IMMIGRANT SELF-EMPLOYMENT: THE IMPACT OF RESIDENTIAL AND ENTREPRENEURIAL CONCENTRATION, AND EDUCATION ON IMMIGRANT SELF-EMPLOYMENT OUTCOMES

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A Thesis Submitted to the School of Graduate Studies in Partial Fulfilment of the Requirements for the Degree of Doctor of Philosophy

McMaster University DOCTOR OF PHILOSOPHY (2013) Hamilton, Ontario (Sociology)

TITLE: Immigrant Self-Employment: The Impact of Residential and Entrepreneurial Concentration, and Education on Immigrant Self-Employment Outcomes
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NUMBER OF PAGES: xii, 207

ABSTRACT

This dissertation investigates the effects of ethnic resources generated by an immigrant group's concentration in self-employment and a geographic area, and class resources—education in particular—on the self-employment outcomes of immigrant business, which has been a lasting interest from the early days of immigrant entrepreneurship research. To examine the effects of immigrants' concentration and education, ordinary least squares regression and hierarchical linear regression for cross-classified random effects models are fit to each of the 26 minority and white immigrant groups in the 33 Canadian CMA's (Census Metropolitan Areas). Using the 2006 Census, the dissertation examines (1) the effects of immigrants' REC (Residential and Entrepreneurial Concentration) in CMA's; (2) the interactions between REC and reactive ethnicity—an enhanced awareness of one's ethnicity due to disadvantage in the host society; and (3) the effects of education on self-employment propensity and income. Unlike previous studies which examined one or a few immigrant or minority groups in one or a few locales, the dissertation provides empirical evidence on the effects of REC and education on self-employment outcomes, based on a wide range of immigrant groups in Canadian CMA's. The findings indicate that positive effects of REC as well as education on self-employment outcomes exist, but are limited to increasing the self-employment propensity of some immigrant groups. The effects of REC and education on self-employment income, however, are found to be generally insignificant. The study also provides the first empirical evidence that the positive effects of some types of REC become more positive as the reactive ethnicity of an immigrant group increases, as reactive ethnicity theory predicts.

ACKNOWLEDGEMENTS

Thank you, my supervisor Professor John Fox. Throughout the long process of thesis writing, your thoughtful, consistent care and support often went beyond issues immediately related to my thesis. You also took sincere interest in my academic and personal development, and provided all the possible support and insightful advice you could offer. I could overcome many difficulties thanks to you.

Thank you, my committee members, Professor Victor Satzewich and Professor Scott Davies. You showed sincere interest in my thesis, and provided insightful advice. My thesis has become a better one because of your guidance.

Thank you, my kendo mentor Kiyoshi Hao Sensei. I enjoyed your support and wisdom, and appreciate that you have been a good friend. Also, I thank my friend Shang Hui for having been my constant support, and for the good meals and time that he generously shared with me.

Thank you, my wife Myoungsun Lee. You made the long and sometimes lonely process of my thesis writing enjoyable, and also made me a better person. I owe at least half of the success of my thesis to you.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

Introduction

As the introduction to the study, this chapter introduces the social and theoretical background to my research: I first introduce the revival of small business, starting from the 1970's, and the recent substantial growth of self-employment in Canada as the social background of my research. Then, I discuss theoretical issues on immigrant self-employment by first introducing the growing research on active immigrant self-employment in Canada, and briefly reviewing theories of immigrant self-employment. Last, based on the theoretical overview, I point out limitations to the current literature on immigrant self-employment, and introduce the purpose and nature of my research.

Revival of Small Business

Until the 1970s, many social scientists believed that small businesses in advanced industrial countries such as the U.S, Canada, and Britain would eventually either die out, or be swallowed up by giant corporations as a result of the advance of capitalism (Light

1988: 10). Writing in the early 1950's, prominent American sociologist C. W. Mills (1951) maintained that the continuous decrease in the number of small businesses in the American Census between 1880 and 1940 was due to their elimination or incorporation by large corporations in the process of capitalist concentration. His "concentration thesis" was widely accepted in the social science literature, and much subsequent empirical research also confirmed the trend towards the declining importance of small firms.

But in the 1970's and 1980's, the U.S. Census reported a reversal of this trend, and commentators began talking about "the revival of small business." Non-agricultural self-employment ceased to decline as a percentage of the labour force, and, in the period 1972-1984, it actually increased 28 percent faster than the wage and salary labour force (Light 1988: 11). Small businesses also contributed to 80 percent of job creation in the period 1969-1976, and since the 1970's, the self-employment rate has stabilized around 10 percent in the U.S. rather than continuously decline (Yoon 1991). Slightly later in Canada, self-employment also grew substantially.

Self-Employment and Immigrant Self-Employment in Canada

Although having begun slightly later than the U.S., the growth of self-employment

in Canada has been more conspicuous than in the U.S. Over the period 1979-1997, the total self-employment rate in Canada grew 74.8 percent, which is substantial when we consider that the self-employment rate grew only 37.0 percent in the U.S. during the same period. Especially in the 1990s, the increase in self-employment in Canada was striking: the self-employment rate in Canada rose from 13.8 percent in 1989 to 17.8 percent in 1997, while the self-employment rate in the U.S remained around 10 percent over the same period (Manswer et al. 1999; Picot and Hesz 2000; Hou and Wang 2011). The contribution of self-employment to new job creation in Canada has also grown substantially: self-employment contributed to 80 percent of job creation in Canada between 1989 and 1997 while it accounted for little in the U.S (Manswer et al. 1999).

Studies indicate that the recent increase in self-employment in Canada was brought about by both 'push' and 'pull' factors: individuals who have been unemployed longer are more likely to be self-employed, suggesting that individuals are 'pushed' into self-employment because of diminished employment opportunities (Arai 1997; Moore and Mueller 2002), while there is evidence that these individuals were also 'pulled' into self-employment by the attractive characteristics of self-employment such as flexibility and independence (Moore and Mueller 2002). Also, Kuhn et al. (2001) noted that men's and women's rising participation in self-employment happened for different reasons:

while men entered self-employment due to their declining opportunities in the wage labour market, women's self-employment rose much faster because they stayed self-employed longer than men due to new and improved self-employment opportunities.

In Canada, self-employment has been an important part of economic life for immigrants as can be seen in the higher self-employment rates of immigrants compared to those of the native-born. Data show that during the period 1981-2006, immigrants were consistently more self-employed than the native-born: the self-employment rates for immigrants and the native-born were 12 percent versus 10 percent in 1981, 17 percent versus 13 percent in 1996, and 19 percent versus 15 percent in 2006 (Hou and Wang 2001). Some immigrant groups are especially known for their active entrepreneurship. For example, Chinese businesses in Toronto continued to expand since the early 1980s with the growing Chinese community in the city. Chinese business activities in the early 1980s which concentrated mostly in restaurants and food stores diversified in the 1990s into many other industries including medical, business and personal service, and their location also spread from central-city Chinatowns to the suburbs and surrounding municipalities, forming a self-sufficient and self-contained ethnic economy (Wang 1991). Although much research has been devoted to the investigation of the businesses of minority immigrants, active entrepreneurship of

immigrants is not limited to minorities. For example, Portuguese immigrants in Toronto have developed prosperous community-oriented businesses that are located in their residential concentration, serving mostly co-ethnics based on trust coming from cultural and linguistic homogeneity (Teixeira 1998; Teixeira 2001).

Research on Immigrant Self-Employment in Canada

With the substantial growth of immigrant self-employment, there has been a concomitant increase in scholarly and policy-related research on the subject in Canada. Studies of the motives of immigrants' entry into self-employment indicate that immigrants in Canada, like the native-born, enter self-employment for many reasons. In support of pull factors for self-employment, surveys showed that a majority of immigrants choose self-employment voluntarily in pursuit of entrepreneurial values including independence, freedom, control, and success; flexible work arrangements; and pre-existing business opportunities (Hou and Wage 2011; Teixeira 2000). In contrast, a relatively low percentage (33 percent) of immigrants report that they entered self-employment because they could not find favorable employment opportunities, although their percentage is higher than that of the native-born (20 percent) (Hou and Wang

2011). Also, some minority immigrant groups are more likely than other minority immigrant groups to cite dissatisfaction in paid employment as a reason for their self-employment (Teixeira 2007).

As a result of such findings, some researchers used statistical analysis to look further into the possibility that minority immigrants are more likely to be self-employed because they are disadvantaged in paid employment, and consequently turn to self-employment as an alternative by using statistical analysis. Using regression analysis, Beaujot et al. (1994) found that immigrants with no Canadian education, especially those with higher education in their homeland, are more likely to be represented in non-professional self-employment than their counterparts among the native-born or immigrants with Canadian education. They argued that immigrants with higher homeland but no Canadian education choose non-professional self-employment as a response to the blocked mobility resulting from difficulties they experience in finding paid employment in the mainstream economy. Similarly, Li (1994, 1997, 2000) examined whether immigrants enter self-employment because of their disadvantage in wage labour or because of attractive opportunities offered by the self-employment sector in ethnic enclaves. He predicted that if immigrants are driven into self-employment because of blocked mobility in wage labour, their self -employment

income will be lower than the wage earnings of their counterparts because self-employment was chosen as the last option. In contrast, if immigrants are attracted into self-employment, their self-employment earnings will be higher than their counterparts' wage earnings. However, Li`s results were inconsistent. While Li's 2000 study using the Longitudinal Immigration Data Base (IMDB) supports the view that immigrants are self-employed as a result of their blocked mobility in wage labour as their self-employment income is lower than their wage earnings, another study of Li's (1997) analyzing census data supports the opposite view that immigrants are attracted to self-employment in pursuit of lucrative remuneration. The latter study finds that immigrants' self-employment earnings are higher than their wage earnings. More research into this question is needed.

According to Maxim (1992), although visible minority immigrants are disadvantaged in wage labor, with lower earnings than their non-minority counterparts, they are not disadvantaged in the self-employment sector because the self-employment earnings of minority immigrants are not significantly different from the self-employment earnings of their non-minority immigrant counterparts or the wage earnings of their native-born counterparts. Therefore, Maxim (1992) suggested that in Canada, self-employment offers a way to overcome the disadvantage that minority

immigrants experience in the wage labour market.

Although disadvantage in the wage labour market, and pursuit of freedom and success, provide immigrants with the motive to enter self-employment, the establishment and operation of a business requires various resources. In procuring these business resources, some immigrant groups in Canada are known to extensively utilize ethnic resources, consequently achieving high levels of self-employment. Studying Chinese business in the 1930s, when Chinese men were not allowed to bring their wives and children to Canada, Li (1998) reports a widespread use of partnerships in Chinese restaurants, formed in order to provide the capital and labor necessary for the business. Through partnership, early Chinese immigrants could form businesses by pooling their limited financial resources and labour. The partnerships were formed informally without legal arrangements, based on trust coming from ethnic ties and solidarity among the partners. Often, the partners were father and son, uncles and nephews, brothers, relatives and friends from the same region, sharing common lineage and clanship ties. Another study (Uneke 1996) shows that the utilization of ethnic resources is critical to the establishment and operation of immigrant business. Also, the active entrepreneurship of contemporary Chinese immigrants demonstrated by their high self-employment rate is in part due to their ability to mobilize the ethnic resources of their

community. Uneke (1996) notes that substantial proportions of Chinese entrepreneurs obtain additional start-up capital from their families or co-ethnic friends, use unpaid family and co-ethnic labour, and belong to ethnic associations, which are known to promote business activities by providing business information and moderating excessive internal competition. In addition, Teixeira (1998) reports that ethnic resources play a critical role in the development and operation not only of minority but also of white immigrant businesses. The Portuguese real estate business in Toronto has developed close relationship with the culturally distinctive Portuguese community. Serving a population with a high degree of cultural identification, language retention, and residential concentration, Portuguese real estate agents have enjoyed privileged access to the co-ethnic clientele due to their employees' knowledge of the Portuguese language, and the cultural taste and needs of Portuguese home buyers. Portuguese real estate businesses also benefit from referrals and business contacts that community networks provide, and the trust that the Portuguese clientele place on their co-ethnic agents.

Furthermore, some studies suggest that variations in access to business resources, including ethnic resources, create differences in self-employment levels among minority and immigrant groups. For example, in one study, the Chinese had a relatively high self-employment rate of 11 percent, while Blacks had one of the lowest self-employment

rates of only 4 percent in 1991 (Uneke 1996). Examining Chinese and Blacks in Toronto, Uneke found that Chinese are advantaged over Blacks in establishing and operating businesses because they have better access to various types of business resources. Compared to their Black counterparts, Chinese business owners have higher educational levels, better access to capital from friends and relatives, more business experience, and extensive use of unpaid family and cheap co-ethnic labour. Uneke (1996) concluded that the differences in resource endowment between Chinese and Blacks are a reason for their different self-employment involvement. In addition, some minority business owners, especially Black business owners, are further disadvantaged in financing their businesses through banks. Studies suggest that Black entrepreneurs may have more difficulty than white immigrant groups in obtaining financing for their businesses because of the institutional discrimination of the banks (Uneke 1996; Teixeira 2007).

Another study explains variations in self-employment among ethnic groups from a different perspective. Economic mobility is often achieved by the move from wage labour to self-employment within the same industrial sector (Mata and Pendakur 1997). That is, immigrant and ethnic groups start as employees in a certain industrial sector, but as the workers gain skills and experience, some of them move into self-employment in the same sector. In consequence, Hiebert (2002) observes that there is a close

correspondence between sectors of occupational concentration and self-employment specialization of ethnic groups in Canada. For example, Arabs in Canada, who have high concentrations in wage labor in the transportation, retail sales, and health professional sectors, also show high concentrations in self-employment in those sectors. This correspondence has direct implications for ethnic groups' self-employment potential: groups embedded in sectors with much self-employment potential will have high self-employment rates while groups embedded in sectors with little self-employment potential will have low self-employment rates.

Razin and Langlois (1995) bring attention to another dimension to variation in immigrant self-employment. They argue that immigrant and ethnic groups react differently to local opportunity structure. More entrepreneurial and non-mainstream groups are influenced less by local opportunity structure, but more by contextual issues and group resources. Consequently, they are more likely to be self-employed in relatively narrow entrepreneurial niches of poor, peripheral areas, where there are few local self-employment and alternative employment opportunities in co-ethnic businesses, and where there is less competition from co-ethnic businesses. In contrast, the spatial variation in mainstream and less entrepreneurial groups is more influenced by local opportunity. They tend to be more self-employed in CMAs with high self-employment

rates, and less self-employed in CMAs with low self-employment rates.

Theories of Immigrant Self-Employment

In studying the unique characteristics of immigrant entrepreneurship, a great deal of research in the U.S., Britain and Canada has focused on asking, "Why are immigrants more frequently self-employed than native-born persons?" (For example, Light and Bonacich 1988; Sanders and Nee 1987; Tsukashma 1991; Min 1984) To explain the factors leading immigrants into the small business sector, social scientists have developed various theoretical models. For example, cultural theory explains that cultural endowments of immigrants from their home country, such as rotating credit associations or "the inheritance of crafts and trades," are major factors that help immigrants enter self-employment (Bonacich 1972; Boswell 1986; Tsukashma 1991; Wong 1982; Li 1998). Disadvantage theory, on the other hand, explains that immigrants congregate in the self-employment sector because they are disadvantaged in the general wage labor market because of poor language skills and/or discrimination (Tsukashma 1991; Min 1996). Yet another theory—ethnic and class resources theory—asserts that immigrant business benefits from "sociocultural and demographic features of the whole group"—

ethnic resources—and "cultural and material endowment" of their background as middle class in their countries of origin—class resources (Light and Bonacich 1988; Portes 1995).

From the early days of immigrant entrepreneurship research, an immigrant group's concentration in self-employment and a residential area has been considered important and a unique set of resources for immigrant business. Most research focuses on the positive effects of immigrants' entrepreneurial concentration and argues that it facilitates immigrants' business establishment and development by providing business information, support of business associations, and training opportunities for future business operation (Waldinger 1991; Light and Bonacich 1988). Others, however, argue that entrepreneurial concentration intensifies intra-ethnic competition, inflicting detrimental effects on their businesses by channeling too many immigrants into similar lines of trade (Waldinger, Aldrich and Ward 1990; Min 1990). While some researchers challenged this view, the residential concentration of a culturally distinct immigrant group, in general, has been considered an important business resource for immigrant entrepreneurs by providing informal sources of capital, protected markets for ethnic goods and services, and reliable and often cheap co-ethnic labor (Waldinger, Aldrich and Ward 1990). Also, the level of ethnic resources generated by entrepreneurial

concentration and an immigrant community is argued to be determined not only by the size of the community but also by the level of the immigrant group's sense of ethnicity heightened by its disadvantaged position in the host society (Portes and Zhou 1992).

Limitations of the Current Literature

The studies cited are reasonably successful in identifying different sources of ethnic resources contributing to the establishment and operation of immigrant business. However, they have the following limitations: (1) With the exception of several pioneering studies (Evans 1989; Le 2000; Bates 1994; Bates 1997; Tubergen 2005), most studies of ethnic resources have been qualitative (for example, Bailey and Waldinger 1991; Kim 1981; Kim and Hurh 1985; Light 1972; Light 1988; Min 1984; Min 1996; Yoo, 1997; Yoon 1995; Yoon 1991), or have examined only one or a few ethnic immigrant groups in one or a few locales (for example, Adrich et al. 1985; Cobas and Deollos 1989; Min 1984; Portes 1987; Portes and Zhou 1992; Rijman and Tiena 2000; Sanders and Nee 1996; Sanders et al. 2002; Waldinger 1986; Waldinger 1986; Zimmer and Aldrich 1987). Due to the lack of comparative data and the rigorous application of statistical techniques in this area, ambiguity about the positive or negative

effect of immigrants' entrepreneurial concentration remains. To date, relatively little national-scale quantitative research encompassing a broad range of immigrant groups has been conducted on the effects of immigrants' entrepreneurial concentration on self-employment propensity and income. (2) In Canada, there has been no study of the effects of the immigrant population on self-employment propensity and income. (3) Recently, some researchers have challenged the traditional ethnic resources theory to argue that the importance of ethnic resources generated by the immigrant community as a whole has lost its significance because the communities of recent immigrants are so diversified, especially along the lines of class. Consequently, ethnic solidarity is eroded, and what is still important in ethnic resources is only family-level resources (Sanders and Nee 1996). (4) The role of ethnic resources in the establishment and development of immigrant business is not clear, and a few studies looking into this question have produced inconsistent results (Yoon 1991; Bates 1994; Yoo 1998). (5) Past quantitative research on ethnic resources is limited in its statistical analysis because the statistical models employed do not allow regression coefficients to differ in different immigrant groups that may utilize ethnic resources to different degrees. (6) Reactive ethnicity[1], which makes active immigrant entrepreneurship possible through ethnic solidarity, has

[1] Proponents of reactive ethnicity argue that discrimination and disadvantage in the host society heighten awareness of the common nationality and solidarity among immigrants, and consequently provide immigrants with useful business resources (Light and Rosenstein, 1995)

never been empirically tested.

To address these limitations and questions, linear regression and cross-classified hierarchical and generalized hierarchical linear models will be fit to 26 immigrant groups in Canada, with individual immigrants cross-classified by CMA of residence and ethnic origin. Using the 2006 Census, I will examine (1) the effects of immigrants' entrepreneurial and residential concentration in CMAs (measured by self-employment rates and population in CMAs); (2) the effects of class resources, particularly education, and (3) the interactions between immigrants' entrepreneurial and residential concentration and reactive ethnicity (measured by minority status and percentage of the immigrant population who are not fluent in official languages, to represent a disadvantaged position) on self-employment propensity and income.

Conclusion

Contrary to the predictions of many sociologists, small business has been steadily increasing since the 1970s, and the rapid growth of self-employment in Canada since the 1990s has been especially striking. In Canada, the active entrepreneurship of immigrants has drawn scholarly attention, leading to studies of motivations for

immigrant self-employment, labour market disadvantage and immigrant self-employment, immigrants' utilization of ethnic resources, the employment-self-employment connection, and geographical variation of self-employment involvement. In immigrant entrepreneurship research, substantial attention has been paid to the effects of residential and entrepreneurial concentration of immigrants. However, the research to date has been limited in its scope and methodology. To overcome these limitations, linear regression and cross-classified hierarchical and generalized hierarchical linear models will be fit to 26 immigrant groups in Canada, with individual immigrants cross-classified by CMA of residence and ethnic origin.

CHAPTER TWO: LITERATURE REVIEW, AND RESEARCH QUESTIONS AND HYPOTHESES

Introduction

In this chapter, I first introduce and review five theoretical issues in the sociological literature regarding the effects of REC (Residential and Entrepreneurial Concentration) and education on self-employment outcomes. The first two theoretical issues concern the controversy over the effects of REC on self-employment outcomes. Although the majority of the sociological literature on immigrant entrepreneurship argues for positive effects of REC on self-employment outcomes, some critics argue that the effects of REC are negative or insignificant on self-employment outcomes. I will introduce the opposing arguments for the effects of REC, and discuss their rationales. The third theoretical issue examines how the effectiveness of ethnic resources changes through the developmental stages of immigrant businesses, especially through the establishment and operation stages of businesses. Three different views on the issue—Yoon's, Bates's and Yoo's—and their differences will be introduced and discussed. The fourth issue concerns reactive ethnicity theory. Unlike orthodox cultural theory, which views

immigrants' behavior as the reflection of cultural tradition in homeland, reactive ethnicity theory views the heightened awareness of a common ethnicity of immigrants and minorities as a response to disadvantages and discrimination in the host society. I will discuss how the heightened ethnicity functions as a resource for immigrant business, and increases the effectiveness of ethnic resources on self-employment. The fifth issue concerns differences between white and minority immigrant self-employment. I point out that most research on immigrant entrepreneurship is conducted on minority immigrants, and introduce a few studies on the use of ethnic resources by white immigrant business.

Based on the five theoretical issues, I also develop five research questions and related hypotheses. The research questions concern effects of REC and education on immigrant self-employment outcomes, changes in their effects through the developmental stages of business, interaction effects of REC with immigrants' disadvantage, and differences in the effects of REC between white and minority immigrants.

Controversy over the effects of co-ethnic entrepreneurial concentration[2]

[2] Research on ethnic resources for immigrant and minority business is relatively limited in Canada. The studies in Canada, for example, include Li (1998), Uneke (1996), and Teixeira (1998).

The concentration of immigrants in self-employment facilitates and promotes entrepreneurship by providing the group with opportunities, knowledge, and an environment that is beneficial for the development of entrepreneurship. First, the concentration of an immigrant group in self-employment contributes to further development of its entrepreneurship by providing training opportunities for co-ethnics, which will eventually lead to entrepreneurship. Nepotistic hiring practice of immigrant entrepreneurs, which is often found among many immigrant groups, provides co-ethnic employees with opportunities to learn skills that are necessary to operate their own business in the industry (Light 1972: 93; Light and Bonacich 1988; Uneke 1996). A variety of training opportunities available in the ethnic economy often eventually lead to entrepreneurship. Boissevain et. al (1990) explains this process, saying that unlike other secondary sectors with little possibility of mobility, the ethnic economy provides its participants with career mobility that starts from "entry-level jobs as dishwashers or cashiers, to some higher-level jobs as headwaiter or manager," and eventually leads to "ownership of one's own firm." Observing the garment industry in New York City, Waldinger (1991) confirms this "long-established patterns of movement into entrepreneurial ranks." He finds among Jewish and Italian garment business owners,

most of whom opened factories in the 1940's and 1950's, that 14 out of 34 with work experience had been garment workers, and among new immigrants of Chinese, Korean, Dominican and Hispanic origin in the 1980's, that 63 out of 96 with prior employment experience had been garment workers. CMA's with high self-employment rates provide more training opportunities, and therefore they have higher self-employment propensity.

In addition to training opportunities, the concentration of an immigrant group in self-employment provides co-ethnics with expertise about the trades developed by the group's focused efforts on a few trades of self-employment. Business expertise is transmitted and shared within the group not only person-to-person but also through the ethnic press (Bonacich and Modell 1980). The ethnic press functions as "an information system" that leads immigrants into the industrial niches where their co-ethnic immigrants already own businesses. Light and Bonacich (1988) observed that by reading classified advertisements in the Korean language press in Los Angeles, one can obtain more information about business opportunities for sale than by reading the Los Angeles Times, which is the County's largest daily. The ethnic press also runs feature articles about business so that aspiring Korean entrepreneurs can obtain "detailed information about how to buy and manage a small business enterprise in that industry" in the Korean language (Light and Bonacich 1988). The availability of such superior

business expertise in the immigrant group in their mother tongue would allow the group the upper hand in business over others without it, attracting potential entrepreneurs into business, and supplying existing entrepreneurs with necessary business information. CMA's with high self-employment rates tend to offer more business opportunity advertisements, more active business information, and more active ethnic media activities, and therefore have higher self-employment propensity.

Another way that immigrant self-employment concentration benefits their entrepreneurship is through business associations. Immigrant groups with high self-employment concentration are often highly organized around their own business associations (Uneke 1996). The one function of these business associations is to create a favorable business environment by playing an active role in organizing collective actions against the discrimination that immigrant entrepreneurs experience in business-related activities. Min (1996) observed that immigrant entrepreneurs often depend on non-co-ethnic merchants for their merchandise, store rent, and regulations. Dealing with non-co-ethnic merchants in business transactions, they sometimes experience discrimination. For example, Korean produce retailers in New York who buy fruit and vegetables from white wholesalers in the Hunt Point Market experienced discrimination in business transactions. They complained that they were treated rudely by white

employees of the wholesalers, were not allowed to exchange merchandise, often received rotten fruit, were forced to buy items they did not want, and had to wait longer than white retailers to get their purchases loaded in their cars (Min 1996) On one occasion, some Korean merchants were even physically beaten because of white owners' and employees' prejudice against and stereotyping of Koreans. In response to widespread discrimination, the Korean Produce Association of New York (KPANY) organized a boycott against one of the wholesalers, Whishnatzki and Nathel Produce in February 1980, demanding an end to discrimination against Korean merchants. In a meeting held at the KPANY office in the following month, the president of the wholesale store "accepted most of the demands and offered a sincere apology (Min 1996)." In May 1985, another demonstration was organized by 250 Korean merchants against the discriminatory and abusive treatment of Korean merchants by a wholesaler's employees at the Hunts Point Market. KPANY negotiated a settlement with the white wholesaler and it accepted most of the demands of KPANY regarding a formal apology and compensation (Min 1996). These collective actions made wholesalers at the Hunts Point Market aware that they will face boycotts if they do not treat Korean merchants properly. As a result, Korean immigrant businesspeople could work in a more comfortable and favorable business environment, on more advantageous terms.

