality with the Canadian born women. The women in Vancouver performed better than their Toronto counterparts, mainly due to a faster assimilation rate. However, they still required, on average, approximately 30 years to reach income equality.

In the paid labour market, most groups of men reached earnings equality with the native-born more rapidly in Vancouver than in Toronto. In Toronto, the men required from 40 to over 60 years to reach earnings equality with the native-born. For Vancouver, the men required from 40 to over 50 years to reach earnings equality with the native-born. For the women, the results were mixed. Some groups reached earnings equality more rapidly in Vancouver (Filipinos, rest of Asia, all other immigrants), while others (Chinese, Hong Kong, Vietnamese and Indians) reached earnings equality faster in Toronto. The women reached earnings equality more rapidly than their male counterparts in both metropolitan areas.

A major research paper done by Song (2004) in the paid labour market found similar results. Song used the 1996 Census and found that Chinese men in Toronto had an earnings disadvantage of 69%, and it would take 59 years to catch up with the native-born earnings; Hong Kong men had an earnings disadvantage of 49% and they needed 41 years to catch up. For Vancouver, the earnings disadvantage for Chinese men was 66%, for Hong Kong men it was 59%, and they would need 57 and 53 years to reach earnings equality with the native-born, respectively (Song, 2004: 19-20). The women performed better; in Toronto the women required 37 years (Chinese) and 27 years (Hong Kong) to reach income equality with the native-born. In Vancouver, the women required 37 years (Chinese) and 39 years (Hong Kong) to reach income equality with the native-born (Song, 2004: 39). Li (2005), for her major paper, found that immigrant men in Ontario had a better entry effect, but a slower assimilation rate in the 2001 Census, compared to the 1996 Census. Therefore, most groups of immigrant men in the 2001 Census required a longer period of time to reach income equality compared to the 1996 Census (Li, 2005: 18). Immigrant women in the 2001 Census had a greater assimilation rate but a higher earnings disadvantage upon entry compared to the 1996 Census. Thus, for most immigrant women, the 1996 Census group reached income equality more rapidly than the 2001 Census group (Li, 2005: 24).

For the paid labour market, Adyemir and Skuterud (2004) estimated that the earnings gap for the 1995-99 cohort was 51 log points for both the male and the female immigrants in Canada. The results from this paper are similar to theirs in magnitude, although they are not directly comparable since the largest immigrant group in the research is "all other immigrants." In Frenette's (2004) study the negative entry effect for

self-employed immigrant men was 0.33 log points for the 1990-1995 cohort. In this paper for "all other immigrants", the negative entry effect was 0.44 log points for men in Toronto for the 2001 Census. In Frenette's (2002) study the log odds for self-employment among visible minorities was negative for the 1990-1995 cohort. The sign of logs odds in this study depended on the immigrant group. Immigrants from Hong Kong had positive log odds and were more likely to be self-employed, while immigrants from the Philippines had negative log odds and were less likely, regardless of sex or city. Borjas's (1986) research found that the probability for self-employment among US Asian immigrants was 12.6% (1980 Census results). In this study, the predicted probability for self-employment for immigrants from the rest of Asia was 14.8% for men in Vancouver (Toronto results were not statistically significant), 8.7% for women in Toronto, and 12.7% for women in Vancouver.

The research found that the performance of immigrants varies depending on the group and the city in which they reside. Immigrants in Vancouver generally attain income equality more rapidly than those in Toronto, primarily due to a higher assimilation rate. Generally, immigrants from Asia performed marginally better in the paid labour market than in the self-employed labour market. The research does not indicate any improvement in the labour market performance of recent entrants to Canada. Male or female immigrants are unlikely to reach income equality in their lifetimes (years to income equality are generally greater than 30 years), whether in the self or paid employment labour market. With an expanding economy and record low unemployment in Canada, immigrant outcomes may show an improvement in the 2006 Census.