Immigrant business associations also benefit entrepreneurship by moderating potentially serious intra-group competition, and promoting industrial cooperation through appealing to ethnic solidarity. To moderate intra-ethnic competition, pre-Second World War Chinese immigrant guilds in the U.S. regulated many aspects of business conduct (Light 1972). They enforced rules about various aspects of business operation, including the location of businesses, to control excessive intra-ethnic competition. For example, the rules of the old laundrymen's guild state that a new laundry cannot be established within ten doorways of existing Chinese laundries (Light 1972). Also, in studying the Korean community in New York after 1965, Kim (1982) found that the Korean Produce Retailers Association controlled entry into the trade by new immigrants. Established in 1974, the association aims to defend the interests of established Korean produce retailers by systematically discouraging new arrivals from establishing their stores near existing fruit and vegetable stores. He reports one incident where a Korean store owner, Mr. Lee, refused the KPRA's offer to buy his new store near a member's established store. In order to set an example and curb new openings near existing stores, the organization opened a new store near Mr. Lee's and dumped vegetables at wholesale prices. Such regulation of the location of new businesses by immigrant business associations curtails intra-ethnic competition, and directs it away from fellow co-ethnics

toward non-co-ethnics.[3] Light and Bonacich (1988) also observed that whenever they have an opportunity, immigrant business associations emphasize the desirability of co-ethnic cooperation in trade and try to suppress competition among co-ethnics by resorting to ethnic solidarity.

> For example, at a meeting of fifteen Korean chambers of commerce and business associations from all across the United States, one association president reported that all participants "held the same feeling that we must unite ourselves to promote and protect our ethnic interests in the mainstream." (Light & Bonacich 1988; p202)

Consequently, the regulations and resort to ethnic solidarity maintain and enhance the profitability and attractiveness of the self-employed trade (Light 1998), and increases the number of co-ethnic entrepreneurs that the trade can hold. Therefore, CMA's with high self-employment rates will provide more active immigrant business activities and have high self-employment propensity.

Contrary to a vast body of ethnic resources literature, some researchers indicate

[3] There is, however, disagreement about the level of influence of such actions by immigrant business associations. (see, for example, Yoon, 1997;Sanders and Nee, 1996 ; Kim, 1982; Light, 1972)

negative and detrimental effects of immigrants' concentration in the self-employment sector. They argue that as large numbers of immigrants with similar skills and business advantages open businesses in the same ethnic niche, intra-ethnic competition intensifies (Waldinger et. al 1990). For example, a study of Korean small business owners revealed that 50% of the merchants interviewed pointed to other Korean small business owners as their major business competitors, and another 15% indicated that at least one of their major competitors are other Korean small businesses (Kim and Hurh 1985).

Intra-group competition has negative effects on the operation of immigrants' business. First, the competitive pressure to lower the price of their merchandise to match the co-ethnic competitors' low prices forces immigrant merchants to work longer hours, open more days, and cut employee's wages. Competition eventually lowers the profit margin of the business and can threaten its survival (Kim and Hurh 1985; Waldinger, Aldrich, and Robin 1990). Also, the flocking of an immigrant group into the same line of business may push up the rent and "key money," a type of safety deposit, of the business. For example, competing for the same opportunity, existing Korean store owners were afraid that other potential Korean businesspeople might "go to landlords and try to outbid them for the store" at the time of lease renewal (Kim and Hurh 1985).

Competition among Korean immigrants for buying fruit and vegetable stores from non-Korean store owners also greatly increased the “key money” required for the purchase (Kim 1981). This in-group competition raises the overhead cost of the business, and makes the operation of the business more difficult.

When immigrant entrepreneurs encounter competition from American-born entrepreneurs, they can easily beat the competitor. For example, if Korean greengrocers compete with non-Korean-run stores, they can easily win the competition utilizing their advantages such as cheap labor, hard work, and unpaid family labor. However, the factors that produce the competitive advantage, such as unpaid family labor, community support, and co-ethnic suppliers, are shared with other co-ethnic entrepreneurs. Therefore, competition with other co-ethnic entrepreneurs poses a particularly serious threat to immigrant businesses. It can lead to a never-ending cycle of cost-cutting and increasing hours, where the competitors eventually “ruin each other” (Waldinger, Aldrich, and Robin, 1990). The cost of intra-ethnic competition is so grave that the importance of avoiding intra-ethnic competition is often emphasized in the immigrant community in various ways (Kim, 1981). Therefore, CMA’s with relatively high self-employment rates have high intra-ethnic competition, and therefore have low self-employment propensity and income.

Controversy over the effects of immigrant population concentration

Demand for ethnic cultural products created by the presence of a culturally distinctive immigrant group provides immigrant entrepreneurs with a captive market for culturally defined products and services. Often called the ethnic market, it arises from immigrants' desire for their culinary and cultural products. The special tastes of ethnic customers, such as for exotic Chinese vegetables and Spanish-speaking newspapers, create "protected markets' for immigrant entrepreneurs who know the cultural tastes and preferences of their co-ethnics (Light 1972). The ethnic market for ethnic foods plays a critical role especially in the start-up stage of immigrant business, providing business opportunities protected from outside competitors for fledgling immigrant entrepreneurs (Yoon 1997). Also, immigrants' demand for "cultural products"—for example, ethnic newspapers, books, clothes, and jewelry—provide "protected markets" immigrant entrepreneurs can easily tap into (Waldinger, Aldrich and Ward 1990). Hence, immigrant entrepreneurs and potential immigrant entrepreneurs in places where there is a large co-ethnic population benefit from these markets in establishing and developing their business as we can see in the case of Portuguese real estate businesses in Toronto

(Teixeira 1998).

Businesses that specialize in immigrants' settlement and assimilation also provide business opportunities that immigrant entrepreneurs can exploit. New immigrants encounter problems in the settlement and assimilation process which involve unfamiliar bureaucratic procedures (Waldinger, Aldrich and Ward 1990). Therefore, such businesses as legal services, travel agencies, realtors and accountants that specialize in settlement and assimilation problems flourish in the midst of the immigrant population (Waldinger, Aldrich and Ward 1990). In providing these services, co-ethnic businesses can offer immigrants "the comfort and security" of using such services in their own language and in more "personalistic" terms (Evans 1989; Waldinger, Aldrich and Ward 1990). In addition, since such services often require trust due to the possible dubious legal status of immigrants and their families, immigrants prefer businesspeople of common ethnic background (Waldinger, Aldrich and Ward 1990). Demand for such services creates business opportunities for immigrant entrepreneurs.

Their community is an important source of capital for immigrant entrepreneurs. Immigrants heavily depend on family, kin and co-ethnics in the community for business capital because they face difficulties such as discrimination, "complicated red tape, insufficient business credit status, and a lack of information" in obtaining credit from

mainstream financial institutions. (Light 1972; Yoon 1997; Teixeira et al. 2007) Reflecting this function, for example, funds from informal sources make up a large portion of Korean immigrant businesses' start-up and operating capital (Yoon 1997). Family financial support is a major source of financing for immigrant business, and in addition, informal financial associations are especially conspicuous in financing immigrant businesses. For example, the *kye* of Korean immigrants is an informal social and business association with members ranging from 9 to 90. The word *kye* means contract. In the regular meetings of the *kye*, the members contribute an equal amount of money, and the contributions are lent to each of them "in a rotating order," until everyone benefits. Each member is expected to behave "honorably", and usually there is no written contract. (Yoon 1997; Waldinger, Aldrich and Ward 1990)

Variously named as *hui* among the Chinese, *tanomoshi* among the Japanese, and *kye* among Koreans, this form of informal financing is called "rotating credit associations" (RCA's from now on) in the sociological literature. The tradition of rotating credit associations has been identified by anthropologists and sociologists in many parts of the world including East Asia, Latin America, the Caribbean, the Near East, and Africa. (Light and Gold 2000) The active existence of rotating credit associations are also found among recent immigrants to the United States such as Chinese, Vietnamese, West

Indians, Mexicans, and Koreans. (Light and Gold 2000) Although ethnic groups have different practices of rotating credit associations, and some researchers contend that the roles of these associations are exaggerated and decreasing with an increasing availability of other sources of financing, a large number of studies indicate the historical and continued significance of this type of informal financing to the start-up and expansion of immigrant business in many ethnic groups. (See, for example, Light and Gold 2000; Light 1972; Yoon 1997; Portes and Zhou 1992, Light 1972) In fact, some argue that the development of Asian immigrant business would have been impossible without this community-based cooperative form of financing (Light 1972; Yoon 1997). Since rotating credit associations do not require collateral or a formal credit check, they allow immigrants who start new business and are disadvantaged in obtaining bank loans to overcome a shortage of capital (Yoon 1997). Also, many of the established immigrant entrepreneurs prefer informal financial associations for their convenience and speed (Portes and Zhou 1992).

The immigrant population supplies a reliable and cheap immigrant labor force for both aspiring and established immigrant entrepreneurs. The immigrant entrepreneurs can use the co-ethnic labor force more profitably than those outside the immigrant community, and the co-ethnic immigrant labor force therefore constitutes another key

resource of immigrant business. Studies show that due to discrimination and lack of language skills, jobs that immigrant workers can get outside the ethnic immigrant economy—if they can get one at all—tend to be unstable and low-paying (Li 1998; Boswell 1986). Facing this situation, many immigrant workers turn to co-ethnic entrepreneurs for alternative employment opportunities. Unlike employment opportunities in the broader economy, employment with co-ethnic employers has several advantages for immigrant workers. First, they can work in a familiar cultural environment in which they can comfortably communicate with other workers and the employer in their mother tongue (Waldinger, Aldrich and Ward 1990; Portes and Zhou 1992). Second, they are free from possible discrimination from employers based on ethnicity. Third, they can escape or reduce the disadvantage due to lack of language skills that they experience in getting a job in the broader economy. Their pay with co-ethnic employers may be lower than that of native-born workers working in the broader economy with equivalent competence, but it can be higher than the pay that they could make in the broader economy (Evans 1989). Fourth, the labor relationship between co-ethnic immigrant workers and employers often takes a reciprocal nature, pressuring immigrant entrepreneurs to adopt a paternalistic role. Employers may be expected to advance funds for emergencies, help workers to bring their relatives from the home

country, and provide a loan for starting the worker's new business (Waldinger, Aldrich and Ward 1990; Portes 1987). On the other hand, immigrant employers can also benefit from hiring co-ethnic laborers. First, co-ethnic immigrant workers are a source of cheap labor. Second, immigrant entrepreneurs can reduce uncertainty in recruitment, and hire more stable and reliable candidates because of the network hiring to which they often resort in hiring co-ethnics. Network hiring is effective in recruiting proper candidates for a job because the employer can know more about the workers and their prospects for employment stability in advance (Bailey and Waldinger, 1991). It also helps maintain the employees' good behavior once they are on the job because they are aware that their behavior will reflect on their reference if they seek a job elsewhere (Bailey and Waldinger 1991). Third, workplace conflicts with co-ethnics can be more easily avoided and handled by immigrant entrepreneurs than with non-co-ethnics. This is because ethnicity can work as a stabilizing force in the employer-worker relationship by providing a common ground on which immigrant employers and workers can build their relationship. Also, workplace authority can be established by personal loyalties and ethnic allegiance without resorting to potentially troublesome discipline (Wong, 1987). Furthermore, cultural symbols and custom can be used to curtail possible employer-employee conflict. (Wong, 1987) These advantages on the part of both immigrant

entrepreneurs and workers pull them toward each other, making co-ethnic workers a key ingredient of immigrant business. For example, Portes and Zhou (1992) report that in Miami, more than one third of Cuban refugees were hired by fellow Cubans, and in New York's Chinatown, 15,000 Chinese immigrants worked for Chinese restaurants, and 20,000 Chinese women worked for Chinese-owned garment factories. Therefore, immigrants in places with a large co-ethnic population should engage in self-employment more, and fare better, thanks to the availability of abundant co-ethnic labor.

Furthermore, co-ethnic workers not fluent in the dominant languages are an advantageous source of labor for immigrant entrepreneurs because their skills can be tapped more profitably by a co-ethnic entrepreneur than those outside the community. The language barriers of the "linguistically isolated workers", those with language difficulties, imposes a cost on majority group employers because of the possible difficulties and mistakes on the job due to their lack of fluency, and thus they often get worse jobs and are paid less than other workers who are fluent but with similar human capital (Evans 1989). On the contrary, sharing the same language with the workers, co-ethnic entrepreneurs are free from such cost. Consequently, immigrant entrepreneurs can profit from hiring co-ethnic workers with language difficulties because they can pay more than the mainstream labor market offers, but less than what majority group

workers with comparable skills earn in the mainstream labor market. Working for a co-ethnic entrepreneur can also be beneficial for workers with language difficulties because they can earn more than they can in the mainstream labor market by working for a co-ethnic (Evans 1989). Therefore, immigrants in CMA's with a higher proportion of adult population with linguistic isolation might have high self-employment propensity and income.

While most sociological literature points to positive effects of co-ethnic population on the outcomes of entrepreneurship, there is an opposing view. Some researchers challenge the paternalistic view on the labor relationship between co-ethnic employers and employees, claiming that it is not necessarily mutually beneficial. In his study of businesses in New York City's Chinatown, Kwon (1987) observed that the labor relationship between Chinese employers and employees are actually widely varying from paternalistic to exploitive, with some employers repeatedly violating fair labor practices. Kwon (1987) concluded, "The alliance between Chinese owners and workers is unfortunately a myth." Also, some studies claim that immigrant businesses that stay reliant on ethnic markets of the co-ethnic customers and markets can have a limited growth potential. In a study of Asian and white businesses in the United Kingdom, Aldrich et al. (1983) noted that although Asian businesses are favored by co-ethnic

immigrants, dependence on the patronage of their own ethnic group severely restricts the growth potential of their business because of the impoverished immigrant population, and the small number of businesses that ethnic markets can support. An analysis of the 1992 US Census data by Bates (1997) also found that reliance on minority clientele and minority employees is either negatively or insignificantly associated with the firm survival and profitability of Asian immigrant business. He found that among Asian immigrant groups, Indian businesses which rely least on minority employees and clients had the lowest firm discontinuation rate, while Vietnamese businesses that rely heavily on minority employees and clients had the highest firm closure rate.

The potentially negative effects of social networks in generating social capital are also pointed out by other researchers. Portes and Sensenbrenner (1993) argue that generation of social capital produces expectations for action that can hinder economic achievement of group members for the following reasons. First, community solidarity imposes responsibilities on successful entrepreneurs to help other needy community members, consequently restricting further pursuit of the entrepreneurs' economic goals. Second, the norms of the isolated community can discourage individual freedom, and limit contacts with the outside world. Third, in an effort to prevent successful members

from departing from the community in pursuit of outside opportunities, communities with high ethnic solidarity may restrict individuals' pursuit for economic mobility. Smith (2005) also points to the limitations of the social capital of ethnic social networks. She contends that in job searches, the social capital of social networks gets activated only in certain social contexts, depending in particular on the socio-economic status of support seekers, their neighbourhoods, and their reputation as reliable workers. Therefore, she concludes that access to social networks is less likely to provide social capital for job seekers from poor urban neighbourhoods with poor reputations.

Ethnic resources and class resources

In the traditional literature on immigrant entrepreneurship, ethnic resources, including resources coming from residential and geographical concentration of immigrants, have been considered generally beneficial to immigrant businesses in all stages, not only in the establishment, but also in the operation of businesses. Recent studies, however, suggest that the effectiveness of immigrants' business resources varies with the developmental stage that the business is in. The findings of researchers, however, are inconsistent as to "what" resources are effectively facilitating and

beneficial, and in "what" stages of business development they are so.

Yoon (1991) suggests that ethnic resources play an important role in creating a business, but as the business develops and its size increases, they become insufficient for the growing business, and class resources come to play a bigger role. At the initial stage of business development, he argues, ethnic resources are beneficial for Korean immigrant entrepreneurs, because Korean suppliers provide extended credit terms, lower prices and easy access to information. Family members and friends also provide valuable information, business advice, and business capital, and they are also very helpful and important, especially when the business is small. As their businesses grow, however, immigrant entrepreneurs often find that ethnic resources decrease in importance, and are no longer beneficial for business performance (Yoon 1991). For example, the Korean merchants who depend exclusively on Korean suppliers are the ones with the smallest annual sales and business growth. In general, dependency on Korean suppliers decreases despite the supposed ethnic favors, and at the same time, Korean suppliers are replaced by American suppliers. Yoon (1991) therefore argues that "strong dependency on Korean suppliers does not provide support for business expansion." Other pieces of evidence also suggest the limited capability of ethnic resources in developing immigrant businesses in terms of initial capital and gross sales.

Korean merchants who strongly depend on ethnic financial resources, and family- and friendship-based business networks, on average have less initial capital. Also, ethnic resources such as financial support from family members and RCA's, support from Korean friends already in business, and dependence on Korean suppliers have a negative relationship with gross sales. Yoon (1991) concludes that "business networks on the basis of family and friendship ties do not help Korean merchants succeed in business[4]." He finds that family labor is the only ethnic resource that is positively related to the gross sales of the business.

On the contrary, class resources—college education, business skills, and experience—become more important for immigrant businesses at the advanced stage. Yoon (1991) found that business experience in Korea is positively related to initial capital among Korean immigrant entrepreneurs, and with more American business experience, the proportion of immigrant entrepreneurs that depend on ethnic resources decreases, and the proportion that receive bank loans increases. The Korean merchants who get bank loans can start with more start-up capital for the new business, and Yoon (1991) consequently suggests that class resources are more important than ethnic resources for business expansion.

[4] On the other hand, support from family increases the likelihood of self-employment (Sanders and Nee 1996).

Contrary to the common belief that young immigrant firms may benefit "from their initial avoidance of the broader, largely non-minority marketplace" because they can enjoy lack of competition and protected ethnic markets, Bates (1994) argues that new businesses that depend mainly on minority clientele are less successful because they are smaller, less profitable, and have lower owner financial investments. Such businesses are "twice as likely to discontinue operations" as their counterparts in the broader economy (Bates 1994).

On the other hand, it is class resources such as greater owner human and financial capital that are positively related to business survival chances. Bates (1994) finds that long-lasting immigrant-owned firms are disproportionately those with long business history that started with larger investments of financial capital, serves a clientele that is not predominantly minority, and are headed by owners who have attended college. Also, the Asian immigrant entrepreneurs generating higher profit volumes are owners working full-time in their firms, highly educated, and in business for four or more years. Therefore, he concludes that human capital measures such as "owner education and managerial experience" are more consistent determinants than ethnic resources of firm profitability and longevity.

Yoo's view of the effectiveness of ethnic and class resources is different from those

of the previous two researchers. Yoo (1998) argues that ethnic resources are important in the operation, but not establishment, of immigrant businesses. This is contrary to Yoon's and the conventional view of the immigrant entrepreneurship literature that ethnic resources are crucial both for business establishment and operation by providing "a competitive advantage over other ethnic groups who do not utilize such resources." Studying Korean immigrant entrepreneurs in Atlanta, Yoo (1998) found that ethnic resources such as RCA's, and co-ethnic and unpaid family labor play important roles in the operation of businesses rather than in business creation: (1) RCA plays a more significant role in operating the current business rather than in setting up a new business because its size is small. (2) Korean employees are more trusted and valued, and so they tend to be in managerial positions with more trust from Korean employers although there is no price advantage of Korean employees. (3) Unpaid family labor is important for the operation and profitability of immigrant businesses. Profitable non-enclave businesses utilize unpaid family labor more often and more importantly for their operation than less profitable enclave businesses. Also, larger businesses utilize unpaid family labor more often and more importantly for their operation than smaller businesses. However, unpaid family labor is not important in "business creation" (Yoo 1998).

Yoo (1998), on the other hand, argues that class resources are important for both business establishment and profitability. She explains this in terms of the nature of networks and the resources that those networks bring to the owner. First, social networks of those with university education allow their possessors to tap into diverse sources of social networks in churches, university alumni associations and business associations, consequently providing more and diverse networks they can draw on. Second, social networks of university graduates play a more significant role in the mobilization of financial resources and business information. University graduates are in a better position to establish a business fast because their family networks tend to include better-off family members who can help them financially. Because a great portion of business capital comes from family members, this is important. With more and diverse social networks, university graduates can more readily obtain valuable business contacts, and establish trust in the community. Also, business information through social networks, as opposed to family resources, leads more to businesses in the non-enclave economy with higher economic rewards than in the enclave economy. Therefore, those with more class resources, especially higher education, can benefit from social networks that are more conducive to business.

Reactive ethnicity

Proponents of reactive cultural theory view immigrants' concentration in small business as an adaptation to their lower socioeconomic position in a host society (Yoon 1997). Immigrants experience discrimination and disadvantages in the host society because they constitute an identifiable phenotypical and cultural minority. Reactive cultural theorists argue that in response to disadvantages and discrimination in the general labor market, immigrant groups create "their own exclusive boundaries" and as a result they enhance ethnic solidarity and cooperation among group members which ironically benefit immigrant business by giving them an edge in competition with other groups (Portes and Zhou 1992; Light and Rosenstein 1995). These theorists say that barriers in the mainstream society spark the heightened awareness of a common nationality in defense of the collective self-esteem of group members, and the veneration of the ethnic community as a haven where they can be protected from mainstream discrimination (Light and Rosenstein 1995; Portes and Zhou 1992). In consequence, mainstream discrimination leads immigrants to produce resources that benefit immigrant business (Portes and Zhou 1992).

Unlike orthodox cultural theory, proponents of reactive ethnicity assert that reactive

ethnicity and its consequent social resources like bounded solidarity and enforceable trust do not come from "the moral convictions of individuals or in the value orientations in which they were socialized in the country of origin," but from contingent situational factors (Portes and Zhou 1992). For example, people from Korea, China, and Cuba do not act with the same high level of solidarity toward one another in their native land as immigrants do in the U.S.A (Portes and Zhou 1992). It is when facing discrimination in the host society that they become more aware of their cultural and phenotypical commonness and act toward one another with a heightened solidarity and cooperation (Portes and Zhou 1992). Therefore, reactive ethnicity is neither a purely intact cultural transmission nor a direct product of labor market disadvantages (Light and Rosenstein 1995). Instead, reactive ethnicity views immigrant entrepreneurship as "a joint effect of the presenting culture and of the host society's social structure" (Auster and Aldrich 1984). Immigrant groups vary in the level of discrimination, and therefore, in the level of reactive ethnicity. Reactive ethnicity will lead to different levels of business resources and therefore different self-employment propensity and income.

Reactive ethnicity benefits immigrant business most importantly by enhancing bounded solidarity and enforceable trust in the community, which in turn produce various business resources. Immigrant entrepreneurship is promoted because reactive

ethnicity enhances ethnic solidarity, which heightens awareness of "common nationhood" among immigrants (Portes and Zhou 1992). Reactive ethnicity eventually induces behavior of immigrants in ways that can benefit immigrant businesses. As a result of heightened ethnic identity, immigrants become more loyal customers for cultural products, immigrant workers prefer to work with co-ethnic workers, and investors want to invest in firms in the country of origin or in the ethnic economy. Enhanced ethnic solidarity strengthens the position of immigrant entrepreneurs in the community because they are viewed as performing important "group-strengthening services (Light and Rosensstein 1995)". They provide jobs for members of the ethnic group. They also represent the proof that the disesteemed group can take a leadership role, and deserves citizenship and social acceptance. To the possessors of an ethnic culture, they are viewed as the vindicators of the ethnic culture (Light and Rosenstein 1995). These purported positive roles legitimate immigrant entrepreneurs' claim to co-ethnic employees' cooperation and provide "an ideology of management" while suppressing possible conflict (Light and Rosenstein 1995). Also, reactive ethnicity provides ideological support for mercantile associations and their collective approach to business. It restrains internal competition among individual firms by "uniting the entrepreneurs around an ideology of solidarity (Light and Rosenstein 1995)."

Entrepreneurs can cooperate more effectively by forming a kind of cartel rather than an individual firm in favor of common survival and collective good as opposed to market competition. Consequently, reactive ethnicity helps to direct their efforts to collective survival and prosperity and away from potentially consuming internal competition. Furthermore, enhanced solidarity promotes the scope and integration of social networks in the ethnic community, and as a consequence it confers important business resources on the community. For example, business-related information freely flows through the closely-knit ethnic networks. Thanks to these, immigrant entrepreneurs can quickly acquire "news of business value such as the relative profitability of different industries or the success of industrial innovations", and availability of new businesses for purchase because these ethnic networks function as "entrepreneurial channels (Light and Rosenstein 1995)." Finally, closely-knit social networks generated by ethnic solidarity and cooperation enhance trust towards one another in an immigrant community, and create important business resources. Light and Rosenstein (1995) explain the reasons for this. First, trust reduces "external transaction costs" by enabling participants to conduct between-business transactions more cheaply than when there is no informal social trust that social networks provide. Also, the purchase and sale of immigrant businesses are facilitated by trust. This consequently leads to "economic specialization

and market power" of the ethnic group in particular trades. Social networks also buttress the social trust base of the immigrant community on which rotating credit associations is based, ensuring their smooth operation.

White and minority immigrant self-employment

The current literature on ethnic resources is not clear about differences between white and minority immigrant self-employment partly because the majority of research on ethnic resources focuses on minority immigrants including Chinese, Japanese, Korean, Iranian, Dominicans, Hispanics, and Cubans. Although little research is conducted on white immigrants' community-level ethnic resources, a few studies (Teixeira 2001; Teixeira 1998; Richman 2006) indicate that some white immigrant groups also extensively utilize ethnic resources and solidarity deriving from residential and entrepreneurial concentration for the establishment and maintenance of their businesses. For example, Portuguese entrepreneurs in Toronto rely heavily on co-ethnic clients, extensively hire co-ethnic employees, and obtain business information and advice from co-ethnic friends and relatives (Teixeira 2001; Teixeira 1998).

RESEARCH QUESTIONS AND HYPOTHESES

The current research aims to evaluate the effects of ethnic resources, particularly of REC (Residential and Entrepreneurial Concentration), on outcomes of immigrant self-employment. To address the issues discussed in the literature review, the current research examines the following three research questions.

The first research question concerns the general direction of the impact of REC of immigrant groups. It investigates whether REC of immigrant groups is beneficial for outcomes of immigrant self-employment, and tests the two opposing hypotheses about the effects of REC.

RESEARCH QUESTION 1: How does REC influence the self-employment outcomes of immigrants?

[Ethnic Resources Theory Hypothesis 1] The REC of minority and white immigrants has positive effects on their self-employment income and propensity.

[Intra-group Competition and Bates's Hypothesis] The REC of minority and white immigrants has no or negative effects on their self-employment income and propensity.

In addressing this question, I will examine whether members of an immigrant group with a higher concentration in a geographic area and self-employment have higher chances of self-employment and self-employment income, or whether they have the same or lower chances of self-employment and self-employment income than their counterparts who belong to an immigrant group with a lower concentration in a geographical area and self-employment.

Along with ethnic resources, the literature describes class resources as an important resource for immigrant business. The second research question concerns the effects of class resources, especially education, on self-employment outcomes of immigrant groups. It investigates whether the effects of education are positive on self-employment income and chances of self-employment.

RESEARCH QUESTION 2: How does education influence the self-employment outcomes of immigrants?

[Class Resources Theory Hypothesis] Education has a positive effect on the self-employment income and propensity of minority and white immigrants.

Studies also indicate that the impact of REC may be specific to particular stages of business development. The third research question is about the specific stages, particularly the start-up and operation of the business, in which REC and education influence—whether positively or negatively—chances of self-employment and self-employment income of members of immigrant groups.

The impact of REC and education on the establishment of the business is measured as that of REC and education on self-employment propensity since their positive effects on self-employment propensity indicates the positive effects of REC and education on the establishment of the business.

RESEARCH QUESTION 3: How do REC and education influence the different stages of immigrant self-employment?

[Hypothesis from Yoon] The effects of REC are more positive on self-employment propensity than self-employment income, but the effects of education are more positive on self-employment income than self-employment propensity.

[Hypothesis from Bates] The effects of REC are not positive on self-employment income and propensity, but the effects of education are positive on

both self-employment income and propensity.

[Hypothesis from Yoo] The effects of REC are positive on self-employment income but not self-employment propensity, and the effects of education are positive on both self-employment income and propensity.

Studies on reactive ethnicity indicate that levels of the facilitating capacity of ethnic resources that an immigrant group produces may vary with levels of disadvantage that the immigrant group experience. The fourth research question is about varying levels of ethnic resources among immigrant groups.

RESEARCH QUESTION 4: Do the effects of REC on self-employment outcomes become more positive as disadvantage increases?

[Reactive Ethnicity Theory Hypothesis] The effects of REC on self-employment outcomes become more positive as disadvantage increases.

Although there is relatively little research on utilization of REC among white immigrants, some studies indicate that at least some white immigrant groups extensively utilize community-based ethnic resources for the benefit of their

business. The fifth research question is about differences in the effects of REC between white and minority immigrants.

RESEARCH QUESTION 5: Is there any difference in the effects of REC between white and minority immigrants?

[Ethnic Resources Hypothesis 2] The effects of REC are positive among white as well as minority immigrants.

Conclusion

In this chapter, I introduced and reviewed five theoretical issues in the sociological literature regarding the effects of REC (Residential and Entrepreneurial Concentration) and education on self-employment outcomes. The first theoretical issue concerns two opposite perspectives on the effects of co-ethnic entrepreneurial concentration on self-employment outcomes. While a vast body of ethnic resources literature argues that a concentration of immigrants in self-employment facilitates and promotes their entrepreneurship by providing the immigrant group with training opportunities, business knowledge, and a favorable business environment, some researchers counter that

immigrants' concentration in self-employment harm their self-employment due to the intensifying intra-ethnic competition. The second issue is about two opposing views on the effects of co-ethnic residential concentration on self-employment outcomes. Most sociological literature argues that immigrants' concentration in an area facilitates and promotes their entrepreneurship by providing favorable ethnic markets; informal funding; and reliable, cheap co-ethnic labour. However, some researchers criticize the positive view by arguing that the effects of immigrants' concentration in an area is insignificant or negative on their self-employment because the mutually beneficial relationship between co-ethnic employers and employees claimed by the positive view does not exist in reality, and dependence on ethnic markets actually limits the growth potential of immigrant businesses. The third theoretical issue examines how the effectiveness of ethnic resources changes through the developmental stages of businesses, especially through the establishment and operation stages of businesses. Although the traditional sociological literature on immigrant entrepreneurship has considered that ethnic resources are generally beneficial in all stages of business development, recent studies on this issue present inconsistent findings. Yoon (1991) suggests that in creating a business ethnic resources play a critical role, but as the business grows, ethnic resources become insufficient, and class resources play a greater

role. In contrast, Bates (1994) argues that ethnic resources in general do not benefit immigrant and minority business, but class resources significantly contribute to the success and existence of immigrant businesses. Furthermore, Yoo (1998) suggests another view on the effectiveness of ethnic resources through the developmental stages of immigrant businesses. Yoo (1998) argues that ethnic resources are important in the operation, but not the establishment, of immigrant businesses, but class resources benefit immigrant businesses in both their establishment and operation. The fourth issue concerns reactive ethnicity theory. Reactive ethnicity theorists claim that disadvantages and discrimination experienced in the host society are the source of the heightened awareness of ethnicity among immigrants. In consequence, immigrant communities experiencing more disadvantage and discrimination develop stronger solidarity which increases the effectiveness of ethnic resources. The fifth issue concerns differences between white and minority immigrant self-employment. Although the majority of sociological research on ethnic resources is conducted on minority immigrant business, a few studies indicate that some white immigrant groups also extensively utilize ethnic resources for their business.

Based on the five theoretical issues in immigrant entrepreneurship research, the following five research questions and related hypotheses were developed.

• **The effects of REC on self-employment outcomes**: the effects are predicted to be positive by ethnic resources theory, but insignificant or negative by intra-ethnic competition and Bates's theory.

• **The effects of education on self-employment outcomes**: the effects are predicted to be positive by class resources theory.

• **The effects of REC and education on self-employment outcomes at the establishment and operation of business**: Yoon argues that the effects of REC are more positive on self-employment propensity, but those of education are more positive on self-employment income; Bates argues that the effects of REC are not positive on self-employment outcomes, but those of education are positive on self-employment outcomes; and Yoo argues that the effects of REC are positive on self-employment income but not self-employment propensity, and those of education are positive on both self-employment income and propensity.

• **The interaction effects of REC with disadvantage**: the effects are predicted to be more positive as disadvantage increases by reactive ethnicity theory.

• **Differences in the effects of REC between white and minority immigrant groups**: the effects are predicted to be positive in both white as well as minority

immigrant group by ethnic resources theory.

In the following research methods chapter, the proposed hypotheses will be tested by using ordinary least squares and hierarchical linear regression for cross-classified random effects models, and the 2006 Census data.

CHAPTER THREE: RESEARCH METHODS

Introduction

In this chapter, data, variables and statistical methods used to test the hypotheses developed in the previous chapter are first discussed. Next, I discuss the contributions that my research makes to the existing literature.

Data

The 2006 Canadian Census was conducted in May 2006, and covers the entire population of Canada—13.5 million dwellings and 31 million people—including Canadian citizens, landed immigrants, and non-permanent residents. For the data analysis, the Confidential Microdata File of the 2006 Census, which contains 20% of the entire population, is used. In the 2006 Census, respondents were asked to provide information for all members of the household that reflected the state of the household as of May 16, 2006. The topics of the Census include demographic information such as age, sex, marital status, and place of residence; ethnicity-and-immigration-related

information such as ethnic origin, visible minority status, language, immigration status and citizenship; labor-market-related information such as income and earnings, and labor market involvement. Also, its large sample size allows a more accurate estimation of the measures of residential and entrepreneurial concentration. The definitions of immigrants, census metropolitan areas, and ethnicity are especially important to my research. Immigration status is decided by the question "Is this person now, or has this person ever been, a landed immigrant?" A "landed immigrant" (permanent resident) is defined as a person who has been granted the right to live in Canada permanently by immigration authorities. The respondent is given a yes or no choice. A census metropolitan area (CMA) consists of one or more neighboring municipalities around a major urban core. It must have a total population of at least 100,000, of which 50,000 or more live in the urban core. There are 33 CMA's in Canada: 4 in British Columbia, 15 in Ontario, 2 in Alberta, 5 in Quebec, 2 in New Brunswick, 1 in Nova Scotia, 2 in Saskachewan, 1 in Newfoundland and Labrador, and 1 in Manitoba. Ethnic origin is assessed by the question "what were the ethnic or cultural origins of this person's ancestors?" An ancestor is defined as someone from whom a person is descended and is usually more distant than a grandparent. The 2006 Census reports more than 200 different ethnic origins.

Two data sets are created from the 2006 Census for analysis. For analysis of self-employment propensity, the first data set includes immigrant men and women in CMA's above 15 years of age who are employed- either wage earners or the self-employed.[5] Since respondents were allowed to choose up to four ethnic origins, only single origin respondents are included. For analysis of self-employment income, the second data set includes immigrant men and women above 15 years of age in CMA's with non-zero self-employment income, including negative as well as positive self-employment income. In both analyses, the unemployed are excluded, and 16 white immigrant groups—Italians, Germans, English, Scottish, Irish, Greek, Russians, Dutch, Polish, Americans, Hungarians, Ukrainians, Jewish, Portuguese, Spanish, and French[6]—and 10 visible minority immigrant groups—Koreans, Blacks, Filipinos, South Asians, Southeast Asians, Latin Americans, Arabs, West Asians, Japanese, and Chinese[7]—are included. The data sets contain individual variables and metropolitan-level variables. The individual variables include age, sex, highest education, official language proficiency, ethnic origin, marital status, place of residence, and self-employment

[5] The self-employed include those who employ others as well as those who simply work independently for themselves.

[6] The ethnic origin variable in the 2006 Census is used to classify the ethnic origin of white immigrants.

[7] The visible minority population variable in the 2006 Census is used to classify visible minority immigrants exhaustively. For the visible minority question, respondents were asked to choose one or more of the categories that, they think, best describe their identity. The ten categories given above are the choices given for visible minorities. If respondents thought that they did not belong to any of them, they could either choose 'white' or 'other'. They needed to specify what group they think they belong to, if they choose 'other'.

income. Years since immigration and self-employment status are constructed from the Census data. The metropolitan-level variables, which are constructed from the Census, include the self-employment rates and average self-employment income of the CMA's.

The 2006 Census does not provide direct measures of facilitating and limiting activities associated with immigrant entrepreneurial and residential concentration, such as training opportunity, expertise in trades, immigrant business associations, intra-ethnic competition, ethnic markets, informal sources of capital, and reliable and cheap co-ethnic labor. Therefore, the use of Census data poses the following limitations on the research. The current research cannot test the positive and negative effect of immigrant entrepreneurial concentration separately, nor can it address how the facilitating and limiting activities affect self-employment propensity and income. The current research will only be able to examine the ultimate effect of immigrant entrepreneurial concentration on self-employment propensity and income of individual immigrants. Also, the relationship between the facilitating and limiting activities from entrepreneurial concentration, and self-employment propensity and income will be only indirectly measured by looking into the relationship between immigrant entrepreneurial concentration, and self-employment propensity and income because the level of immigrant residential concentration reflects the level of the facilitating and limiting

activities. Likewise, the effect of the facilitating functions associated with immigrant residential concentration will be examined indirectly by the level of immigrant residential concentration.

Measures

Independent variables

Entrepreneurial concentration is measured with co-ethnic self-employment. The effect of co-ethnic self-employment can be either limited to the CMA where the respondent resides, or it can go beyond the particular CMA of the respondent.[8] Therefore, entrepreneurial concentration is measured by two variables: CMA ethnic self-employment, and ethnic self-employment.

CMA ethnic self-employment refers to the self-employment rate of the immigrant group in the CMA, measured by the ratio of the number of the self-employed of the immigrant group in the CMA to the number of the working population of the immigrant group in the CMA – that is, the proportion of the members of the immigrant group who

[8] For example, business information can travel beyond the CMA through immigrant business associations, and ethnic newspapers.

are self-employed[9]. The CMA ethnic self-employment variable is also centered at the value of ethnic self-employment. Ethnic self-employment refers to the self-employment rate of the immigrant group as a whole, measured by the proportion of the number of the self-employed of the ethnic group in 'all' CMA's to the number of working population of the immigrant group in 'all' CMA's.

Population concentration is measured in two aspects: co-ethnic population and linguistic isolation. The effect of population concentration within and beyond the CMA is also considered. Therefore, like entrepreneurial concentration, population concentration is measured by four variables: CMA co-ethnic population, co-ethnic population, CMA linguistic isolation, and linguistic isolation.

CMA co-ethnic population refers to the proportion of the number of the co-ethnic population of the ethnic group in the CMA to the number of the total population in the

[9] A high self-employment rate in a CMA does not necessarily mean individuals in the CMA have high probabilities of self-employment net of other characteristics. Suppose we have two cities—Toronto and Edmonton--, and the self-employment rates of the cities are 20% and 10%, respectively. Also, suppose that only university graduates are self-employed in these cities, for the simplicity's sake. The high self-employment rate in Toronto (20%) might be due to the high proportion of university graduates (66.7%) of its population, not due to the high level of proclivity toward self-employment among individual university graduates, who actually have "relatively low" probability of self-employment (30%). Still, the self-employment rate of Toronto is 20% (0.3*0.667=0.2), which is higher than that of Edmondon. On the other hand, the low self-employment rate in Edmonton (10%) might be due to the low proportion of university graduates in the CMA (16.7%). However, the proportion of university graduates in self-employment might be very high (60%). Hence, the self-employment rate of Edmonton results (0.6*0.167=0.1), but individual university graduates' propensity to self-employment is actually higher than that of Toronto.
Therefore, the individual university graduates in Toronto would be less likely to be self-employed (30%) than their counterparts in Edmonton (60%) despite Toronto's high self-employment rate. In this case, the relationship between the self-employment rate of the CMA's and individuals' self-employment probability would be negative net of other factors.

CMA, and measures the strength of population concentration in the CMA. The CMA co-ethnic population variable gets centered at the value of co-ethnic population. Also, co-ethnic population refers to the proportion of the number of the co-ethnic population of the ethnic group in 'all' CMA's to the number of the total population in 'all' CMA's, and measures the strength of population concentration of the immigrant group as a whole. On the other hand, CMA linguistic isolation refers to the ratio of the number of the immigrant group in the CMA who cannot speak the official languages to the number of the total population of the immigrant group in the CMA (i.e., the proportion of members of the group who cannot speak an official language), and measures the level of linguistically isolated population—hence the level of linguistic disadvantage—of the immigrant group in the CMA. The CMA linguistic isolation is centered at the value of linguistic isolation. Lastly, linguistic isolation refers to levels of linguistic disadvantage that immigrant groups experience as a whole, and is measured by the proportion of the number of the immigrant group in 'all' CMA's who cannot speak the official languages to the number of the total population of the immigrant group in 'all' CMA's. It measures the level of linguistically isolated population of the immigrant group as a whole.

An alternative to using CMAs as higher-level units for assessing residential and entrepreneurial concentration would be to use census tracts, which correspond more

closely to the traditional concept of immediate residential "neighbourhoods." Especially for larger cities, CMAs are very large. However, the census tract approach also has its shortcomings. First, place of work and place of residence often do not correspond for immigrant entrepreneurs (Waldinger 1993). Immigrants may go to work where a substantial number of co-ethnic firms are concentrated—for example, in an ethnic enclave---but live in areas where few of their co-ethnics reside. In this case, REC for place of residence is very low, but people work where ethnic resources coming from the REC of their co-ethnics are abundant. Second, using census tracts as higher-level units limits the scope of analysis to immediate residential neighborhoods, but economic advantages based on common ethnicity reach beyond immediate neighborhoods, and the businesses of many immigrant groups are dispersed across CMAs (Light and Gold 2000). Only a small number of immigrant groups form geographically tightly concentrated business clusters in ethnic enclaves (Light and Gold 2000). Finally, of course, it is possible to use *both* census tracts and CMAs in a three-level analysis, and to compare the effects of these higher-level units. That is a viable subject for further research.

Education refers to the highest education obtained by the respondent: "Below Bachelor", "Bachelor", and "Above Bachelor".

Control variables

• Individual-Level Variables

Age is calculated from date of birth, and sex is self-identified as either male or female[10]. Official language fluency is measured by the question "can this person speak English or French well enough to conduct a conversation?" The answers are "English only," "French only," "Both English and French," and "Neither English nor French." Years since immigration are calculated from the year the respondent first became a landed immigrant. Marriage refers to the marital status of the respondent: "not married" –never legally married (single)/ separated, but still legally married/ divorced/ widowed—and "married"—legally married (and not separated). Hours of work refers to the actual number of hours that persons worked for pay or in self-employment at all jobs in the week prior to Census Day (May 16, 2006)[11]. Industry is a categorical variable that refers to "the general nature of the business establishment where the person worked." It is based on the North American Industry Classification System, and includes 19 industries: Agriculture, Mining, Utilities, Construction, Manufacturing, Wholesale

[10] Women's self-employment is limited to female-typed fields, and those with the lowest sales (Loscocco et al. 1991; Loscocco and Robinson 1991).

[11] The 2006 Census does not provide data on hours spent only in self-employment.

Trade, Retail Trade, Transportation and Warehousing, Information and Cultural Industries, Finance and Insurance, Real Estate, Professional Services, Management of Companies, Administrative Support, Educational Services, Health Care, Arts and Entertainment, Accommodation and Food Services, Other Services, and Public Administration.

• Metropolitan-Level Variables

CMA self-employment income refers to the average self-employment incomes of the entire self-employed population of each CMA. Also, CMA self-employment rate indicates the self-employment rates of each CMA.

Dependent variables

There are two dependent variables in this analysis to measure the performance of immigrant business at two different stages: self-employment propensity as a measure of business start-up and self-employment income as a measure of business performance at the operation stage. Self-employment propensity is employed to investigate whether entrepreneurial and residential concentration influences the start-up of immigrant enterprises, and self-employment income is employed to investigate whether the

concentration influences the profitability of operating immigrant enterprises.

I define self-employed workers as immigrant men and women above 15 years of age with non-zero self-employment income, including negative as well as positive self-employment income[12]. Working immigrant men and women with zero self-employment income are considered wage earners[13]. The other dependent variable, self-employment income, refers to net non-farm income from unincorporated business, professional practice, etc., and total wages and salaries when the business is incorporated. In order to minimize the influence of the extreme values of self-employment income, the top and bottom three percent of self-employment income was removed[14].

Statistical Methods

To examine the effects of CMA residential and entrepreneurial concentration on self-employment income and propensity, ordinary least squares and logistic regression models were fitted to each of the 26 minority and white immigrant groups. For each

[12] It will be further discussed in Chapter Four: Results of Preliminary and Descriptive Analyses.

[13] Therefore, those "working without pay for his/her spouse or another relative in family farm or business" are considered wage earners.

[14] The top and bottom three percent of self-employment income is removed for the concern that their extreme skewness might influence results of the regression analysis. However, the results differ little with or without them.

model, ANOVA and general linear hypotheses tests were also conducted to test the overall significance of education, and the effects of different levels of education on self-employment income and propensity. In addition, in order to test reactive ethnicity theory, cross-classified and generalized cross-classified hierarchical linear models were used, allowing variation of coefficients both for ethnicity and the CMA.

Ordinary least squares and logistic regression models

In order to analyze the effects of CMA REC and education on self-employment income and propensity, OLS and logistic regression models were employed. Each model includes individual characteristic, CMA REC and CMA control variables. For the analysis of the data, the statistical package R was used.

Self-employment income

Since the dependent variable, self-employment income, is a continuous variable, ordinary least squares regressions were used for the analysis of the effects of CMA residential and entrepreneurial concentration on the self-employment income of each immigrant group. In order to normalize the positively-skewed distribution of the self-

employment income variable, a positive number large enough to make all self-employment income positive was first added to the self-employment income variable, and the logarithm of the transformed self-employment variable to the base 10 was used for the dependent variable. The logged self-employment income was modeled as a function of CMA residential and entrepreneurial concentration, and education, adjusted for individual characteristics and CMA control variables. Therefore, the value of ten raised to the exponent of the coefficient ($10^{\text{coefficient}}$) will be interpreted as relative change in self-employment income associated with a one-unit change in the independent variable.

The specification of the self-employment income model is:

$$\log_{10}(\text{Self-Employment Income}_i + \text{Positive Number}) = \beta_0 + \beta_1 \text{age}_i + \beta_3 \text{age}_i^2 + \beta_4 \text{language}_i + \beta_5 \text{y.immigration}_i + \beta_6 \text{y.immigration}_i^2 + \beta_7 \text{marriage}_i + \beta_8 \text{sex}_i + \beta_9 \text{h.work}_i + \beta_{10-27} \text{industry}_i + \beta_{28} \text{education}_i + \beta_{29-31} \text{CMA.REC}_i + \beta_{32} \text{CMA.selfemployment.income}_i + e_i$$

Also, ANOVA tests were conducted on the education variable of the OLS regression model of each immigrant group to test the overall significance of education on self-employment income. In addition, general linear hypotheses tests were conducted to examine whether increases in education from a below bachelor to bachelor degree, from

a bachelor to above bachelor degree, and a below bachelor to above bachelor degree are associated with increases in self-employment income.

Self-employment propensity

Since the dependent variable, self-employment propensity, is a binary variable with one being self-employed, and zero employed, logistic regressions were used for the analysis of the effects of CMA residential and entrepreneurial concentration on the self-employment propensity of each immigrant group. Therefore, the exponentiated value of the coefficient ($e^{coefficient}$) will be interpreted as relative change in the odds of self-employment associated with a one-unit change in the independent variable.

The specification of the self-employment propensity model is:

$$\ln \frac{self-employment_i}{1-self-employment_i} = \beta_0 + \beta_1 \text{age}_i + \beta_3 \text{age}_i^{\,2} + \beta_4 \text{language}_i + \beta_5 \text{y.immigration}_i$$
$$+ \beta_6 \text{y.immigration}_i^{\,2} + \beta_7 \text{marriage}_i + \beta_8 \text{sex}_i + \beta_9 \text{h.work}_i + \beta_{10-27} \text{industry}_i + \beta_{28} \text{education}_i$$
$$+ \beta_{29-31} \text{CMA.REC}_i + \beta_{32} \text{CMA.selfemployment.income}_i + \beta_{33} \text{CMA.selfemployment.rate}_i + e_i$$

As in the analysis of self-employment income, ANOVA and general linear hypotheses tests were conducted on the education variable of the logistic regression model of each immigrant group to test the overall significance of education, and the

effects of different levels of education on self-employment propensity.

Cross-classified hierarchical models

The data are hierarchically structured with two levels—level-1 (individual) and two level-2 units (CMA's and ethnic groups). An individual in my data is cross-classified by CMA's and ethnicity. That is, the two higher-level units are not hierarchically nested, but overlap each other, allowing, for example, individuals in a particular CMA to belong to different ethnic groups. I used cross-classified random-effects model for the analysis of the categorical dependent variable—self-employment propensity—and the continuous variable—self-employment income.

The lme4 package of the statistical package R was used for the analysis of the cross-classified data.

Self-employment income

Individuals in the same ethnic group or CMA share certain characteristics, and therefore their characteristics are not independent. A hierarchical linear model accounts for the intraclass correlation of the individuals in the same higher unit by disaggregating

residual variation into multiple sources associated with the corresponding levels. Also, the model allows regression coefficients to vary with higher-level units. This flexibility enables the model to account for the varying capabilities of ethnic groups in mobilizing resources. The cross-classified random-effects model is similar to the hierarchical linear model in that it can account for intraclass correlation and allow the intercept and coefficients to vary. The higher-level units, however, are not hierarchically nested, and the coefficients are allowed to vary with more than one higher-level unit. For example, the intercepts of the level-2 model are allowed to vary with the ethnic groups, as well as the CMA's in my model.