Appendix

Table 1A

Distribution of Immigrants, 2001

Place of Origin	Toronto		Vancouver	
All Other Immigrants	1,163,450	57.2%	283,445	38.4%
Rest of Asia	319,705	15.7%	131,175	17.8%
China	136,135	6.7%	101,770	13.8%
Hong Kong	110,735	5.4%	85,985	11.6%
India	147,165	7.2%	67,825	9.2%
Philippines	103,170	5.1%	46,215	6.3%
Vietnam	52,600	2.6%	22,140	3.0%
Total	2,032,960	100.0%	738,555	100.0%

Table 2A

Definitions of the Dependent and Independent Variables in the Regressions	
lnY	Logarithm of incomes and salaries in 2000
Educ	Education in years
Exp	Work experience in years (age-education-6)
Exp^2	Experience squared
Married	Dummy variable for marital status
Nolanguage	Dummy variable for individuals who can speak either English or French
China	Dummy variable for immigrants from China
Hong Kong	Dummy variable for immigrants from Hong Kong
India	Dummy variable for immigrant from India
Vietnam	Dummy variable for immigrants from Vietnam
Philippines	Dummy variable for immigrants from the Philippines
Rest of Asia	Dummy variable for immigrants from the rest of Asia, excluding the five groups above
Immigrant	Dummy variable for all other immigrants, excluding the immigrants groups above
YSM	Years since migration

*The reference category is native-born Canadians.

Table 3A

Descriptive statistics for Self-Employed (mean and standard deviation in parentheses)				
	Men		Women	
	Toronto	Vancouver	Toronto	Vancouver
Variable	Mean	Mean	Mean	Mean
Educ	14.40 (3.16)	14.02 (2.95)	14.54 (2.98)	14.22 (2.87)
Exp	23.75 (10.52)	24.10 (10.66)	23.18 (10.51)	23.77 (10.36)
Exp^2	674.72 (521.88)	694.47 (533.29)	647.45 (533.04)	672.12 (533.44)
Marriage	0.71	0.65	0.68	0.66
Nolanguage	0.01	0.03	0.02	0.03
YSM	10.95 (13.86)	8.16 (12.10)	10.33 (13.79)	8.28 (12.41)
China	0.02	0.04	0.03	0.05
Hong Kong	0.04	0.05	0.04	0.05
Vietnam	0.01	0.01	0.01	0.01
Philippines	0.01	0.01	0.02	0.01
India	0.05	0.05	0.02	0.02
Rest of Asia	0.05	0.07	0.06	0.08
Immigrant	0.36	0.22	0.32	0.21
N	2282	879	1277	643

Table 4A

Descriptive statistics for the Paid Labour Market (mean and the standard deviation in parentheses)				
	Men		Women	
	Toronto	Vancouver	Toronto	Vancouver
Variable	Mean	Mean	Mean	Mean
Educ	14.11 (3.04)	14.12 (2.79)	14.17 (2.92)	14.19 (2.67)
Exp	20.14 (11.69)	20.54 (11.58)	19.69 (11.78)	19.69 (11.63)
Exp^2	542.52 (532.74)	555.76 (520.29)	526.20 (518.92)	522.77 (499.54)
Marriage	0.61	0.58	0.56	0.53
Nolanguage	0.01	0.02	0.02	0.02
YSM	9.24 (12.84)	6.91 (11.75)	9.15 (12.73)	7.10 (11.68)
China	0.02	0.04	0.02	0.04
Hong Kong	0.03	0.04	0.03	0.04
Vietnam	0.02	0.01	0.02	0.01
Philippines	0.03	0.02	0.04	0.04
India	0.04	0.05	0.04	0.04
Rest of Asia	0.05	0.04	0.04	0.04
Immigrant	0.31	0.17	0.30	0.17
N	26222	10576	23649	9643

Table 5A

Regression Results for Self-Employed Men				
	Toronto		Vancouver	
Variable	Parameter Estimate (β)	t-value	Parameter Estimate (β)	t-value
Intercept	8.7367	59.67	9.1901	36.33
Educ	0.0730	9.59	0.0365	2.6
Exp	0.0432	5.01	0.0337	2.37
Exp^2	-0.0009	-5.06	-0.0008	-2.76
Marriage	0.3198	6.16	0.2450	2.83
Nolanguage	0.0307	0.14	-0.0947	-0.37
YSM	0.0116	4.31	0.0077	1.47
China	-0.7799	-4.80	-0.3549	-1.56
Hong Kong	-0.8544	-7.26	-0.6461	-3.24
Vietnam	-0.4885	-1.52	-0.3652	-0.98
Philippines	-0.4801	-1.79	-0.5760	-1.56
India	-0.5857	-4.97	-0.2662	-1.27
Rest of Asia	-0.7845	-7.18	-0.4384	-2.62
Immigrant	-0.4429	-5.65	-0.0961	-0.65
R^2	0.1171		0.0565	
Adjusted R^2	0.1121		0.0423	
N	2282		879	