The specification of the full model is:

• Level-1 model

$$\log_{10}(\text{Self-Employment Income}_{ijk} + \text{Positive Number}) = \pi_{0jk} + \pi_{1jk}\text{Age}_{ijk} + \pi_{2jk}\text{Age}_{ijk}^{\ 2} + \pi_{3jk}\text{Sex}_{ijk} + \pi_{4jk}\text{Education}_{ijk} + \pi_{5jk}\text{Immigration}_{ijk} + \pi_{6jk}\text{Marriage}_{ijk} + e_{ijk}$$

$$e_{ijk} \sim N(0, \sigma^2)$$

• Level-2 model

$$\pi_{0jk} = \theta_0 + \beta_1 \text{Coethnic.Pop}_{jk} + \beta_2 \text{Linguistic.Iso}_{jk} + \beta_3 \text{Self-employment.Income}_{jk}$$
$$+ \beta_4 \text{A.Coethnic.Pop}_{jk} + \beta_5 \text{A.Self-employment.Rate}_{jk}$$
$$+ \beta_6 \text{Coethnic.Pop}_{jk} \times \text{A.Linguistic.Iso}_{j} + \beta_7 \text{Linguistic.Iso}_{jk} \times \text{A.Linguistic.Iso}_{j} + \beta_8 \text{Self-employment.Rate}_{jk} \times \text{A.Linguistic.Iso}_{j}$$
$$+ \beta_9 \text{A.Coethnic.Pop}_{j} \times \text{A.Linguistic.Iso}_{j} + \beta_{10} \text{A.Self-employment.Income}_{j} \times \text{A.Linguistic.Iso}_{j} + b_{0j} + c_{0k}$$

All other level-1 coefficients are fixed: $\pi_{pjk} = \theta_p \ for \ p > 0$

$b_{0k} \sim N(0, \tau_{b0})$, $c_{0j} \sim N(0, \tau_{c0})$

An individual is viewed as nested in an ethnic group as well as a CMA. Y_{ijk} indicates the self-employment income of an individual i who resides in CMA j, and who is a member of ethnic group k. In the level-1 model, the logged self-employment income Y_{ijk} of individual i, CMA j and ethnic group k is modeled as a function of: (1) a random intercept that varies with the level-2 variables, and (2) individual characteristics—the centered age, sex, education, language, years since immigration, time worked, and marriage status and industry of individual i of ethnic group k in CMA j. The random individual effect e_{ijk} is the deviation of individual ijk from the mean of ethnic group k, and CMA j, and σ^2 is its variation. In the level-2 model, the intercept is modeled as (1) the fixed intercept θ_0, (2) independent variables: CMA co-ethnic population, average co-ethnic population, CMA linguistic isolation, and average linguistic isolation, CMA ethnic self-employment, average ethnic self-employment of

ethnic group k in CMA j and (3) residual random effects of ethnic groups and CMAs (b_{0k}, and c_{0j}), which vary with the ethnic group and CMA, respectively. Also, τ_{b0}, τ_{c0}, are the variances of the random coefficients—b_{0k}, and c_{c0}, respectively.

Self-employment propensity

A generalized cross-classified random-effects model is employed for analysis of self-employment propensity. The specification of the full model is:

• Level-1 model

$$\log(\frac{P_{ijk}}{1-P_{ijk}}) = \pi_{0jk} + \pi_1 \text{Age}_{ijk} + \pi_2 \text{Age}_{ijk}^{\ 2} + \pi_3 \text{Sex}_{ijk} + \pi_4 \text{Education}_{ijk} + \pi_5 \text{Time}_{ijk} + \pi_6 \text{Immigration}_{ijk}$$
$$+\pi_7 \text{Marriage}_{ijk} + \pi_8 \text{Industry}_{ijk} + e_{ijk}$$
$$e_{ijk} \sim \text{N}(0, \sigma^2)$$

In the level-1 model, P_{ijk} indicates the probability of self-employment of an individual i who resides in CMA j, and who is a member of ethnic group k. Like self-employment income, the logit of the probability of individual i of ethnic group k in CMA j is modeled as a function of the random intercept π_{0jk}, individual characteristics (Age, Age^2, Sex, Education, Years since Immigration, and Marriage), and residual errors which represent the deviation of individual_{ijk} from the predicted outcome based

on the intercept and the individual characteristics. The level-2 model is the same as that of self-employment propensity.

Contributions to existing research

Previous research on ethnic resources of immigrant entrepreneurship has been mostly qualitative, or has focused on only one or a few immigrant communities in one or a few locations at a time, especially communities with a high self-employment rate. Although business concentration has been considered an important business resource that an ethnic group provides, all the research on the effect of business concentration has so far been ethnographic, and no quantitative research on this topic has been conducted. Therefore, the generalizability of the results has been limited. This lack of comparative and multi-ethnic perspective in immigrant entrepreneurship research has led to substantial limitations in the scope of the validity of research findings. As Bates (1994) argues, in case studies with one ethnic group in one location, it is extremely difficult to distinguish the peculiarities and generality of the findings and to "sort out and establish cause-and-effect relationships." Consequently, the findings are difficult to generalize to other ethnic groups.

The current study overcomes the limitations of the research designs of previous studies by first looking into a wide ethnic variation of 26 immigrant groups in Canada in terms of disadvantage, background, and self-employment propensity and income, and second, a geographic variation of the 33 Canadian CMA's in terms of self-employment rate and income. Therefore, the current research will provide an answer to the long-standing question about the relationship between immigrant entrepreneurial and population concentration, and self-employment propensity and income by providing an empirical test of the generalizability of the existing theories developed from case studies of highly self-employed groups[15].

Partly due to these methodological limitations, the findings about the ultimate effect of entrepreneurial concentration on immigrant business establishment and income have been inconsistent in the literature on immigrant entrepreneurship. Most studies point to the positive effects of immigrants' entrepreneurial concentration on business establishment and income (See, for example, Light 1972; Boissenvain et al. 1990; Bonacich and Modell 1980; and Min 1996). Others, however, indicate that business concentration of co-ethnics would bring about negative effects to immigrant enterprises by intensifying intra-ethnic competition, and consequently lowering their profits and

[15] Evans (1989), Le (2000), Bates (1994, 1997), and Tubergen (2005), who looked quantitatively into the relationship between immigrant population concentration and immigrants' self-employment propensity, are exceptions.

chances of survival (Kim and Hurh 1985; Waldinger, Aldrich and Robin 1990; Kim 1981). The question that needs to be resolved regarding this controversy is: If there are both the positive and negative effects of immigrants' entrepreneurial concentration, which ones are stronger and dominant, and therefore is immigrants' entrepreneurial concentration ultimately beneficial or detrimental to immigrant businesses? So far, there have been relatively few studies on this issue that attempt to solve this controversy. The current research attempts to provide an empirical answer to this "double-edged" effect of business concentration by statistically examining the effect of immigrants' entrepreneurial concentration on self-employment.

According to the theory of reactive ethnicity, the strength of the positive effect of ethnic resources varies with the degree of discrimination and disadvantage that the immigrant group faces. Proponents of reactive ethnicity see immigrants' experience of discrimination and disadvantage in the host society as the source of enhanced ethnic awareness of immigrants. Enhanced ethnicity promotes ethnic solidarity and enforced trust among its members, which eventually produce various business resources such as loyal customers, business-friendly ideology, and social networks that can be used for business purposes (Light and Rosenstein 1995). However, this theory of reactive ethnicity has been suggested only in ethnographic studies, and the relationship between

immigrant groups' disadvantaged position and its benefits to immigrant business has never been examined quantitatively. The current research cannot directly test the causal chain from the disadvantaged position of immigrants to ethnic solidarity and enforceable trust, and to business resources, because of the lack of such measures, but it can test the effect of reactive ethnicity on immigrant business propensity and self-employment income by looking into differences in the magnitude of the effect of self-employment and residential concentration on business propensity and self-employment income according to minority status and language barriers.

Ethnic resources have been viewed as beneficial for immigrant businesses in a majority of research on immigrant entrepreneurship. However, little attention has been paid to the possibility that ethnic resources may play different roles, and contribute to varying degrees, in different stages of immigrant business development (see, for example, Light 1972; Light & Bonacich, 1988; Tsukashima 1991; Waldinger 1989; Rajiman and Tienda 2000; Li 2001). Three studies in the 1990's (Yoon 1991; Yoo 1998; Bates 1994) attempted a broader and more sophisticated explanation of the roles of ethnic resources in different stages of business development, especially in business establishment, profitability and survival. However, their findings are inconsistent partly due to limitations in methodology and measurement. Yoon (1991) argues that ethnic

resources are important in the initial stage when a business is newly formed, but not later when it expands. In contrast, Yoo (1998) finds that ethnic resources, especially unpaid family labor, are an important business resource in the operational stage, but do not contribute significantly in the initial set-up stage. Furthermore, Bates (1994) goes so far as to state that ethnic resources are not effective business resources, and high dependence on ethnic resources characterizes firms with low profitability and high failure rates. The current research attempts to provide a new assessment of this controversy by examining the relationship between community-level ethnic resources, and business establishment and income.

An assessment of these community-level ethnic resources has become more important recently as skepticism about the efficacy of the community-based resources has arisen. Sanders and Nee (1996) raise such skepticism by pointing to the possibility that the once strong base of ethnic solidarity and enforceable trust among old immigrants is being eroded among recent immigrants. They argue this for two reasons. First, ethnic solidarity and trust can no longer be enforced because the institutional environment has shifted to allow individuals freedom and rights to pursue opportunities outside the ethnic community, consequently decreasing ethnic members' dependence on resources controlled by ethnic institutions. Second, heterogeneity created by recent

immigrants with more diverse class and regional backgrounds challenges the capacity of ethnic institutions to "maintain solidarity and enforce trust." Consequently, Sanders and Nee (1996) suggest that further studies of immigrant entrepreneurship should pay more attention to family and individual characteristics rather than community-based resources. So far, two Australian (Evans 1989; Le 2000) and one British (Aldrich et al. 1985) study have attempted to test the effect of immigrant residential concentration quantitatively. Although these studies all found a significantly positive effect of ethnic population concentration, there is still a need for testing the lasting positive effect of immigrant population concentration on immigrant business in contemporary Canada. So far no quantitative study on this issue has been conducted in North America, and the existing Australian and British quantitative studies are outdated, covering cases from 1978 only up to 1991. Therefore, the current research will provide the most recent quantitative assessment of this issue regarding immigrant groups in Canada.

Conclusion

In this chapter, data, measures and statistical methods are specified for the test of the hypotheses developed in the previous chapter. For analysis, the 2006 Canadian Census

is used. Working and self-employed individuals with single ethnic origin belonging to one of the 10 minority and 16 white immigrant groups who are above 15 years of age and reside in the 33 CMA's are included in the data sets for the analysis of self-employment propensity and income, respectively. Next, I introduce measures for the analysis. Independent variables include entrepreneurial and population concentration, and education variables. Control variables include individual variables such as age, sex, language, years since immigration, marriage, hours of work and industry, and metropolitan-level variables such as CMA self-employment income and rate. Dependent variables are self-employment income and propensity. In conducting statistical analyses, ordinary least squares and logistic regression models are used for individual immigrant groups. Also, cross-classified and generalized cross-classified hierarchical linear models are used for tests of reactive ethnicity theory because individuals belong in an ethnic group and a CMA, which are not hierarchically nested.

Next, I discussed contributions of my study to the existing literature. This study overcomes the limitations of the previous research on the effects of REC and education on self-employment outcomes by providing statistically more rigorous analyses, based on a broad range of immigrant groups in diverse locations. Therefore, this study provides stronger evidence as to the effects of REC and education than previous studies

did, and more successfully overcomes the limited validity in previous studies on the effects of REC and reactive ethnicity theory. This study also contributes to a resolution of the inconsistency in the findings regarding the effectiveness of REC through the developmental stages of immigrant business. Finally, the findings of this study give valuable evidence addressing the argument of the declining efficacy of ethnic resources on self-employment outcomes.

CHAPTER FOUR: RESULTS OF DESCRIPTIVE ANALYSES

Introduction

Before conducting regression analyses of the data, descriptive analyses of dependent and independent variables are conducted. The means and standard deviations of each variable are presented, and for dependent variables, the issue of self-defined and income-defined self-employment rate and income, and the distribution of self-employment income are also discussed. In order to give a more comprehensive picture of self-employment rate and income of a broad range of ethnic groups in Canada, analyses of dependent variables are conducted by using the 2006 Public Use Microdata File (PUMF), while analyses of independent variables are conducted by using the Confidential Microdata File of the 2006 Census.

DEPENDENT VARIABLES

The Canadian Census defines self-employment by using a self-identified measure of class of workers. For the question of class of workers, respondents are asked to specify

the type of their work. Those who self-identify themselves as self-employed are considered to be self-employed workers, and those who self-identify themselves as wage earners are considered to be wage workers. However, another definition of self-employment used in studies with Census data is income-defined self-employment. In this definition, self-employment is defined as those who have non-zero self-employment income, in order to reflect diverse forms of self-employment (Light and Rosenstein 1995). I will first examine how these two different measures of self-employment can affect descriptive statistics of self-employment rate and income.

Results in Table 1.1 suggest that self-employment and wage labour are individuals' working status of a matter of degree rather than the clear-cut, non-overlapping status of working. Among the self-identified self-employed, 43.5% have only self-employment income, indicating that they are involved only in self-employment. This segment of the self-employed can be called 'the core self-employment.' However, 14.4% of the self-identified self-employed have both self-employment income and wage. They may be involved in both self-employment and wage labour at the same time. Moreover, a substantial proportion (42.1%=30.1%+12.0%) of the self-identified self-employed have no self-employment income at all. They may be so eager to be self-employed that they identify themselves as self-employed, or currently working on establishing their self-

Table 1.1. Self-Employment Income and Wage for the Self-Identified Self-Employed and Wage Earners

	Self-Identified Self-Employed (N=2,048,500)		Self-Identified Wage Earners (N=16,201,032)		
Average Self-Employment Income	$30,995		$11,733		
Wage / Self-Employment Income	Wage	No Wage	Wage	No Wage	Income-Identified Self-Employed
Self-Employment Income	288,003 (14.4%) ($28,784)	894,492 (43.5%) ($31,707)	886,057 (5.5%) ($5,978)	338,796 (2.1%) ($26,784)	2,407,348
No Self-Employment Income	618,882 (30.1%)	247,123 (12.0%)	14,137,882 (87.2%)	838,297 (5.2%)	15,842,184

Note: The parenthesized dollars are the average self-employment incomes for the corresponding categories.

employment, but with no self-employment income yet. Also, among self-defined wage earners, some individuals (7.6%=5.5%+2.1%) have self-employment income. If their report of self-employment income is correct, they may be involved in self-employment, probably part-time or during after-hours. Overall, income-defined self-employment includes broader segments of self-employment including moonlighting, and part-time self-employment. However, it excludes the unemployed pursuing self-employment, and wage earners with no self-employment income. In contrast, self-identified self-employment includes part of moonlighting and part-time self-employment, and the would-be self-employed with no substantive self-employment income. However, it excludes part of moonlighting and part-time self-employment.

The two measure of self-employment captures different segments of self-employed people. Consequently, the self-employment statistics based on the two different definitions of self-employment are different from each other. Table 1.2 and 1.3 show the self-employment rates based on these two measures. Both tables show substantial variation in self-employment rate among ethnic groups. However, the ranks of self-employment rates are, in general, similar in both measures. In both measures, some ethnic groups are consistently in the top ten self-employed groups: Koreans, the Jewish, Danish, other Western Europeans, Hungarians, and Russians all have above 15% of self-

Table 1.2. The Ranking of Self-Employment Rates of Ethnic Groups Based on *Self-Identification*

Ethnic Groups	Self-Employment Rate (%)	Ethnic Groups	Self-Employment Rate (%)
1. Korean	28.64	24. Welsh	12.03
2. Jewish	24.91	25. Asian Other Origin	11.96
3. Danish	17.29	26. East Indian	11.43
4. West Asian	17.25	27. Vietnamese	11.37
5. Other Western European	16.84	28. Irish	11.31
6. Greek	16.49	29. Other South Asian	11.19
7. Hungarian	15.79	30. French	11.12
8. Russian	15.3	31. **National Average**	**10.87**
9. Lebanese	15.2	32. Spanish	10.63
10. Norwegian	15.17	33. Other East South Asian	10.38
11. Dutch	14.9	34. Romanian	9.22
12. German	14.89	35. Regional	9.12
13. Other Eastern European	14.4	36. Canadian	9.02
14. Polish	13.92	37. Portuguese	8.64
15. Other British	13.79	38. Finnish	8.52
16. Swedish	13.73	39. Latin	7.07
17. Italian	13.15	40. African	6.9
18. Other Arab Origin	12.68	41. Other Caribbean	5.9
19. Ukrainian	12.5	42. Other Northern European	5.77
20. Chinese	12.47	43. Jamaican	5.75
21. Other Southern European Origin	12.35	44. Aboriginal	5.28
22. Scottish	12.14	45. Filipino	3.43
23. English	12.05		

SOURCE: Statistics Canada, 2.7% Public Use Micro File (PUMF) of the 2006 Canadian Census
NOTE : Self-employment rates reported are for those who reported single ethnicity only (=number of the self-employed/ number of the working).

Table 1.3. The Ranking of Self-Employment Rates of Ethnic Groups Based on *Self-Employment Income*

Ethnic Groups	Self-Employment Rate (%)	Ethnic Groups	Self-Employment Rate (%)
1. Jewish	28.96	24. Other Arab	14.73
2. Korean	26.62	25. East Indian	14.65
3. Norwegian	23.22	26. Scottish	14.5
4. Other Western European	22.95	27. Spanish	13.85
5. Russian	20.53	28. Irish	13.8
6. Other Eastern European	19.84	29. **National Average**	**13.22**
7. Swedish	19.12	30. Chinese	12.89
8. Danish	18.42	31. French	12.82
9. Polish	18.42	32. Other South Asian	12.7
10. Hungarian	18.27	33. Italian	12.61
11. German	18.26	34. Other East South Asian	12.44
12. Dutch	18.12	35. Other Northern European	11.54
13. West Asian	18.10	36. Vietnamese	11.48
14. Ukrainian	17.83	37. Latin	10.74
15. Other British	17.07	38. Canadian	10.54
16. Welsh	17.01	39. Regional	10.3
17.English	15.87	40.African	9.89
18. Asian Other	15.87	41. Jamaican	9.74
19. Lebanese	15.82	42. Portuguese	9.07
20. Finnish	15.7	43. Other Caribbean	8.63
21. Other Southern European	15.41	44. Filipino	6.03
22. Romanian	14.98	45. Aboriginal	5.34
23. Greek	14.73		

SOURCE: Statistics Canada, 2.7% Public Use Micro File (PUMF) of the 2006 Canadian Census
NOTE : Self-employment rates reported are for those who reported single ethnicity only =(number of the self-employed/ number of the working).

employment rate, and Koreans and the Jewish have close to 30% of self-employment rate in one of the self-employment measures. In contrast, some ethnic groups are consistently located in the bottom ten self-employed groups in both measures: Portuguese, Latin, Africans, Other Caribbean, Jamaicans, Aboriginals, Filipinos have lower than 10% of self-employment rate in both measures of self-employment. The difference between the top and bottom ten ethnic groups in the self-employment rate is considerable: The self-employment rates of the top ten ethnic groups are six to nine times those of the bottom ten ethnic groups.

Figure 1.1 shows the relationship between self-defined and income-defined self-employment rate. The solid line indicates the line where the self-defined and income-defined self-employment rates are the same. Therefore, the observations (dots) above the y=x line indicate ethnic groups whose income-defined self-employment rates are higher than their self-defined self-employment rates. Only three ethnic groups—Italians, Greeks, and Koreans—have lower income-defined self-employment rates than self-defined ones. Also, Table 1.4 shows the results of the regression analysis of income-defined self-employment rate on self-defined self-employment rate. In general, income-defined self-employment rate is significantly greater than self-defined self-employment rate. The difference is greatest in the smaller values of self-defined self-employment

Figure 1.1.

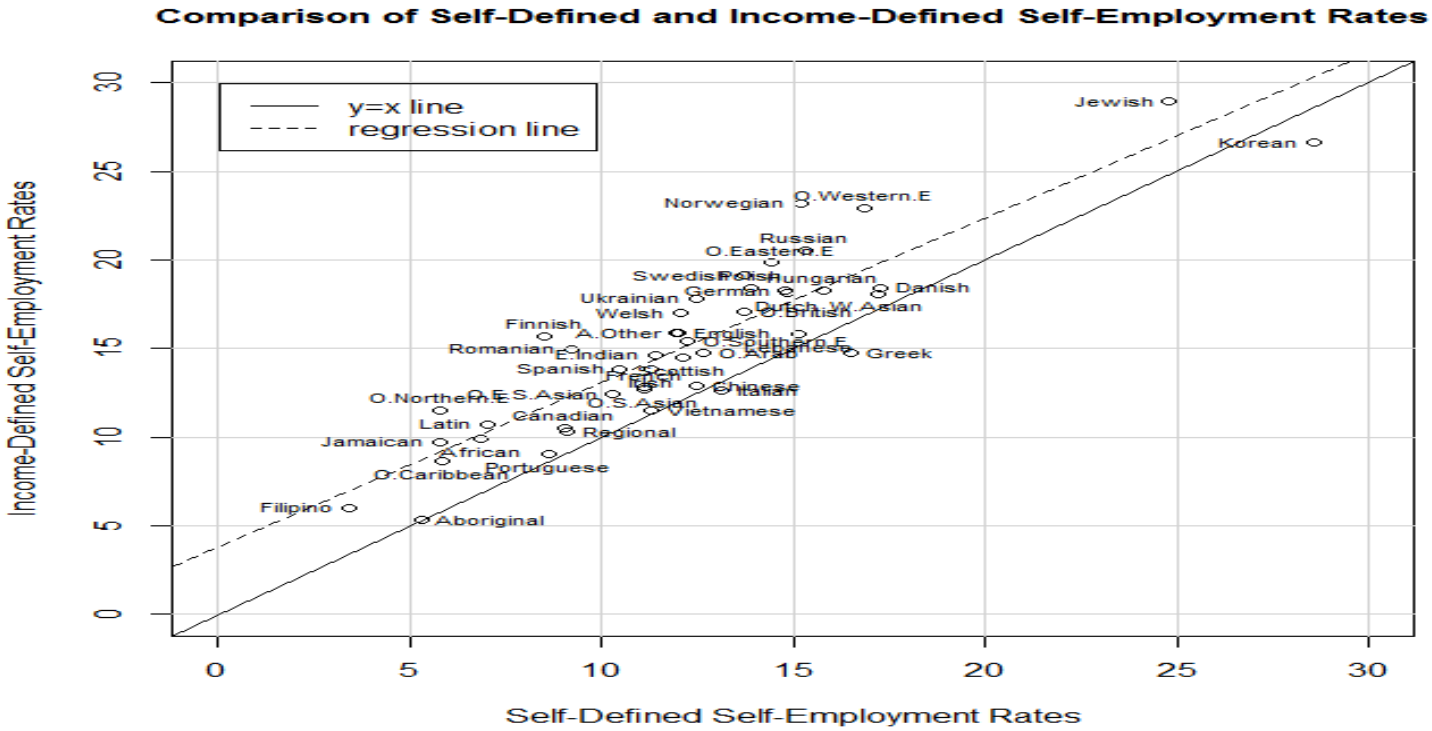


Table 1.4. Regression of Income-Defined Self-Employment Rates on Self-Defined Self-Employment Rates

Variable	Estimate	P-value	
Intercept (β_0)	3.8256 (0.9548)	0.0002***	
Slope (β_1)	0.9247 (0.0725)	0.0000***	R^2=0.7948

rate, and it becomes smaller towards larger values of self-defined and income defined rate. At the national average of self-defined self-employment rate (10.89%), the average income-defined self-employment rate is three percent greater. Although income-defined self-employment rate is, in general, greater than self-defined self-employment rate, the ranks of ethnic groups based on the two measures show high correspondence: About 80% of the variance of income-defined self-employment rate is explained by the linear relationship with self-defined self-employment rate.

The self-employment income of ethnic groups also differs depending on the used measure as we can see in Tables 1.5 and 1.6. Like self-employment rate, there is substantial variation in the self-employment income of ethnic groups. Although the actual self-employment income of ethnic groups differs in each measure, the ranking of self-employment income is similar in both measures. In both measures, some ethnic groups are consistently in the top ten self-employment income groups: The Jewish, Vietnamese, Finish, Russians, Hungarians, Other Western Europeans, Other British, and Other Arabs all have average self-employment incomes of over $20,000, and particularly the self-employment income of the Jewish is over $60,000 in both measures. In contrast, some ethnic groups are consistently in the bottom ten in the ranking of self-

Table 1.5. The Ranking of Average Self-Employment Incomes of Ethnic Groups Based on *Self-Identification*

Ethnic Groups	Self-Employment Income	Ethnic Groups	Self-Employment Income
1. Jewish	$63,460	24. Lebanese	$17,133
2. Vietnamese	$38,087	25. Portuguese	$16,991
3. Finnish	$32,473	26. Chinese	$16,416
4. Russian	$30,610	27. Other Caribbean	$16,312
5. Hungarian	$26,934	28. Greek	$15,062
6. Other Western Europe	$25,165	29. East Indian	$14,377
7. Other British	$24,528	30. German	$14,347
8. Polish	$22,981	31. Filipino	$13,719
9. Other Arab	$22,829	32. Latin	$13,532
10. Other Eastern European	$22,598	33. West Asian	$13,479
11. Norwegian	$21,985	34. Other South Asian	$13,166
12. English	$21,655	35. Romanian	$13,150
13. Irish	$20,947	36. Regional	$12,997
14. French	$20,725	37. Spanish	$12,523
15. Canadian	$20,615	38. Jamaican	$11,898
16. Scottish	$19,675	39. African	$11,893
17. **National Average**	**$18,916**	40. Welsh	$11,483
18. Danish	$18,660	41. All Others	$9,964
19. Other Southern European	$18,407	42. Aboriginal	$9,239
20. Dutch	$17,648	43. Korean	$8,346
21. Other South East Asian	$17,483	44. Swedish	$7,357
22. Italian	$17,456	45. Other Northern European	$500
23. Ukrainian	$17,219		

SOURCE: Statistics Canada, 2.7% Public Use Micro File (PUMF) of the 2006 Canadian Census
NOTE : Self-employment rates reported are for those who reported single ethnicity only (=number of the self-employed/ number of the working).

Table 1.6. The Ranking of Average Self-Employment Incomes of Ethnic Groups Based on *Self-Employment Income*

Ethnic Groups	**Self-Employment Income**	**Ethnic Groups**	**Self-Employment Income**
1. Jewish	$63,474	23. Danish	$20,926
2. Vietnamese	$50,607	24. Other South East Asian	$20,874
3. Finnish	$38,937	25. Norwegian	$19,317
4. Hungarian	$32,680	26. East Indian	$19,068
5. Other British	$29,502	27. West Asian	$19,041
6. Other Western European	$28,990	28. Dutch	$18,588
7. Other Arab	$28,801	29. German	$17,277
8. Russian	$28,682	30. Ukrainian	$16,888
9. Italian	$27,600	31. Regional	$15,983
10. French	$26,717	32. Other South Asian	$15,080
11. Lebanese	$26,507	33. Aboriginal	$14,209
12. Polish	$25,657	34. Other Caribbean	$13,841
13. Irish	$25,283	35. Latin	$13,760
14. Canadian	$24,559	36. Korean	$13,435
15. Scottish	$24,427	37. Romanian	$13,362
16. Welsh	$24,122	38. Spanish	$12,802
17. Greek	$23,545	39. African	$12,709
18. English	$23,533	40. All Others	$11,973
19. Other Southern European	$23,521	41. Filipino	$10,421
20. Chinese	$22,618	42. Jamaican	$9,518
21. **National Average**	**$22,403**	43. Swedish	$8,590
21. Other Eastern European	$22,185	44.Other Northern European	$4,500
22. Portuguese	$21,089		

SOURCE: Statistics Canada, 2.7% Public Use Micro File (PUMF) of the 2006 Canadian Census
NOTE : Self-employment rates reported are for those who reported single ethnicity only (=number of the self-employed/ number of the working).

employment income: Spanish, Jamaicans, Africans, All Others, Koreans[16], Swedish, Other Northern Europeans have lower than $14,000 in self-employment income. The self-employment income difference between the top and bottom ten groups is substantial: The self-employment incomes of the top ten ethnic groups are 1.8 to 126 times those of the bottom ten ethnic groups.

Figure 1.2 shows a comparison between self-defined and income-defined self-employment income. As in self-employment rate, the solid line indicates the line where self-defined and income-defined self-employment incomes are the same. Although most observations in Figure 1.2 are located above the y=x line, indicating their income-defined self-employment income is higher than their self-defined self-employment income, the difference is not statistically significant. Also, Table 1.7 shows the results of the regression analysis of income-defined self-employment income on self-defined self-employment income. The regression line is almost parallel to the y=x line, indicating income-defined self-employment income increases almost proportionally to the increase in self-defined self-employment income. However, income-defined self-employment income is, on average, about $3,132 greater than their self-defined self-employment

[16] Korean immigrants show a unique characteristic in their self-employment rate and income: Korean immigrants have one of the highest self-employment rates, but they also have one of the lowest self-employment incomes on both measures of self-employment rate and income, unlike any other immigrant groups.

Figure 1.2.

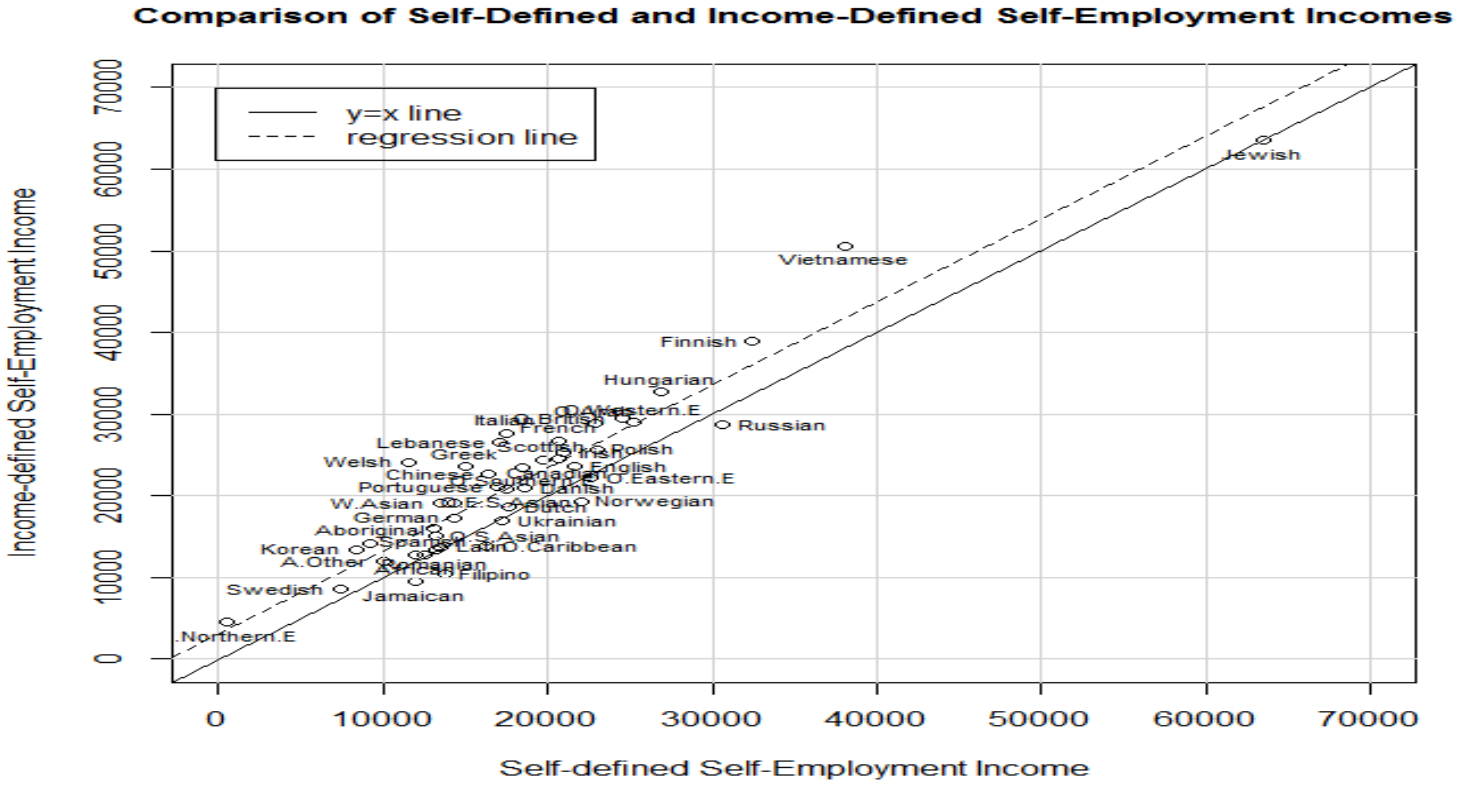


Table 1.7. Regression of Income-Defined Self-Employment Rates on Self-Defined Self-Employment Rates

Variable	Estimate	P-value	
Intercept (β_0)	-369.6600 (1226.1589)	0.7650	
Slope (β_1)	0.8623 (0.0504)	0.0000***	R^2=0.8743

income. For example, the self-defined self-employment income for people with Other South East Asian origin is $17,483 while their income-defined self-employment income is $20,874 ($3,391 greater). The self-defined and income-defined self-employment income shows higher correspondence as well. About 90% of the variation of income-defined self-employment income is explained by the linear relationship with self-defined self-employment income.

As we can see in Table 1.8, and Figure 1.3, there is substantial variation in self-employment income. Although there exist variations among groups with different immigrant and minority status, almost half of the self-employment income is between $1 and $23,000. The mean value of self-employment income is $23,416. The median of self-employment income is substantially smaller ($8,000), suggesting the positive skewness of self-employment income. Since self-employment income is defined as net income from business and professional practice during a specified period of time, self-employment income can be negative, indicating net loss. The minimum value for self-employment income is -$50,000, and the maximum value is $750,554 in the 2006 Census. Of the total population with self-employment income (1,085,754), about 16% (175,650) had negative self-employment income in 2005. Reflecting its positive skewness, the maximum value is $750,554, substantially greater in magnitude than its

Table 1.8. Descriptive Statistics of Self-Employment Income (Income-Defined)

Descriptive Statistics	Minimum Value	First Quartile	Median	Mean	Third Quartile	Maximum Value
Entire Immigrant Population	-$50,000	$1	**$8,000**	$23,416	$21,000	$750,554
Minority Immigrants	-$50,000	$1,000	$8,000	$17,960	$17,000	$720,400
White Immigrants	-$50,000	$1,000	$9,000	$24,690	$23,000	$720,400
Minority Native-borns	-$50,000	$1	$6,000	$26,060	$19,000	$720,400
White Native-borns	-$50,000	$1	$7,000	$22,600	$21,000	$750,600

Figure 1.3.

Figure 1.4.

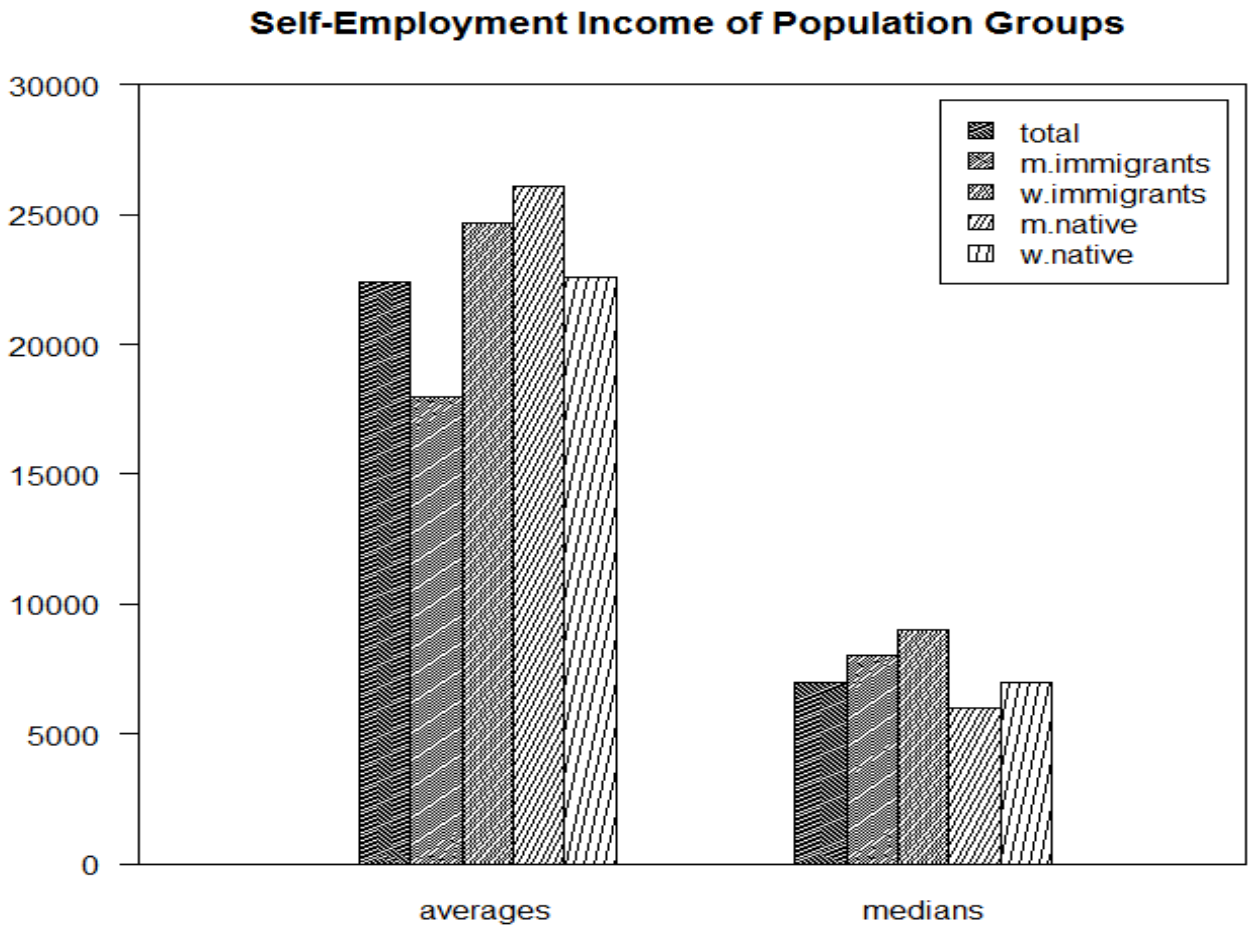

Self-Employment Income of Population Groups
30000
25000
20000
15000
10000
5000
0
total
m.immigrants
w.immigrants
m.native
w.native
averages
medians

Figure 1.5. Boxplots of Self-Employment Income for Population Groups

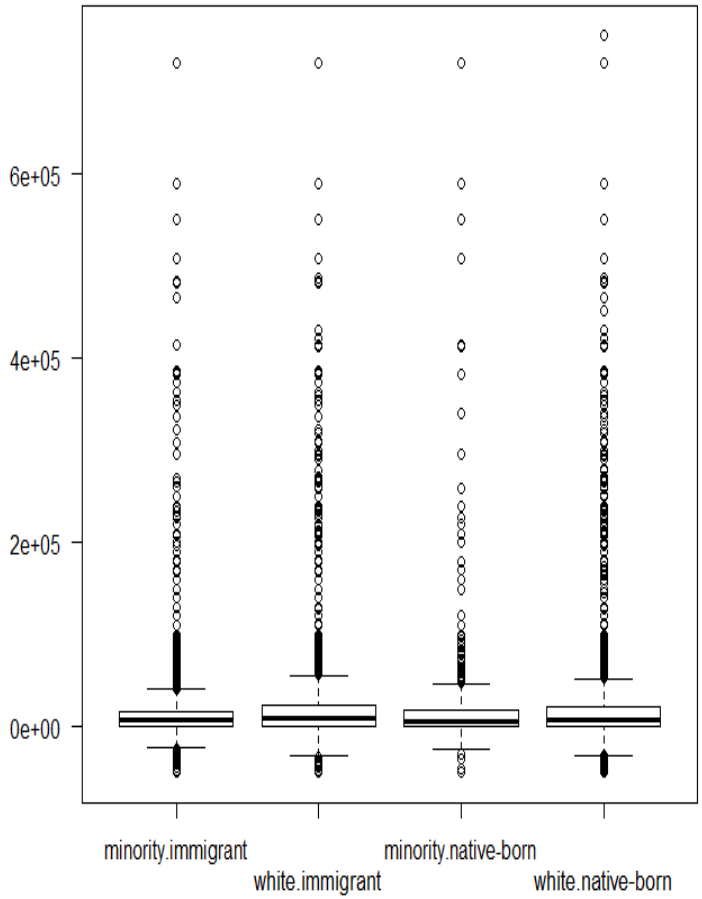
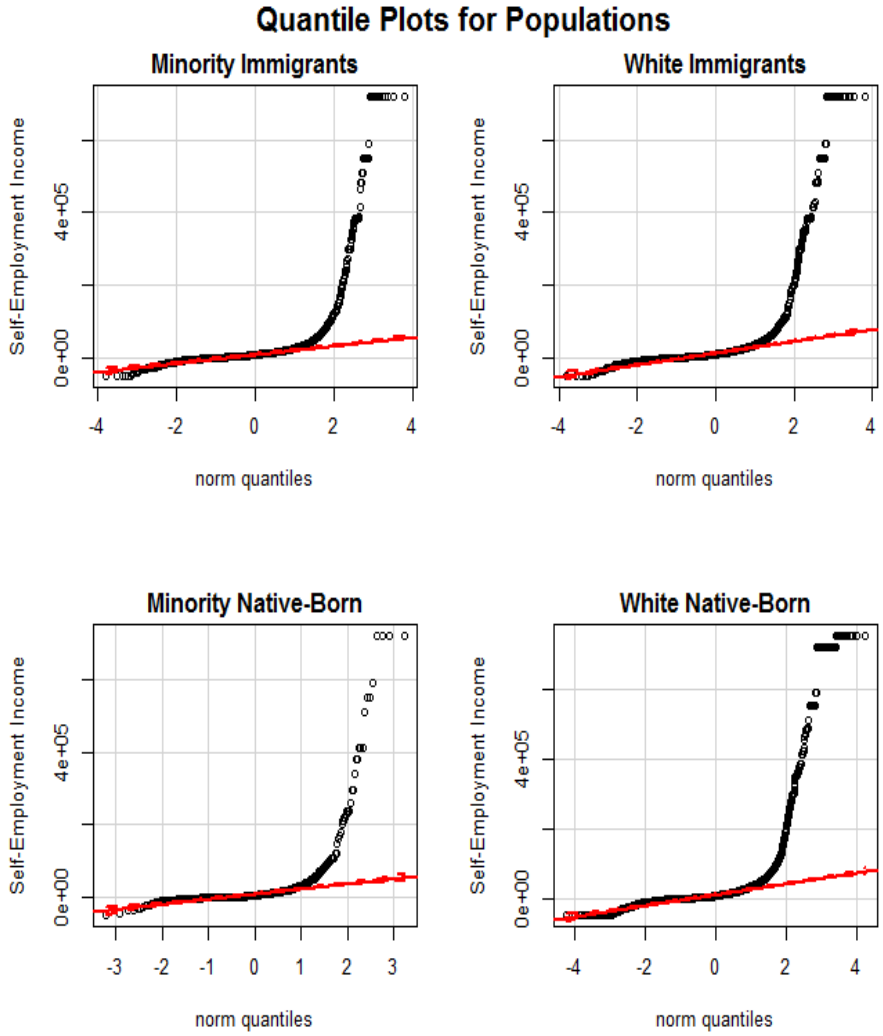


Figure 1.6. Quantile Plots of Self-Employment Income for Population Groups



negative counterpart.

Self-employment income also varies by immigrant and minority status as in Figure 1.4. While minority immigrants show the lowest average self-employment income ($17,960), white immigrants have the second highest self-employment income of the four groups classified by immigrant and minority status. Native-born minorities have the highest average self-employment income ($26,055), and native-born whites have the third highest average self-employment income ($22,596). Reflecting the positive skewness of self-employment income, the medians of the four groups' self-employment income are substantially smaller than their average self-employment incomes. There is also variation in the median self-employment incomes of the four groups. White immigrants have the highest median self-employment income ($9,000), followed by minority immigrants ($8,000). The native-born have the lowest two median self-employment incomes. Native-born whites ($7,000) have slightly higher median self-employment income than native-born minorities ($6,000).

As we see in Figure 1.5 and Table 1.8, self-employment income is concentrated between $1 and $23,000, and there are also some cases with negative net self-employment income. Notably, extremely positive outliers (beyond 1.5 quartiles of the data) are characteristic of the distribution in Figure 1.5. The positive outliers are more

obvious in the QQ-plots in Figure 1.6. As we can see, in all four groups classified by immigrant and minority status, the distributions of self-employment income are extremely positively skewed.

INDEPENDENT VARIABLES

Self-Employment Income Data

Tables 2.1-2.3 present descriptive statistics for the independent variables in the data set for the analysis of the self-employment income of self-employed individuals. There are substantial variations by ethnicity in the individual characteristics of self-employed immigrants in the data set for the analysis of self-employment income as we can see in Table 2.1. First, the average age of self-employed immigrants substantially varies by ethnicity. Among self-employed minorities, Koreans are the oldest (46.55), and Southeast Asians are the youngest (41.91), on average. On the other hand, among self-employed whites, English, Irish, Scottish, Dutch, German, Greek, and Italians are the oldest groups- on average over 50 years old, and Russians are the youngest (41.91). On average, self-employed whites are older than self-employed minorities (48.3 vs. 43.73). Also, the average years since immigration substantially vary among self-employed

Table 2.1. Descriptive Statistics for Individual Characteristics of Self-Employment Income Data by Ethnicity (percentages)

SELF-EMPLOYMENT INCOME DATA

Age	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	46.54	43.73	44.35	41.95	44.35	44.51
SD	9.86	9.95	9.73	10.2	10.05	10.18
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	41.91	41.56	43.38	42.44	46.55	46.29
SD	10.24	9.77	10.16	9.71	9.05	10.85
	White	English	Irish	Scottish	French	American
Mean	48.30	51.01	50.81	50.57	45.86	48.62
SD	9.69	10.04	9.6	9.48	10.31	10.08
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	53.62	51.5	47.54	44.55	42.37	43.04
SD	8.66	10.12	10.64	10.34	9.78	10.28
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	53.03	52.54	45.56	44.61	47.6	
SD	8.08	8.14	9.36	9.65	10.97	
Years Since Immigration	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	22.43	16.05	16.34	15.54	19.11	15.75
SD	10.73	9.94	10.25	10.35	10.57	9.64
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	15.31	18.65	15.04	12.73	14.06	18
SD	8.82	7.48	9.53	7.12	9.91	12.87
	White	English	Irish	Scottish	French	American
Mean	26.42	31.44	31.27	33.64	20.43	23.39
SD	12.06	13.68	11.76	13.04	13.61	13.17
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	39.9	33.94	23.68	18.61	9.54	14.79
SD	14.33	15.5	14.73	8.96	7.82	15.23
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	33.67	38.46	27.88	19.23	22.79	
SD	9.35	11.34	10.5	11.54	14	
Work,Hours	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	1834.08	1861.51	1759.08	1980.84	1959.71	1765.45
SD	966.56	980.91	980.83	952.57	1009.33	921.47
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	1829.29	1925.3	1959.5	1954.84	2113.81	1367.3
SD	936.93	915.92	979.42	1022.08	1160.83	919.21
	White	English	Irish	Scottish	French	American
Mean	1816.94	1757.05	1773.24	1690.99	1753.6	1684.78
SD	939.40	948.51	939.72	941.76	871.12	942.6
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	1756.79	1735.98	1860.68	1974.14	1766.83	1811.35
SD	967.91	1000.27	937.16	958.6	902.28	876.67
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	1975.17	1913.69	1914.6	1868.39	1833.72	
SD	1005.9	916.29	911.46	969.15	922.86	

Table 2.1. Descriptive Statistics for Individual Characteristics of Self-Employment Income Data by Ethnicity (continued, percentages)

Language Fluency	Total	Minority	Chinese	South Asian	Black	Filipino
no	3.52	4.87	8.68	1.56	0.15	n.a.
yes	96.48	95.86	91.32	98.43	99.85	n.a.
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
no	3.97	4.12	0.47	0.74	8.46	n.a.
yes	96.03	95.88	99.57	99.2	91.5	n.a.
	White	English	Irish	Scottish	French	American
no	1.72	n.a.	n.a.	n.a.	n.a.	n.a.
yes	98.28	n.a.	n.a.	n.a.	n.a.	n.a.
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
no	n.a.	n.a.	0.69	1.4	1.51	2.19
yes	n.a.	n.a.	99.31	98.6	98.49	97.81
	Greek	Italian	Portuguese	Spanish	Jewish	
no	3.21	0.54	3.62	2.2	n.a.	
yes	96.79	99.46	96.38	97.8	n.a.	
Education	Total	Minority	Chinese	South Asian	Black	Filipino
below bach	63.87	60.24	52.6	60.46	78.53	59.21
bachelor	19.65	23.49	28.54	20.6	12.52	32.52
above bach	16.48	16.27	18.85	18.94	8.95	8.27
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
below bach	78.19	77.44	57.55	59.7	47.25	50.5
bachelor	12.89	13.28	24.63	22.22	37.14	34.22
above bach	8.98	9.34	17.87	18.02	15.57	15.28
	White	English	Irish	Scottish	French	American
below bach	70.59	67.48	65.5	70.1	49.59	62.42
bachelor	12.54	15.98	14.67	13.97	18.73	19.75
above bach	16.87	16.77	19.83	16.06	31.68	17.83
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
below bach	72.32	69.44	73.03	73.81	39.95	46.86
bachelor	13.13	11.76	13.69	8.18	22.88	21.9
above bach	14.44	18.79	13.28	18.04	37.26	31.24
	Greek	Italian	Portuguese	Spanish	Jewish	
below bach	87.06	83.71	92.77	79.49	45.25	
bachelor	6.95	8.82	4.39	10.17	22.15	
above bach	6.1	7.46	2.78	10.17	32.69	
Marriage	Total	Minority	Chinese	South Asian	Black	Filipino
Single	24.46	22.78	23.46	13.43	42.12	27.89
Married	75.54	77.21	76.54	86.56	57.88	72.11
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Single	35.43	35.34	21.5	26.1	12.62	27.91
Married	64.63	64.66	78.54	73.84	87.34	72.09
	White	English	Irish	Scottish	French	American
Single	27.57	30.98	26.5	29.5	50.29	24.2
Married	72.43	69.06	73.5	70.5	49.59	75.16
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Single	22.67	30.8	34.85	27.99	28.34	26.86
Married	77.33	69.2	65.28	72.01	71.66	73.14
	Greek	Italian	Portuguese	Spanish	Jewish	
Single	20.11	20.39	22.41	35.76	24.07	
Married	79.89	79.61	77.53	64.24	76.03	

Table 2.1. Descriptive Statistics for Individual Characteristics of Self-Employment Income Data by Ethnicity (continued, percentages)

SELF-EMPLOYMENT INCOME DATA

Sex	Total	Minority	Chinese	South Asian	Black	Filipino
Female	36.40	35.53	43.2	24.76	33.49	55.79
Male	63.60	64.47	56.8	75.24	66.51	44.21
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Female	39.77	45.54	24.71	26.9	44.74	63.12
Male	60.23	54.46	75.29	73.1	55.26	36.88
	White	English	Irish	Scottish	French	American
Female	38.19	39.9	41	43.21	43.46	55.41
Male	61.81	60.1	59	56.79	56.54	44.59
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Female	36.52	44.85	39.42	35.3	40.62	39.27
Male	63.48	55.15	60.58	63.7	59.38	60.73
	Greek	Italian	Portuguese	Spanish	Jewish	
Female	32.09	31.21	38.77	42.03	38.06	
Male	67.91	68.79	61.23	57.97	61.94	

Source: Canada, 2006 Census Confidential File
Notes: Statistics weighted by using sampling weights provided in the Census File to present population characteristics

immigrants. Among self-employed minorities, Japanese and Southeast Asians stayed in Canada longest, and West Asians and Koreans stayed shortest. Among self-employed whites, Dutch, Italian, Greek, Scottish, and Irish on average stayed in Canada over 30 years. In contrast, Russians stayed shortest (9.54 years). On average, self-employed whites stayed more than ten years longer in Canada than self-employed minorities (26.42 vs. 16.05). The average working hours also substantially vary among self-employed immigrants, possibly reflecting variations in the labor intensiveness of the business. Among self-employed minorities, Japanese (1367), Chinese (1759), and Filipinos (1765) have the shortest working hours, indicating that they are engaged in less-labor intensive lines of business[17]. In contrast, South Asians, Blacks, Southeast Asians, Arabs, and West Asians worked on average over 1900 hours in 2005. Particularly, Koreans have the longest working hours of all (2114), suggesting that their business is highly labor intensive. In general, working hours for self-employed whites are lower than those for self-employed minorities (1816.94 vs. 1861.51). However, Polish, Greek, Italian, Portuguese worked on average over 1900 hours in 2005, suggesting their businesses are also labor intensive.