Table 6A

Regression Results for Self-Employed Women				
	Toronto		Vancouver	
Variable	Parameter Estimate (β)	t-value	Parameter Estimate (β)	t-value
Intercept	8.3556	37.6	9.2842	26.54
Educ	0.0916	7.77	0.0322	1.76
Exp	0.0206	1.79	0.0163	0.91
Exp^2	-0.0003	-1.26	-0.0004	-1.19
Marriage	-0.1148	-1.72	-0.2782	-2.88
Nolanguage	-0.0374	-0.15	-0.1111	-0.39
YSM	0.0107	2.75	0.0155	2.50
China	-0.4763	-2.48	-0.0441	-0.19
Hong Kong	-0.3622	-2.03	-0.5319	-2.33
Vietnam	-0.6682	-2.07	0.4115	0.80
Philippines	-0.5496	-2.12	-0.4224	-1.09
India	-0.7379	-3.49	-0.2959	-0.95
Rest of Asia	-0.1899	-1.31	-0.4364	-2.24
Immigrant	-0.3336	-2.96	-0.4695	-2.60
R^2	0.0823		0.0539	
Adjusted R^2	0.0728		0.0344	
N	1277		643	

Table 7A

Regression Results for Men in the Paid Labour Market				
	Toronto		Vancouver	
Variable	Parameter Estimate (β)	t-value	Parameter Estimate (β)	t-value
Intercept	8.9402	263.96	8.7588	169.91
Educ	0.0676	33.31	0.0687	21.75
Exp	0.0571	33.53	0.0671	25.97
Exp^2	-0.0010	-26.80	-0.0012	-20.92
Marriage	0.2716	21.25	0.2498	13.45
Nolanguage	-0.0769	-1.51	-0.1277	-1.90
YSM	0.0113	15.75	0.0140	11.96
China	-0.7407	-19.32	-0.7911	-16.89
Hong Kong	-0.4952	-13.58	-0.6386	-14.44
Vietnam	-0.4692	-10.64	-0.6819	-9.25
Philippines	-0.6382	-18.22	-0.6642	-11.74
India	-0.5534	-18.39	-0.5776	-12.98
Rest of Asia	-0.6973	-25.80	-0.6907	-15.01
Immigrant	-0.4467	-22.77	-0.4768	-13.93
R^2	0.1660		0.2038	
Adjusted R^2	0.1656		0.2028	
N	26222		10576	

Table 8A

Regression Results for Women in the Paid Labour Market				
	Toronto		Vancouver	
Variable	Parameter Estimate (β)	t-value	Parameter Estimate (β)	t-value
Intercept	8.6058	219.80	8.6211	139.37
Educ	0.0761	32.67	0.0675	17.91
Exp	0.0594	33.85	0.0689	24.71
Exp^2	-0.0011	-27.12	-0.0013	-20.52
Marriage	0.0634	5.05	-0.0213	-1.10
Nolanguage	0.0289	0.57	0.1279	1.73
YSM	0.0137	17.35	0.0147	10.88
China	-0.5772	-13.93	-0.6731	-13.04
Hong Kong	-0.3819	-10.39	-0.5303	-10.91
Vietnam	-0.5371	-10.66	-0.7085	-8.44
Philippines	-0.5236	-16.05	-0.4700	-9.67
India	-0.4802	-14.09	-0.5564	-10.09
Rest of Asia	-0.6414	-19.21	-0.5933	-12.06
Immigrant	-0.5067	-23.64	-0.4971	-12.56
R^2	0.1337		0.1341	
Adjusted R^2	0.1332		0.1329	
N	23649		9643	

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