Proportions of people with language barriers also vary substantially among self-

[17] Japanese, Chinese and Filipino immigrants are most self-employed in health care and social assistance, professional scientific and technical services, and educational services, while Korean immigrants are heavily concentrated in retail trade, and accommodation and food services.

employment immigrants. Among self-employed minorities, Chinese (8.65) and Koreans (8.46) have large proportions of those with language barriers, and Filipinos and Japanese have near zero language barriers among their population. But, on average, language barrier is lower among self-employed whites than self-employed minorities (1.72 vs. 4.87). Among many self-employed whites, the proportion of population with language barriers is near zero (English, Irish, Scottish, French, American, Dutch, German, and Jewish). Portuguese (3.62) and Greeks (3.21) have the highest language barriers among self-employed whites. The average level of education also substantially varies among self-employed immigrants. Among self-employed minority immigrants, Blacks, Latin Americans, and Southeast Asians have relatively low levels of education, and Chinese, Koreans, and Japanese have higher levels of education. Among self-employed white immigrants, Russians, Ukrainians, Jewish, and French have higher levels of education, and Portuguese, Greek, Italian, and Spanish have lower levels of education. The proportion of married people among self-employed immigrants shows substantial variations, as well. Among self-employed minority immigrants, Koreans, South Asians, Arabs, Chinese, and West Asians have relatively high proportions- over 70%- of married ones, and Blacks, Latin Americans, and Southeast Asians have relatively low proportions of married ones. Among self-employed white immigrants,

Greeks, Italians, Portuguese, Jewish, Americans, and Dutch have relatively higher proportions- over 70%- of married people, and French, Spanish, and Hungarians have relatively low proportions of married ones. There are also substantial variations in proportion of males among self-employed immigrants. Among self-employed minority immigrants, Arabs, and South Asians have relatively large proportions- over 70%- of males, and Japanese, and Filipinos have relatively small proportions of males. Overall, the male proportions of self-employed minority immigrants are higher than those of self-employed white immigrants. Among self-employed white immigrants, Italians, Greeks, Polish, and Dutch have relatively large proportions of males, and Americans have the smallest proportion of males.

Self-Employment Propensity Data

Table 2.2 presents descriptive statistics for the independent variables in the data set for the analysis of self-employment propensity, which contains both employed and self-employed immigrants. The average age of each immigrant group is about 42, and is very similar among minority and white immigrants. Also, the average year since immigration is 18, and is very similar among minority and white immigrants.

Among minority immigrants, Filipinos have the longest average working hours

Table 2.2. Descriptive Statistics for Individual Characteristics of Self-Employment Propensity Data by Ethnicity (percentages)

SELF-EMPLOYMENT PROPENSITY DATA

Age	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	42.43	42.46	42.52	42.7	42.59	42.82
SD	11.45	11.45	11.42	11.45	11.5	11.41
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	42.42	42.49	42.27	42.2	42.37	42.2
SD	11.51	11.45	11.52	11.43	11.51	11.14
	White	English	Irish	Scottish	French	American
Mean	42.42	42.52	42.14	42.46	42.34	42.75
SD	11.47	11.54	11.43	11.45	11.62	11.36
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	42.53	42.37	42.22	42.33	42.33	42.23
SD	11.53	11.42	11.45	11.53	11.49	11.47
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	42.38	42.31	42.47	42.56	42.76	
SD	11.42	11.41	11.41	11.31	11.5	
Years since immigration	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	18.59	18.60	18.93	18.87	18.76	18.9
SD	12.96	11.45	12.96	13.01	13	13.11
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	18.4	18.53	18.42	18.43	18.37	18.41
SD	12.94	12.96	12.91	12.77	13.08	12.84
	White	English	Irish	Scottish	French	American
Mean	18.58	18.81	18.3	18.56	18.41	19.34
SD	11.47	13.01	13.02	13.02	12.97	12.71
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	18.95	18.61	18.51	18.52	18.32	18
SD	12.89	12.86	12.86	12.87	12.85	12.49
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	18.51	18.41	18.45	18.69	18.95	
SD	12.79	12.87	12.89	13.03	13.24	
Work Hours	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	1713.22	1706.76	1714.04	1712.56	1699	1728.43
SD	911.57	11.45	909.87	913.79	902.12	908.76
WorkHours	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	1708	1710.66	1699.12	1714	1705.88	1675.95
SD	917.89	913.49	921.97	913	907.68	908.24
	White	English	Irish	Scottish	French	American
Mean	1717.25	1711.63	1699.97	1731.07	1706.5	1778.73
SD	913.22	911.35	916.64	893.36	951.87	930.02
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	1697.34	1705.51	1717.18	1713.01	1695.93	1730.67
SD	891.83	913.78	906.32	919.02	920.63	919.18
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	1702.69	1711.1	1722.18	1720.43	1732	
SD	898.39	910.46	910.66	922.76	906.54	

Table 2.2. Descriptive Statistics for Individual Characteristics of Self-Employment Propensity Data by Ethnicity (continued, percentages)

SELF-EMPLOYMENT PROPENSITY DATA

Language Fluency	Total	Minority	Chinese	South Asian	Black	Filipino
no	3.60	3.64	3.64	3.77	3.61	3.33
yes	96.40	96.36	96.37	96.23	96.39	96.67
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
no	3.55	3.2	3.32	3.71	4.04	3.3
yes	96.46	96.8	96.68	96.29	95.96	96.7
	White	English	Irish	Scottish	French	American
no	3.58	3.51	4.15	3.7	3.11	4.01
yes	96.28	96.49	95.83	96.3	96.89	95.99
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
no	3.17	3.31	3.68	3.61	3.81	3.9
yes	96.83	96.7	96.32	95.55	96.19	96.08
	Greek	Italian	Portuguese	Spanish	Jewish	
no	3.89	3.55	3.83	3.39	3.17	
yes	96.11	96.45	96.17	96.59	96.83	
Education	Total	Minority	Chinese	South Asian	Black	Filipino
below bach	68.23	68.30	69.08	67.58	68.74	68.97
bachelor	18.78	18.71	18.39	19.04	18.12	18.9
above bach	12.99	12.99	12.53	13.38	13.13	12.14
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
below bach	68.67	67.09	67.42	68.41	68.43	68.57
bachelor	18.76	19.37	18.73	19.13	18.35	18.62
above bach	12.57	13.54	13.85	12.47	13.22	12.8
	White	English	Irish	Scottish	French	American
below bach	67.91	67.21	66.21	66.95	67.38	70.19
bachelor	18.90	19.41	20.12	19.86	17.75	18.23
above bach	13.05	13.37	13.65	13.21	14.87	11.58
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
below bach	67.86	68.13	68.03	67.3	68.45	69.29
bachelor	18.91	19.6	19.12	19.13	18.74	18.24
above bach	13.23	12.26	12.85	12.73	12.8	12.45
	Greek	Italian	Portuguese	Spanish	Jewish	
below bach	67.45	68.35	68.36	68.24	69.79	
bachelor	18.77	18.53	18.56	18.08	18.28	
above bach	13.76	13.11	11.93			
Marriage	Total	Minority	Chinese	South Asian	Black	Filipino
Single	32.65	32.48	32.36	31.78	32.81	32.58
Married	67.35	67.52	67.64	68.22	67.18	67.42
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Single	32.69	33.91	33.74	33.11	32.6	34.58
Married	67.31	66.09	66.25	66.89	67.27	65.42
	White	English	Irish	Scottish	French	American
Single	33.01	32.85	34.14	32.38	33.31	32.27
Married	66.99	67.16	65.86	67.62	66.67	67.73
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Single	31.81	32.26	32.43	32.81	33.29	33.63
Married	68.19	67.74	67.57	66.35	66.71	66.35
	Greek	Italian	Portuguese	Spanish	Jewish	
Single	33.47	33.17	33.02	32.44	32.68	
Married	66.53	66.82	66.98	67.59	67.32	

Table 2.2. Descriptive Statistics for Individual Characteristics of Self-Employment Propensity Data by Ethnicity (continued, percentages)

SELF-EMPLOYMENT PROPENSITY DATA

Sex	Total	Minority	Chinese	South Asian	Black	Filipino
Female	46.36	46.52	46.41	46.78	46.32	46.25
Male	53.64	53.48	53.59	53.22	53.68	53.75
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Female	46.25	45.52	47	46.27	46.61	48.88
Male	53.75	54.48	53	53.73	53.39	51.12
	White	English	Irish	Scottish	French	American
Female	46.09	45.75	47.46	45.68	45.96	46.13
Male	53.91	54.25	52.54	54.32	54.04	53.87
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Female	46.2	46.95	46.53	45.7	46.53	45.52
Male	53.8	53.05	53.47	54.3	53.47	54.48
	Greek	Italian	Portuguese	Spanish	Jewish	
Female	46.56	46.34	45.82	46.27	45.49	
Male	53.44	53.66	54.18	53.73	54.51	

Source: Canada, 2006 Census Confidential File
Notes: Statistics weighted by using sampling weights provided in the Census File to present population characteristics

(1728), and Arabs, Japanese, and Blacks have relatively short working hours. Among white immigrants, Americans have the longest working hours, and Russians have the shortest ones. The education levels of each immigrant group are similar across various ethnic groups. On average, the highest education of the 68 percent in each immigrant group is high school, that of the 18 percent is a bachelor's, and that of 13 percent is an above bachelor's. The average proportion of the married is *32*, and it is similar among all immigrant groups. The average proportion of males is *53*, and it is similar among all immigrant groups.

CMA Variables

Table 2.3 presents descriptive statistics for the CMA-level variables. The levels of CMA variables show substantial variations among immigrant groups. First, CMA co-ethnic population substantially varies among immigrant groups. Among minorities, Chinese and South Asians have the highest levels of CMA co-ethnic population, reflecting their large populations. In Contrast, Japanese, Korean, West Asian, Arab, South Asian, and Filipinos have, on average, lower than 1% of co-ethnic population in Canadian CMA's. Among whites, English (14.53%) and French (7.55%) are the highest in CMA co-ethnic population, and Americans, Hungarians, Russians, Greeks,

Table 2.3. Descriptive Statistics for CMA Characteristics for Both Self-Employment Income and Propensity Data by Ethnicity (percentages)

Coethnic Population	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	2.40	0.96	2.22	2.53	1.47	0.82
SD	1.87	1.23	3.4	3.69	1.38	1.16
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	0.55	0.59	0.64	0.32	0.29	0.19
SD	0.43	0.48	0.79	0.35	0.41	0.24
	White	English	Irish	Scottish	French	American
Mean	3.24	14.53	6.25	6.77	7.55	0.26
SD	2.27	7.49	3.45	3.2	6.01	0.11
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
	2.03	5.38	0.68	1.67	0.54	2.33
SD	1.58	4.78	0.58	1.11	0.51	2.75
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	0.39	3.04	0.78	0.3	0.31	
SD	0.33	2.89	0.9	0.19	0.42	
Linguistic Isolation	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	2.23	4.43	8.92	4.85	1.22	0.44
SD	1.94	3.52	3.98	4.41	1.39	0.53
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	5.38	6.5	3.16	5.28	5.69	2.89
SD	3.06	4.85	2.8	4.56	4.97	4.64
	White	English	Irish	Scottish	French	American
Mean	0.85	0.03	0.03	0.03	0.06	0.09
SD	0.96	0.03	0.04	0.04	0.19	0.28
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	0.17	0.23	0.69	1.11	2.12	0.42
SD	0.5	0.49	0.67	0.95	3.14	0.61
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	1.36	1.26	3.02	2.26	0.65	
SD	1.59	1.12	2.95	1.87	0.89	
Self-employment Rate	Total	Minority	Chinese	South Asian	Black	Filipino
Mean	12.80	12	12.1	14.78	8.15	6.28
SD	6.27	8.03	5.06	9.03	3.67	6.52
	Latin American	Southeast Asian	Arab	West Asian	Korean	Japanese
Mean	10.28	11.33	14.73	10.82	20.39	11.13
SD	5.67	8.93	7.88	8.04	16.4	9.14
	White	English	Irish	Scottish	French	American
Mean	13.30	11.93	11.62	11.45	10.7	14
SD	5.16	2.55	2.31	2.28	2.75	6.38
	Dutch	German	Hungarian	Polish	Russian	Ukrainian
Mean	12.3	12.41	16.07	13.71	15.47	11.29
SD	4.21	3.62	8.74	4.69	6.31	4.86
	Greek	Italian	Portuguese	Spanish	Jewish	
Mean	13.18	11.86	10.37	12.89	23.54	
SD	6.22	2.98	5.19	6.73	12.75	

Source: Canada, 2006 Census Confidential File

Notes: Statistics weighted by using sampling weights provided in the Census File to present population characteristics

Portuguese, and Jewish immigrants are the lowest, that is, lower than 1%, on average. CMA linguistic isolation is another CMA variable showing substantial variation by the immigrant group. Among minorities, Southeast Asians, Koreas, West Asians, Chinese, and Latin Americans are the highest, showing higher than 5% linguistic isolation rates, and Blacks, and Filipinos are the lowest. Among whites, Portuguese, Russians, and Spanish are the highest, and many others have very low—near zero—linguistic isolation rates. On average, linguistic isolation is higher among minorities than among whites. Lastly, CMA self-employment rate varies as follows. Among minorities, Koreans (20.39%), South Asians (14.78%), and Arab (14.73%) have the highest CMA self-employment rates, and Blacks (8.15%) and Filipinos (6.28%) have the lowest ones. Among whites, the average CMA self-employment rates of Jewish, Hungarians, and Russians are the highest, and that of French (10.7%) is the lowest.

Conclusion

Distinction between self-employment and wage work is found to be a matter of degree rather than a clear-cut dichotomy. Some individuals are exclusively engaged in self-employment or wage work, but others are engaged in both activities or on the verge

of them. Also, self-employment rate and income slightly vary by type of self-employment definition, and substantially by ethnicity. Income-defined self-employment includes broader segments of self-employment. Therefore, the self-employment rates based on income-defined self-employment are higher than self-defined self-employment rates. However, there is no significantly difference between income-defined and self-defined self-employment income. Self-employment income is extremely positively skewed, and varies by immigrant and minority status. Independent variables including individual characteristics and CMA variables also vary substantially among immigrant groups.

CHAPTER FIVE: RESULTS OF REGRESSION ANALYSES

Introduction

Having examined descriptive statistics for the data sets, in this chapter, I first examine results from ordinary least squares and logistic regression models, to see the effects of control variables first, and then the effects of REC and education on self-employment income, and on self-employment propensity, in each immigrant group. I then examine findings on the effects of education on self-employment income and propensity in each immigrant group. Next, I examine results of cross-classified and generalized cross-classified hierarchical linear regression analyses to test reactive ethnicity theory. Finally, I analyze differences in the effects of REC between minority and white immigrant groups.

EXPLORATORY REGRESSION ANALYSES OF RESIDENTIAL AND ENTREPRENEURIAL CONCENTRATION OF INDIVIDUAL ETHNIC GROUPS[18]

[18] The OLS and logistic regression analyses of each immigrant group are conducted as an exploratory analysis of the effects of REC on self-employment outcomes. Because the OLS and logistic regression

In order to examine the effects of CMA ethnic resources on self-employment income and propensity, OLS and logistic regression models are fit to each of the ethnic groups of minority and white immigrants.

Control Variables[19] and Self-Employment Income

There are variations in the effects of control variables on self-employment income among minority and white immigrant groups. First, the effect of age on self-employment income varies among minority and white immigrant groups: While age has a quadratic relationship with self-employment income among some immigrant groups, with self-employment income increasing up to certain age but decreasing after them, the relationship is not statistically significant among many others. Also, the relationship between years since immigration and self-employment income varies among minority and white immigrant groups: While among many immigrant groups, years since

models do not take the clustering effects of the CMAs into account, the standard errors and p-values of the coefficients are underestimated and it is possible that estimated coefficients are biased. The underestimated standard errors and p-values, in turn, exaggerate the significance of the coefficients. However, results from the OLS and logistic regressions of each immigrant group—variations in the effects of REC on self-employment outcomes—are examined and confirmed in more detail in the later analyses using cross-classified and generalized cross-classified hierarchical models that take both ethnicity and CMA into account.

[19] The results of control variables are presented in Appendix C.

immigration is not significantly associated with self-employment income, among some immigrant groups, years since immigration has a curvilinear or positive relationship with self-employment income. Gender is another variable that makes significant difference in self-employment income. Among some minority and white immigrant groups, self-employed men have higher average self-employment income than self-employed women, but among others, the difference is not significant. Among most minority and white immigrant groups, self-employment income increases significantly as the number of working hours increases, but the relationship is not statistically significant among several immigrant groups (Filipino, American, Ukrainian, and Spanish immigrants). Among most of the immigrant groups, there is no significant difference in self-employment income between individuals with a command of official languages and individuals without it. Interestingly, however, among some minority immigrants—Chinese, South Asian, Southeast Asian immigrants—individuals without a command of official languages have higher average self-employment income than individuals with it[20]. Also, among most immigrant groups, marriage is not associated with self-employment income. However, among a few immigrant groups, married individuals have significantly higher average self-employment income while among a

[20] The reason for this is not clear, but the ethnic enclave economy of these groups may provide an advantageous business environment for the individuals with language barriers.

few other groups, married individuals have significantly lower average self-employment income. Among most of the immigrant groups, CMA self-employment rate is not associated with self-employment income, while among American immigrants, the relationship is positive, and among German and Russian immigrants, the relationship is positive. The relationship between CMA average self-employment income and individual self-employment income is not significantly associated, while among Chinese and American immigrants, the relationship is negative.

Control Variables and Self-Employment Propensity

Like self-employment income, there are variations in the effects of control variables on self-employment propensity among minority and white immigrant groups. Among most immigrant groups, age has a quadratic or positive relationship with self-employment propensity, while among a few immigrant groups, the relationship is not statistically significant. Also, years since immigration has a quadratic relationship with self-employment propensity among most minority and white immigrant groups. In contrast, among Italian immigrants, the quadratic relationship has an upward opening, with self-employment propensity decreasing up to a certain point of years since

immigration, and increasing after that. On the other hand, the relationship is not significant among some immigrant groups, and among Polish immigrants, the relationship is negative. Among most immigrant groups, men have higher propensity of self-employment than women. Only among American immigrants, the difference between men and women is not significant. Among most of the immigrant groups, working hours is positively associated with self-employment propensity, indicating that the more hours an individual works, the more likely the individual is to be self-employed. However, variations also exist: Among some immigrant groups, working hours is not significantly associated with self-employment propensity while working hours is negatively associated with self-employment propensity among others. Among many immigrant groups, individuals who can speak official languages are more likely to be self-employed. However, the relationship is not statistically significantly among many immigrant groups, and among a few immigrant groups, those who can speak official language are less likely to be self-employed. Among most immigrant groups, the relationship between CMA self-employment rate and self-employment propensity is not statistically significant[21]. However, the effects of CMA self-employment rate on self-employment propensity vary: Among some immigrant groups, the relationship is

[21] This is rather surprising, and indicates that immigrants' self-employment involvement is independent of the general self-employment rate of the CMA.

significantly positive, while the relation is significantly negative among others. Higher CMA self-employment income is not associated with self-employment propensity among many immigrant groups, showing that general levels of self-employment income of the CMA do not significantly influence immigrants' self-employment propensity among these groups. However, among many immigrant groups, CMA self-employment income is positively associated with self-employment propensity, and among a few immigrant groups, the relationship is significantly negative. Also, married individuals are more likely to be self-employed among most immigrant groups, although among Hungarian and Greek immigrants, the relationship is not statistically significant.

Residential and Entrepreneurial Concentration, and Self-Employment Income

Tables 3.1, 3.3, and 3.5 present the results of the regression analysis of the effects of residential and entrepreneurial concentration (REC) on the self-employment income of minority and white immigrants controlling for individual characteristics and control variables. Also, the magnitude and significance of the coefficients of minority and white immigrant groups are presented in Figure 2.1. The support for intra-group competition and Bates's theory in the relationship between CMA co-ethnic population and self-employment income is stronger than the support for ethnic resources theory in both the

minority and white immigrant group. Among minority immigrants, only one immigrant group—Korean immigrants—has a positive relationship between CMA co-ethnic population and self-employment income ($p<0.01$), in support of ethnic resources theory. In contrast, among the other immigrant groups, the relationship is either negatively

Table 3.1. OLS Regression Analysis of Self-Employment Income of Minority Immigrants

	Variables	Chinese (n=53,100)	SouthAsian (n=56,560)	Black (n=17,095)	Filipino (n=9,070)	LatinAmerican (n=8,190)
CMA Ethnic Resources	Co-ethnic population	-0.005 ** (0.995)	-0.005 *** (0.989)	-0.018 * (0.959)	-0.028 *** (0.936)	-0.011 (0.975)
	Linguistic isolation	0.009 ** (1.021)	0.007*** (1.016)	-0.004 (0.991)	n.a.	-0.012 (0.973)
	Self-employment	-0.002 (0.995)	0.003 (1.007)	-0.009 (0.979)	-0.005 (0.989)	-0.006 (0.986)
Class Resource	(BelowBachelor)					
	Bachelor	-0.016(0.964[a])	-0.02(0.955)*	0.020(1.047)	-0.035(0.923)	0.053(1.13)*
	AboveBachelor	0.006(1.014)	-0.006(0.986)	0.022(1.052)	0.116(1.307)***	-0.009(0.979)
	Variables	SoutheastAsian (n=8,135)	Arab (n=11,700)	WestAsian (n=9,405)	Korean (n=11,170)	Japanese (n=1,505)
CMA Ethnic Resources	Co-ethnic population	-0.028 (0.938)	0.018 (1.042)	0.002 (1.005)	0.046 ** (1.112)	-0.094 (0.805)
	Linguistic isolation	-0.001 (0.998)	0.018 * (1.042)	0.011 (1.026)	-0.012 ** (0.973)	n.a.
	Self-employment	0.0005 (1.001)	0.001 (1.002)	-0.002 (0.995)	0.0009 (1.002)	0.008 (1.019)
Class Resource	(BelowBachelor)					
	Bachelor	-0.008(0.982)	-0.039(0.914)*	-0.002(0.995)	-0.020(0.955)	-0.088(0.817)
	AboveBachelor	0.159(1.44)***	0.045(1.109)*	-0.019(0.957)	-0.024(0.946)	0.022(1.052)

Controlled for: age, age², language, years since immigration, years since immigration², education, marital status, sex, hours worked, industry, and CMA average self-employment income

n.a.: not available due to lack of variation in the variable

***p<0.001; ** p<0.01; * p<0.05

[a] : ratio change in self-employment income for an increase of one in the independent variable

Source: Canada, 2006 Census Confidential File

Table 3.3. OLS Regression Analysis of Self-Employment Income of White Immigrants

	Variables	English (n=12,675)	Irish (n=3,000)	Scottish (n=3,835)	French (n=4,240)	American (n=785)
CMA Ethnic Reso-urces	Co-ethnic population	0.002 (1.005)	0.021 (1.05)	0.003 (1.007)	0.0001 (1.0002)	-0.717 * (0.192)
	Linguistic isolation	n.a.	n.a.	n.a.	n.a.	n.a.
	Self-employment	0.002 (1.005)	0.013 (1.03)	-0.001 (0.998)	-0.004 (0.991)	-0.016 * (0.964)
Class Reso-urce	(BelowBachelor)					
	Bachelor	0.002(1.005[b])	-0.096(0.802)	-0.03(0.933)	0.036(1.086)	0.053(1.130)
	AboveBachelor	0.03(1.07)	0.11(1.288)*	0.066(1.164)	0.081(1.205)**	0.18(1.514)
	Variables	Dutch (n=4,190)	German (n=6,120)	Hungarian (n=3,615)	Polish (n=16,740)	Russian (n=5,945)
CMA Ethnic Reso-urces	Co-ethnic population	-0.0005 (0.999)	0.038 (1.091)	0.038 (1.091)	-0.013 (0.971)	0.017 (1.04)
	Linguistic isolation	n.a.	n.a.	0.032 (1.076)	0.043 * (1.104)	-0.058 (0.875)
	Self-employment	0.001 (1.002)	0.043 * (1.104)	0.008 * (1.019)	-0.002 (0.995)	0.016 * (1.038)
Class Reso-urce	(BelowBachelor)					
	Bachelor	0.011 (1.026)	0.038(1.091)	0.053(1.13)	-0.022(0.951)	0.002(1.005)
	AboveBachelor	0.036(1.086)	0.008(1.019)*	0.002(1.005)	0.014(1.033)	-0.058(0.875)*

Controlled for: age, age², language, years since immigration, years since immigration², education, marital status, sex, hours worked, industry, and CMA average self-employment income

n.a.: not available due to lack of variation in the variable

*** p<0.001; ** p<0.01; * p<0.05

[b] : ratio change in self-employment income for an increase of one in the independent variable

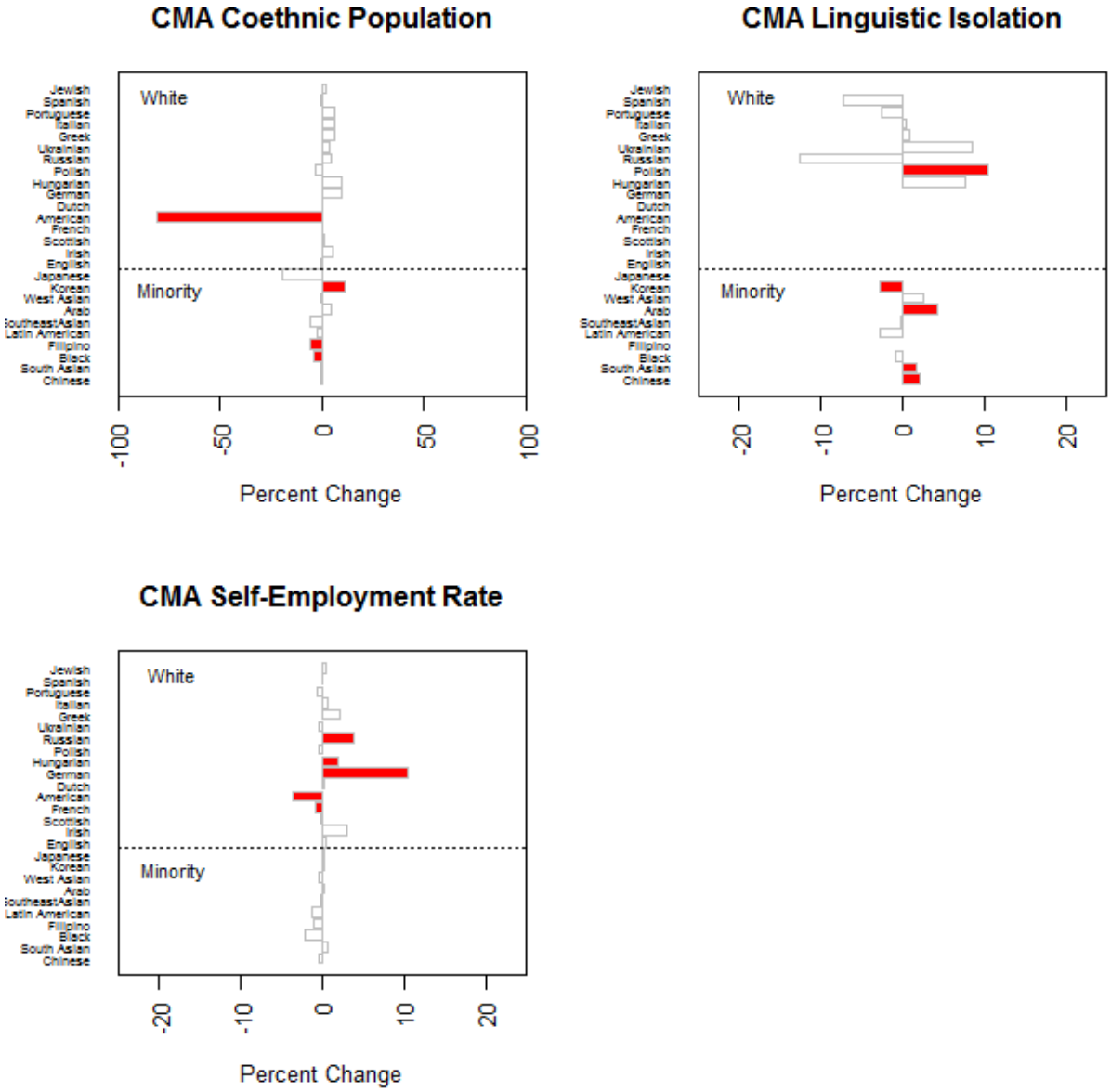
Source: Canada, 2006 Census Confidential File

Table 3.5. OLS Regression Analysis of Self-Employment Income of White Immigrants (continued)

	Variables	Ukrainian (n=3,425)	Greek (n=4,675)	Italian (n=14,005)	Portuguese (n=8,985)	Spanish (n=2,950)
CMAE thnic Reso-urces	Co-ethnic population	0.015 (1.035)	0.025 (1.059)	0.025 (1.059)	0.027 (1.064)	0.002 (1.005)
	Linguistic isolation	0.036 (1.086)	0.004 (1.009)	0.002 (1.005)	-0.011 (0.975)	-0.033 (0.927)
	Self-employment	-0.002 (0.995)	0.009 (1.021)	0.003 (1.007)	-0.003 (0.993)	-0.0002 (0.999)
Class Reso-urce	(BelowBachelor) Bachelor	0.006(1.014)	-0.013(0.971)	-0.026(0.942)	0.048(1.117)	-0.067(0.857)
	AboveBachelor	-0.016(0.964)	0.019(1.045)	0.033(1.079)	0.073(1.183)	0.056(1.138)

	Variables	Jewish (n=5,220)
CMAE thnic Reso-urces	Co-ethnic population	0.008 (1.019)
	Linguistic isolation	n.a.
	Self-employment	0.002 (1.005)
Class Reso-urce	(BelowBachelor) Bachelor	-0.038(0.916)
	AboveBachelor	-0.102(0.791)***

Figure 2.1 Effects of CMA Residential and Entrepreneurial Concentration on Self-Employment Income from the OLS Regression Analysis (The x axis represents percent change in self-employment income for one percent increase in each REC, and red bars represent significant effects at p<0.05).



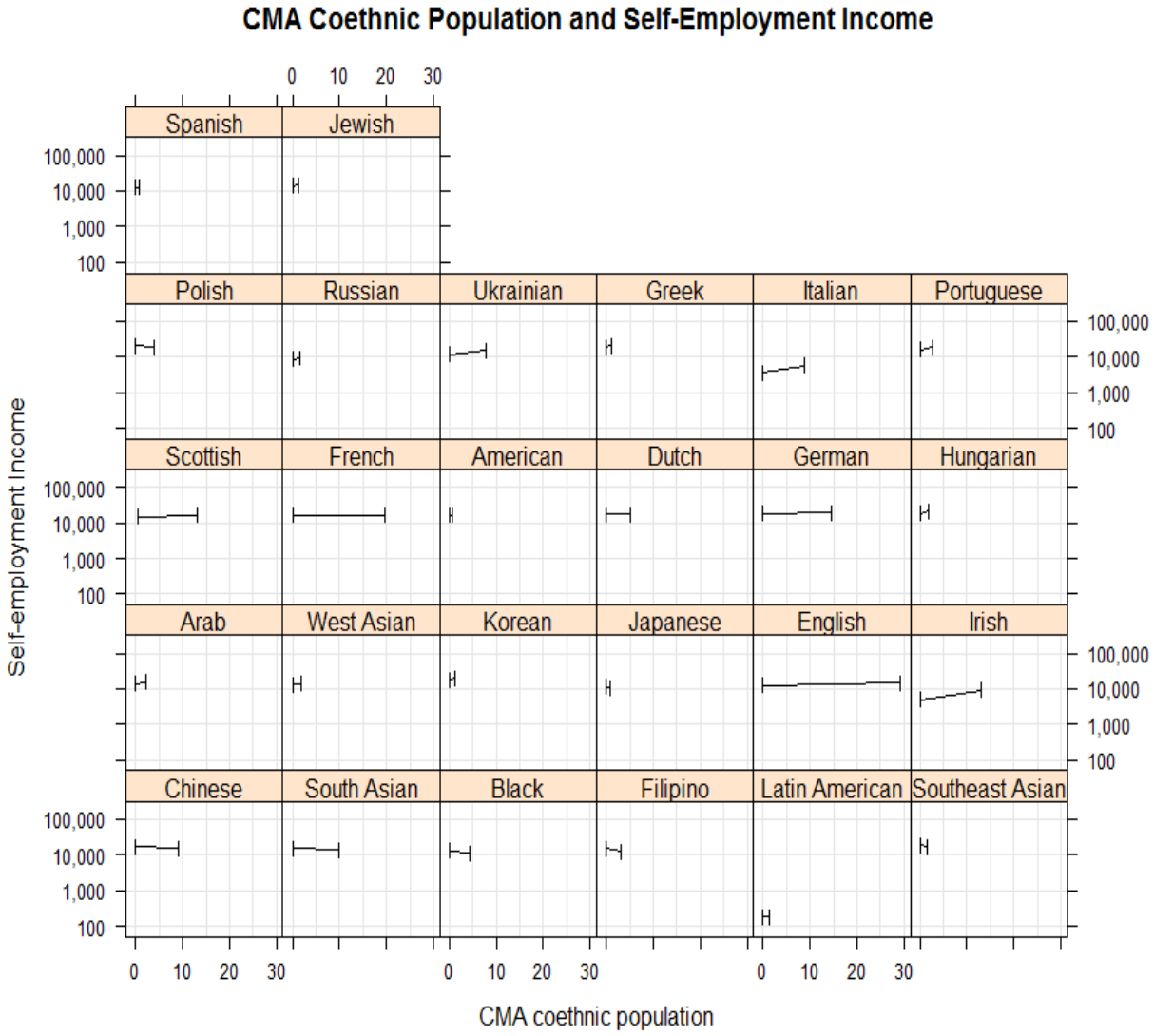
associated—Black ($p<0.05$) and Filipino ($p<0.001$) immigrants—or not significant—Latin American, Southeast Asian, Arab, West Asian, and Japanese immigrants. Among white immigrants, support for intra-group competition and Bates's theory is also strong. Consistent with intra-group competition and Bates's theory, American immigrants show a large negative relationship with self-employment income ($p<0.05$), and the other white immigrant groups—English, Irish, Scottish, French, Dutch, German, Hungarian, Polish, Russian, Ukrainian, Greek, Italian, Portuguese, Spanish, and Jewish immigrants—shows no significant association with self-employment propensity.

The regression analysis of the effects of CMA linguistic isolation on self-employment income also provides strong support for intra-group competition and Bates's theory. Among minority immigrant groups, while a few (three) immigrant groups—Chinese ($p<0.01$), South Asian ($p<0.001$), and Arab ($p<0.05$) immigrants—have a positive relationship between CMA linguistic isolation and self-employment income, in support of ethnic resources theory, one immigrant group—Korean immigrants—has a negative association with self-employment income ($p<0.01$), and the other four minority immigrant groups have no statistically significant association, in support of intra-group competition and Bates's theory. Among white immigrant groups, the support for ethnic resources theory is even weaker, and most groups provide support

for intra-group and Bates's competition theory. Excluding immigrant groups with too small linguistically isolated population to provide reliable estimates, only one immigrant group—Polish immigrants—have a positive relationship between CMA linguistic isolation and self-employment income ($p<0.05$), in support of ethnic resources theory. The other seven immigrant groups—Hungarian, Russian, Ukrainian, Greek, Italian, Portuguese, Spanish immigrants—have no statistically significant association, providing support for intra-group and Bates's competition theory.

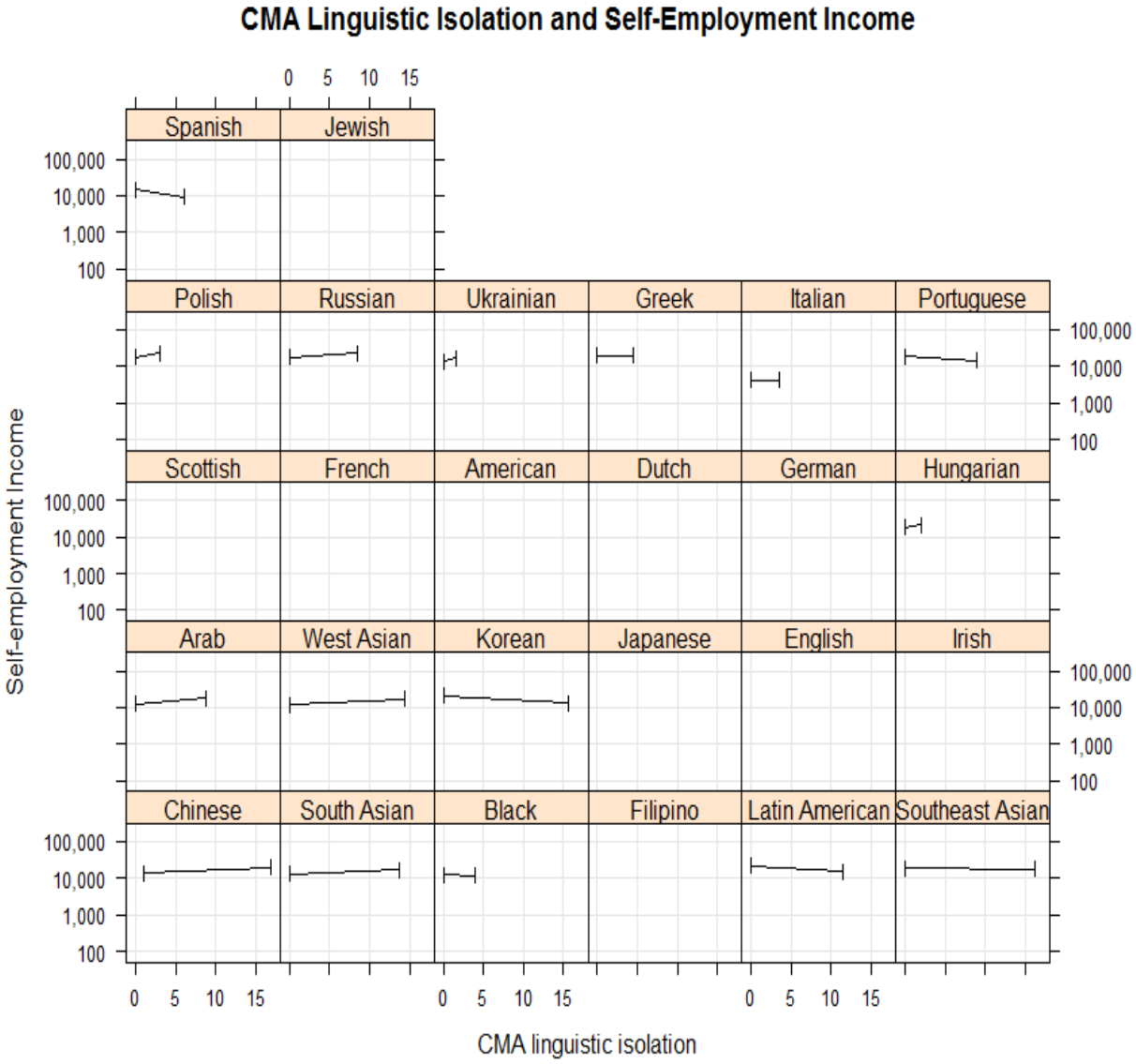
In the relationship between another type of REC—CMA self-employment rate—and self-employment income, the support for intra-ethnic competition and Bates's theory is even stronger than the support for ethnic resources theory in both the minority and white immigrant group. Among minority immigrant groups, no support for ethnic resources theory is found because no minority immigrant group have statistically significant association with self-employment income, providing support for intra-ethnic competition and Bates's theory. Among white immigrants, most groups support intra-group competition and Bates's theory while a few groups support ethnic resources theory. Three immigrant groups—German, Hungarian, and Russian immigrants—have a positive relationship between CMA self-employment rate and self-employment income ($p<0.05$), in support of ethnic resources theory, but the other thirteen groups provide

Figure 2.3 Effects of CMA Co-ethnic Population on Self-Employment Income of Minority and White Immigrant Groups. Fitted Self-Employment Income Was Derived From the OLS Regression Analysis of Self-Employment Income.



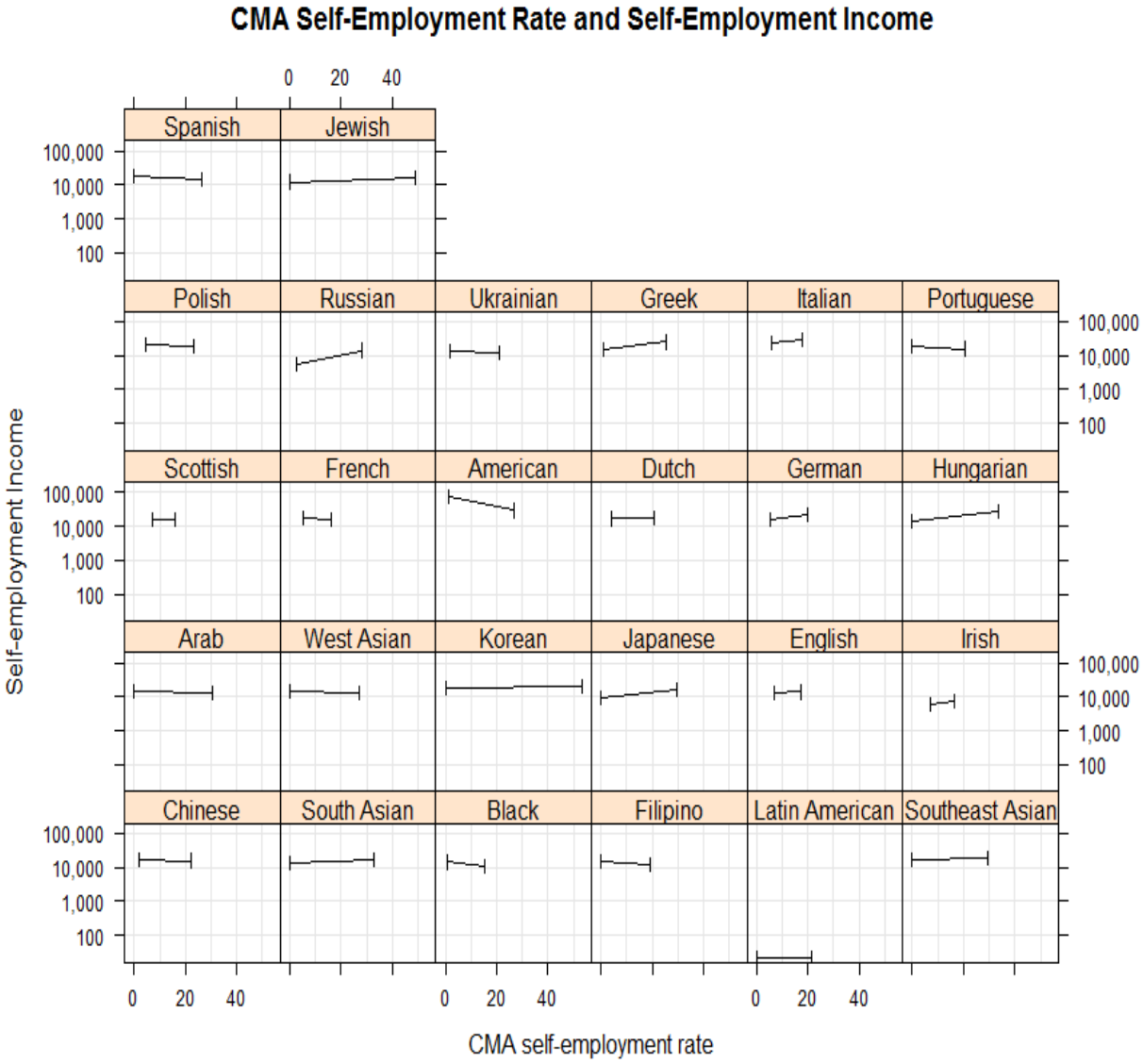
Note: The other variables are fixed.

Figure 2.4 Effects of CMA Linguistic Isolation on Self-Employment Income of Minority and White Immigrant Groups. Fitted Self-Employment Income Was Derived From the OLS Regression Analysis of Self-Employment Income.



Note: Some immigrant groups have no line because they have too small linguistically isolated population: Filipinos, Japanese, English, Irish, Scottish, French, Americans, Dutch, Germans, and Jewish.

Figure 2.5 Effects of CMA Self-Employment Rate on Self-Employment Income of Minority and White Immigrant Groups. Fitted Self-Employment Income Was Derived From the OLS Regression Analysis of Self-Employment Income.



support for intra-group competition and Bates's theory: One immigrant group—American immigrants—has a negative association between CMA self-employment rate and self-employment income ($p<0.05$), and the others—English, Irish, Scottish, French, Dutch, Polish, Ukrainian, Greek, Italian, Portuguese, Spanish, and Jewish immigrants—have no statistically significant association.

In general, the support for intra-group competition and Bates's theory is stronger than the support for ethnic resources theory in the relationship between all types of REC and self-employment income, but some immigrant groups show support for ethnic resources theory in the relationship between certain types of REC and self-employment income, presenting some variation in the effects of REC on self-employment income. Effects of REC on the self-employment income of various immigrant groups with other variables fixed are presented in Figure 2.3, 2.4, and 2.5.

Residential and Entrepreneurial Concentration, and Self-Employment Propensity

Tables 3.7, 3.9, and 3.11 present the results of the logistic regression analysis of the effects of CMA REC on the self-employment propensity of minority immigrants, controlling for individual characteristics and control variables. Also, the magnitude and significance of the coefficients of minority and white immigrant groups are presented in

Table 3.7. Logistic Regression Analysis of Self-Employment Propensity of Minority Immigrants

	Variables	Chinese (n=400,675)	South Asian (n=386,470)	Black (n=173,850)	Filipino (n=139,210)	LatinAmerican (n=71,710)
CMA Ethnic Reso-urces	Co-ethnic population	-0.007(0.003) O.R: 0.993 *	0.002 (0.002) O.R: 1.002	0.028 (0.012) O.R: 1.028 *	-0.018 (0.014) O.R: 0.982	0.081 (0.049) O.R: 1.084
	Linguistic isolation	0.015(0.005) O.R: 1.015 **	0.006 (0.003) O.R: 1.006	0.039 (0.025) O.R: 1.04	0.157 (0.058) O.R: 1.17 **	0.017 (0.012) O.R: 1.017
	Self-employment	0.131(0.584) O.R: 1.14 ***	0.058 (0.003) O.R: 1.06 ***	0.153 (0.011) O.R: 1.165 ***	0.167 (0.012) O.R: 1.182 ***	0.102 (0.008) O.R: 1.107 ***
Class Reso-urce	(BelowBachelor)					
	Bachelor	0.14 (0.012) O.R: 1.15 ***	0.182 (0.013) O.R: 1.2 ***	0.178(0.027) O.R: 1.195 ***	0.103(0.026) O.R: 1.108 ***	0.176(0.040) O.R: 1.192 ***
	AboveBachelor	0.313 (0.014) O.R: 1.368 ***	0.321 (0.014) O.R: 1.379 ***	0.386(0.031) O.R: 1.471 ***	0.262(0.041) O.R: 1.3 ***	0.282(0.046) O.R: 1.326 ***
	Variables	SoutheastAsian (n=77,065)	Arab (n=70,905)	West Asian (n=55,945)	Korean (n=40,135)	Japanese (n=9,520)
CMA Ethnic Reso-urces	Co-ethnic population	0.11 (0.088) O.R: 1.116	0.041 (0.02) O.R: 1.042 *	0.019 (0.072) O.R: 1.019	0.147 (0.049) O.R: 1.158 **	0.604 (0.158) O.R: 1.829 ***
	Linguistic isolation	0.002 (0.014) O.R: 1.002	0.037 (0.012) O.R: 1.038 **	0.023 (0.01) O.R: 1.023 *	-0.026 (0.01) O.R: 0.974 **	0.014 (0.021) O.R: 1.014
	Self-employment	0.096 (0.006) O.R: 1.101 ***	0.088 (0.005) O.R: 1.092 ***	0.077 (0.006) O.R: 1.08 ***	0.044 (0.002) O.R: 1.045 ***	0.009 (0.014) O.R: 1.009
Class Reso-urce	(BelowBachelor)					
	Bachelor	-0.013(0.038) O.R:0.987	0.041(0.028) O.R: 1.042	-0.051(0.032) O.R: 0.95	0.099(0.028) O.R: 1.104 ***	0.363(0.068) O.R: 1.438 ***
	AboveBachelor	0.767(0.044) O.R: 2.153 ***	0.18(0.032) O.R: 1.197 ***	0.111(0.036) O.R: 1.117 **	0.077(0.037) O.R: 1.08 *	0.397(0.095) O.R: 1.487 ***

Controlled for: age, age², language, years since immigration, years since immigration², education, marital status, sex, hours worked, industry, CMA average self-employment income, and CMA self-employment rate

*** p<0.001; ** p<0.01; * p<0.05

n.a.: not available due to lack of variation in the variable

Source: Canada, 2006 Census Confidential File

Table 3.9. Logistic Regression Analysis of Self-Employment Propensity of White Immigrants

	Variables	***English (n=78,350)***	Irish (n=20,395)	Scottish (n=28,425)	French (n=25,835)	American (n=4,030)
CMAE thnic Reso-Urces	Co-ethnic population	0.02 (0.003) O.R: 1.02 ***	-0.02 (0.013) O.R: 0.98 ***	0.086 (0.012) O.R: 1.09 ***	0.029 (0.009) O.R: 1.029 **	1.883 (0.594) O.R: ***6.553 *****
	Linguistic isolation	n.a.	n.a.	n.a.	n.a.	n.a.
	Self-employment	0.022 (0.026) O.R: 1.022	0.089 (0.046) O.R: 1.093 ***	0.066 (0.027) O.R: 1.068 *	-0.022 (0.035) O.R: 0.978	0.07(0.013) O.R: 1.073 ***
Class Reso-Urce	(BelowBachelor)					
	Bachelor	0.409 (0.029) O.R: 1.505 ***	0.449(0.062) O.R: 1.567 ***	0.283 0.055) O.R: 1.327 ***	0.433 (0.05) O.R: 1.542 ***	-0.015(0.118) O.R: 0.985
	AboveBachelor	0.754 (0.031) O.R: 2.125 ***	1.045(0.058) O.R: 2.843 ***	1.024 (0.055) O.R: 2.784 ***	0.444 (0.044) O.R: 1.559 ***	-0.036(0.13) O.R: 0.965
	Variables	Dutch (n=20,940)	German (n=32,265)	Hungarian (n=14,480)	Polish (n=81,165)	Russian (n=24,605)
CMAE thnic Reso-Urces	Co-ethnic population	0.072 (0.015) O.R: 1.075 ***	-0.004 (0.005) O.R: 0.996	-0.112 (0.074) O.R: 0.894	-0.034 (0.022) O.R: 0.967	0.027 (0.099) O.R: 1.027
	Linguistic isolation	-0.548 (0.192) O.R: 0.578 **	0.44 (0.126) O.R: 1.553 ***	-0.024 (0.043) O.R: 0.976	-0.015 (0.043) O.R: 0.985	0.013 (0.033) O.R: 1.139
	Self-employment	0.09 (0.018) O.R: 1.094 ***	0.06 (0.02) O.R: 1.062 **	0.034 (0.007) O.R: 1.035 ***	0.023 (0.011) O.R: 1.023 *	0.058 (0.011) O.R: 1.06 ***
Class Reso-Urce	(BelowBachelor)					
	Bachelor	0.356 (0.057) O.R: 1.427 ***	0.178 (0.048) O.R: 1.195 ***	0.3(0.064) O.R: 1.35 ***	-0.077 (0.034) O.R: 0.926 *	0.039 (0.043) O.R: 1.04
	AboveBachelor	0.627(0.058) O.R: 1.872 ***	0.664 (0.045) O.R: 1.943 ***	0.497(0.066) O.R: 1.644 ***	0.335 (0.027) O.R: 1.398 ***	0.0008(0.040) O.R: 1.001

Controlled for: age, age², language, years since immigration, years since immigration², education, marital status, sex, hours worked, industry, CMA average self-employment income, and CMA self-employment rate

***p<0.001; ** p<0.01; * p<0.05

n.a.: not available due to lack of variation in the variable

Source: Canada, 2006 Census Confidential File

Table 3.11. Logistic Regression Analysis of Self-Employment Propensity of White Immigrants (continued)

	Variables	Ukrainian (n=16,115)	Greek (n=25,480)	Italian (n=96,010)	Portuguese (n=79,195)	Spanish (n=23,425)
CMAE	Co-ethnic	0.031 (0.015)	0.249 (0.114)	0.019 (0.007)	-0.071 (0.035)	-0.342 (0.175)
thnic	population	O.R: 1.031 *	O.R: 1.282 *	O.R: 1.019 **	O.R: 0.931*	O.R: 0.71
Reso-	Linguistic	-0.191 (0.054)	-0.043 (0.021)	-0.095 (0.016)	0.029 (0.015)	-0.025 (0.023)
urces	isolation	O.R: 0.826 ***	O.R: 0.958 *	O.R: 0.909 ***	O.R: 1.029	O.R: 0.975
	Self-employment	0.118 (0.032)	0.124 (0.011)	0.087 (0.015)	0.079 (0.011)	0.124 (0.013)
		O.R: 1.125 ***	O.R: 1.132 ***	O.R: 1.09 ***	O.R: 1.082 ***	O.R: 1.132***
Class	(BelowBachelor)					
	Bachelor	0.209 (0.056)	0.21 (0.072)	0.277 (0.036)	0.22 (0.057)	-0.215 (0.07)
Reso-		O.R: 1.232 ***	O.R: 1.234 **	O.R: 1.32 ***	O.R: 1.246 ***	O.R: 0.807 **
urce	AboveBachelor	0.138 (0.053)	0.53 (0.074)	0.766 (0.04)	0.7 (0.07)	0.153 (0.07)
		O.R: 1.148 **	O.R: 1.699 ***	O.R: 2.151 ***	O.R: 2.014 ***	O.R:1.165 *

	Variables	Jewish (n=21,340)
CMAE	Co-ethnic	-0.208 (0.074)
thnic	population	O.R: 0.812 **
Reso-	Linguistic	0.188 (0.072)
urces	isolation	O.R: 1.207 **
	Self-employment	0.059 (0.008)
		O.R: 1.061 ***
Class	(BelowBachelor)	
	Bachelor	0.205 (0.044)
Reso-		O.R: 1.228 ***
urce	AboveBachelor	0.251 (0.042)
		O.R: 1.285 ***

Figure 2.2 Effects of CMA Residential and Entrepreneurial Concentration on Self-Employment Propensity from the Logistic Regression Analysis (The x axis represents percent change in self-employment income for one percent increase in each REC, and red bars represent significant effects at p<0.05).

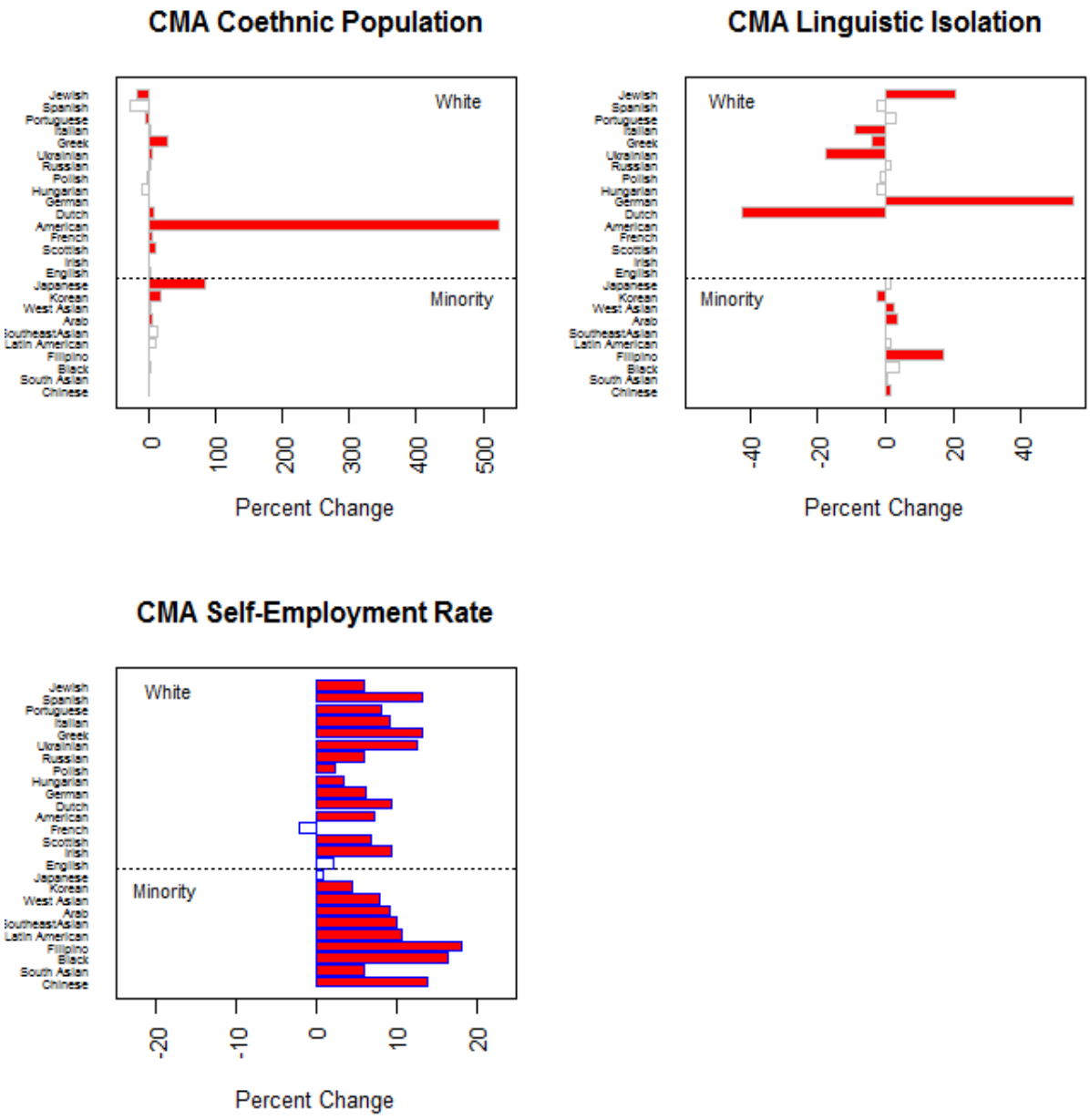


Figure 2.2. In the relationship between CMA co-ethnic population and self-employment propensity, support for ethnic resources theory, and intra-group competition and Bates's theory is mixed. Among minority immigrants, while four minority immigrant groups—Black ($p<0.05$), Arab ($p<0.05$), Korean ($p<0.01$) and Japanese ($p<0.001$) immigrants—have a positive relationship between CMA co-ethnic population and self-employment propensity, in support of ethnic resources theory, one group—Chinese immigrants—has a negative association ($p<0.05$), and the other five immigrant groups—South Asian, Filipino, Latin American, Southeast Asian, West Asian immigrant—have no significant association, in support of intra-group competition and Bates's theory. Similarly, among white immigrants, the support for ethnic resources theory is mixed, but stronger than among minority immigrants: Many (eight) immigrant groups—English ($p<0.001$), Scottish ($p<0.001$), French ($p<0.01$), American ($p<0.01$), Dutch ($p<0.001$), Ukrainian ($p<0.05$), Greek ($p<0.05$), and Italian ($p<0.01$) immigrants—have a positive relationship between CMA co-ethnic population and self-employment propensity, showing support for ethnic resources theory. In contrast, three immigrant groups—Irish ($p<0.01$), Portuguese ($p<0.05$), Jewish ($p<0.01$) immigrants—have a negative relationship, and the other five immigrant groups—German, Hungarian, Polish, Russian, and Spanish immigrants—have no statistically significant relationship with self-employment

propensity, in support of intra-group competition and Bates's theory.

Support for ethnic resources theory, and intra-group competition and Bates's theory is also mixed in the relationship between CMA linguistic isolation and self-employment propensity. Among minority immigrants, four immigrant groups—Chinese ($p<0.01$), Filipino ($p<0.01$), Arab ($p<0.01$), and West Asian ($p<0.05$) immigrants—have a positive relationship of CMA linguistic isolation with self-employment propensity, in support of ethnic resources theory. In contrast, Korean immigrants have a negative relationship with self-employment propensity ($p<0.01$), and other immigrant groups—South Asian, Black, Latin American, Southeast Asian, and Japanese immigrants—have no statistically significant relationship, in support of intra-group competition and Bates's theory. Among white immigrants, support for both theories is also mixed, but the support for ethnic resources theory is weaker than minority immigrants. Excluding groups with too small a linguistically isolated population, only Gerrman ($p<0.001$) and Jewish ($p<0.01$) immigrants have a positive relationship between CMA linguistic isolation and self-employment propensity, in support of ethnic resources theory. In contrast, four white immigrant groups—Dutch ($p<0.01$), Ukrainian ($p<0.001$), Greek ($p<0.05$), and Italian ($p<0.001$) immigrants have a negative relationship, and the other immigrant groups—Hungarian, Polish, Russian, Portuguese, Spanish immigrants—have

no statistically significant relationship between CMA linguistic isolation and self-employment propensity, in support of intra-group competition and Bates's theory.

The pattern of the effects of CMA self-employment rate on self-employment propensity is different from that in CMA co-ethnic population and linguistic isolation. In the relationship between CMA self-employment rate and self-employment propensity, the strongest support for ethnic resources theory is found. Among minority immigrants, most immigrant groups—Chinese, South Asian, Black, Filipino, Latin American, Southeast Asian, Arab, West Asian, and Korean immigrants—have a significant and positive relationship between CMA self-employment rate and self-employment propensity ($p<0.001$). Only Japanese immigrants show a non-significant relationship with self-employment propensity. Like minority immigrants, most of the white immigrant groups—Irish ($p<0.001$), Scottish ($p<0.05$), American ($p<0.001$), Dutch ($p<0.001$), German ($p<0.01$), Hungarian ($p<0.001$), Polish ($p<0.05$), Russian ($p<0.001$), Ukrainian ($p<0.001$), Greek ($p<0.001$), Italian ($p<0.001$), Portuguese ($p<0.001$), Spanish ($p<0.001$), and Jewish ($p<0.001$) immigrants—have a positive relationship between CMA self-employment rate and self-employment propensity, although two white immigrant groups—English, and French—have no significant relationship, in support of intra-group competition and Bates's theory.

Overall, the evidence regarding the relationship between REC and self-employment propensity provides mixed support for both ethnic resources theory, and intra-group competition and Bates's theory. As in self-employment income, the relationship between REC and self-employment propensity varies among immigrant groups and in the type of REC. However, in general, support for ethnic resources theory is stronger in the relationship between REC—especially CMA co-ethnic population and self-employment rate—and the self-employment propensity of both minority and white immigrant groups than in the relationship between REC and self-employment income. Effects of REC on the self-employment propensity of various immigrant groups with other variables fixed are presented in Figures 2.6, 2.7, and 2.8.

Comparison of the effects of REC between minority and white immigrant groups

A comparison of the effects of REC on self-employment income between minority and white immigrant groups indicates that among both minority and white immigrant groups, few groups have positive relationship between REC and self-employment income, and the relationship is not significant in most groups and even negative in some groups. In all three measures of REC, while there are some variations in the effects of

Figure 2.6 Effects of CMA Co-ethnic Population on Self-Employment Propensity of Minority and White Immigrant Groups. Fitted Self-Employment Propensity Was Derived From the Logistic Regression Analysis of Self-Employment Propensity.

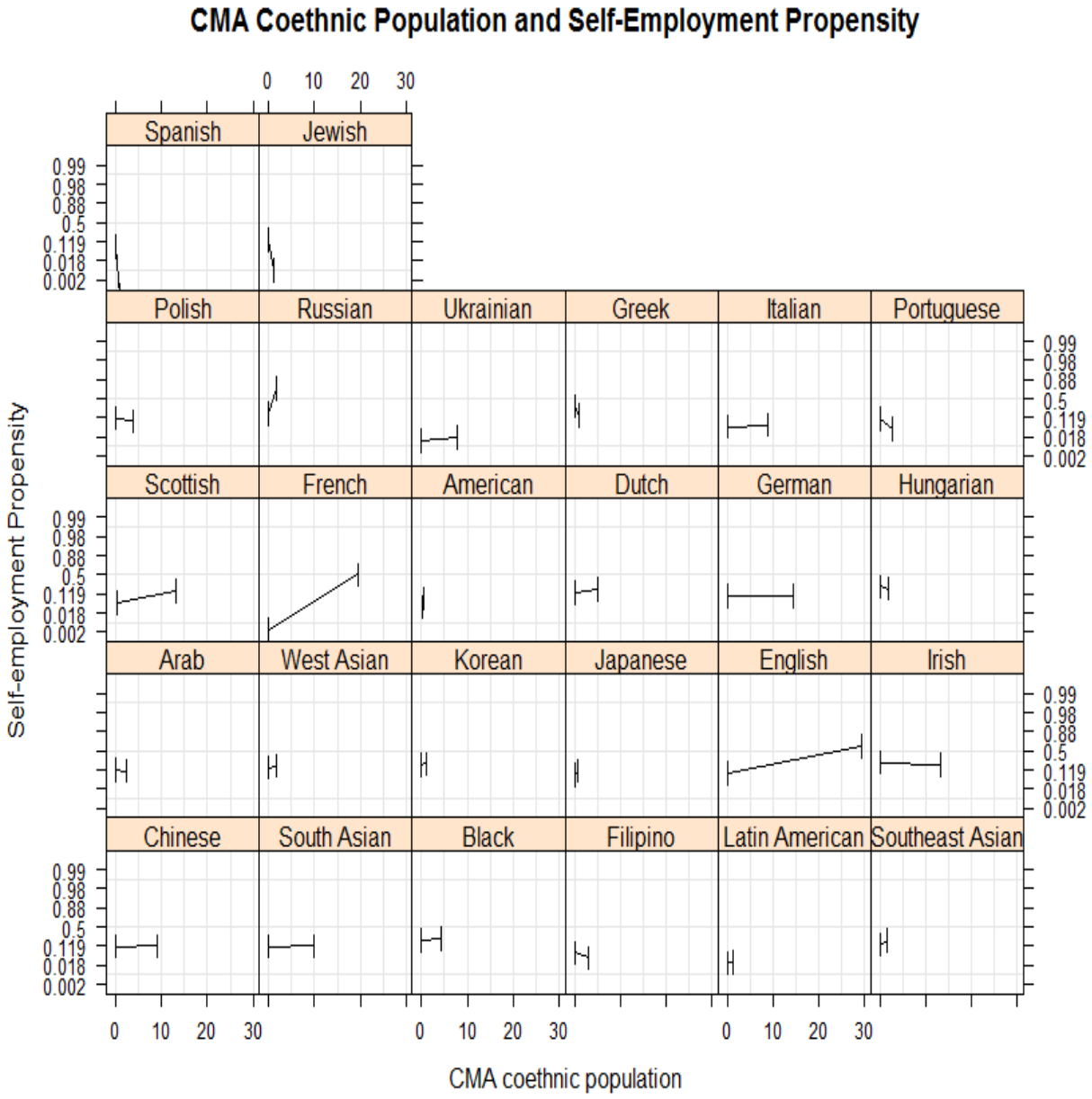
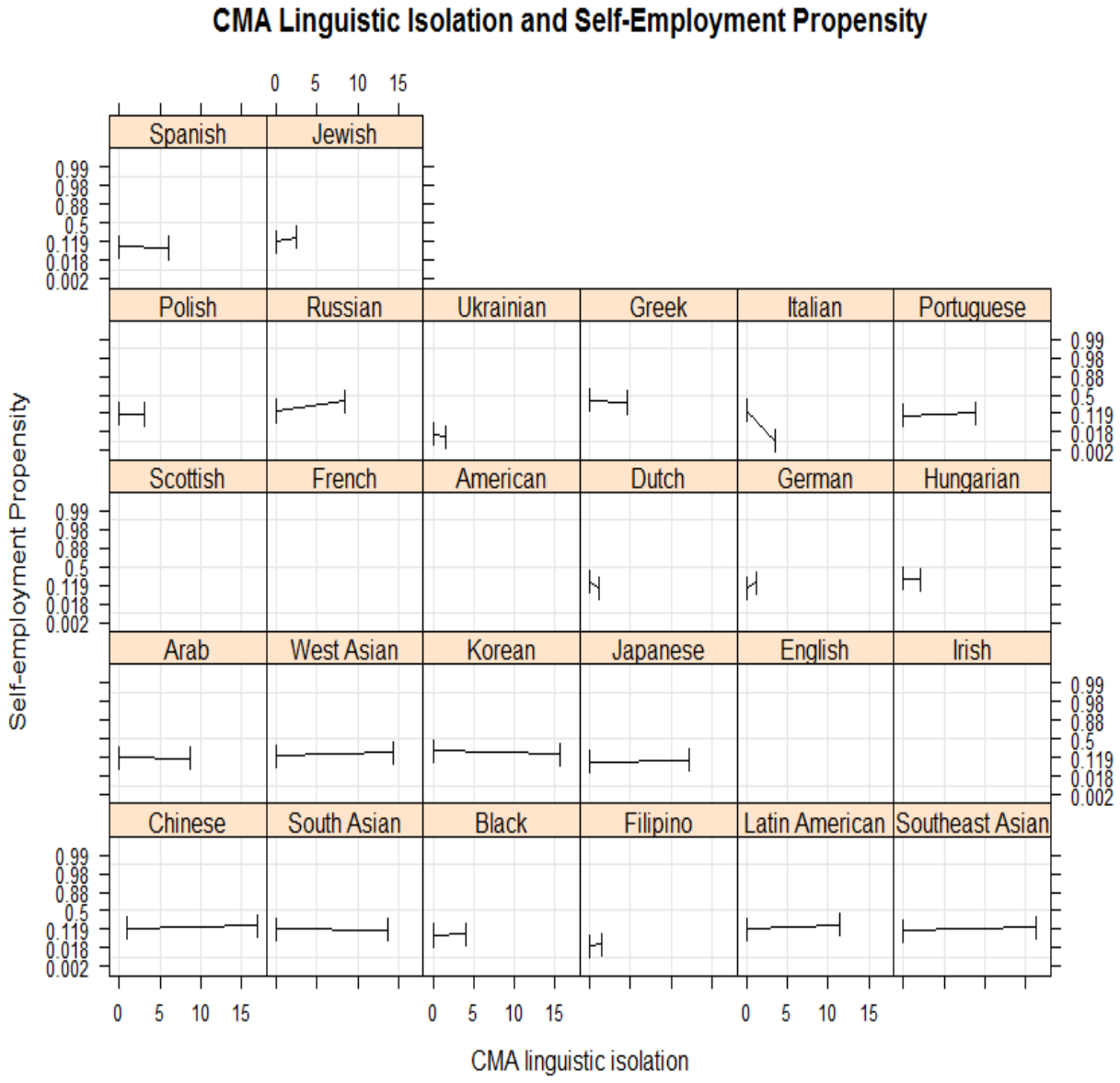
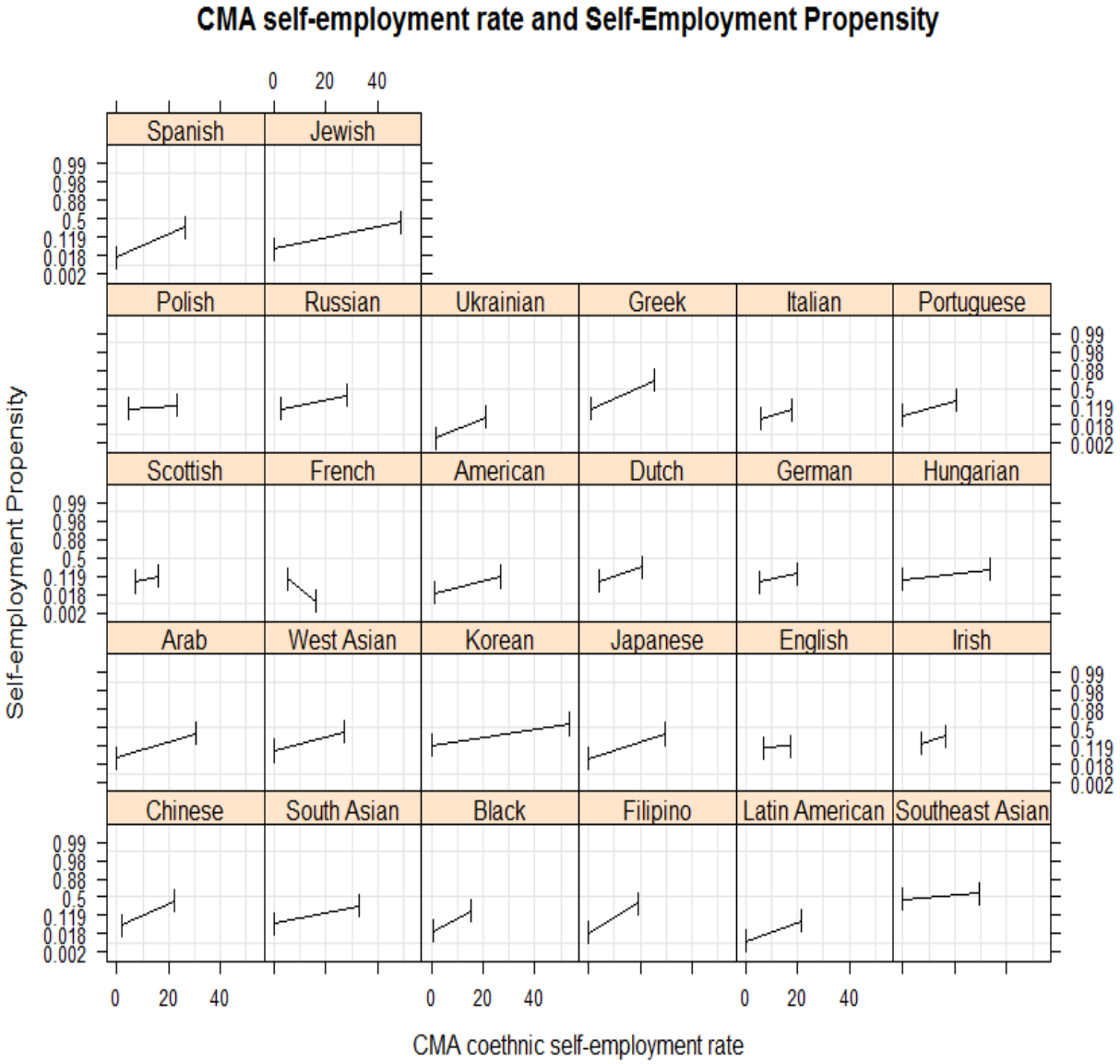


Figure 2.7 Effects of CMA Linguistic Isolation on Self-Employment Propensity of Minority and White Immigrant Groups. Fitted Self-Employment Propensity Was Derived From the Logistic Regression Analysis of Self-Employment Propensity.



Note: Some immigrant groups have no line because they have too small linguistically isolated population: Filipinos, Japanese, English, Irish, Scottish, French, Americans, Dutch, Germans, and Jewish.

Figure 2.8 Effects of CMA Self-Employment Rate on Self-Employment Propensity of Minority and White Immigrant Groups. Fitted Self-Employment Propensity Was Derived From the Logistic Regression Analysis of Self-Employment Propensity.



REC within each of the minority and white immigrant groups, little difference exists in the pattern of the effects between white and minority groups.

The effects of REC on self-employment propensity show different patterns. With the type of the measure, there are more variations in the pattern of the effects of REC on self-employment propensity than on self-employment income. In CMA co-ethnic population and self-employment rate, more immigrant groups, both minority and white, have positive effects of REC on self-employment propensity than on self-employment income, indicating that some white immigrant groups also have positive effects of REC as do some minority immigrant groups. Positive effects of CMA linguistic isolation on self-employment propensity are weaker than those of the other two measures of REC, with only a few minority and white immigrant groups showing positive effects. However, in all measures, little difference exists in the pattern of the effects of REC on self-employment propensity between minority and white immigrant groups.

REGRESSION ANALYSES OF EDUCATION

Effects of education on self-employment income

An ANOVA test was conducted on each immigrant group, in order to test if

Table 3.2. ANOVA and General Linear Hypotheses Tests of Minority Immigrants

	Chinese	South Asian	Black	Filipino	Latin American
Global F-test (ANOVA)	0.0008***	0.0001***	0.7498	0.0000***	0.0328*
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0544	0.0168*	0.3185	0.0517	0.0469*
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0275*	0.1566	0.9462	0.0000***	0.0862
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.5338	0.5206	0.3631	0.000***	0.7578
	Southeast Asian	Arab	West Asian	Korean	Japanese
Global F-test (ANOVA)	0.0000***	0.0001***	0.6391	0.4995	0.3271
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.78	0.0188*	0.9114	0.1268	0.0612
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0000***	0.0000***	0.5164	0.8236	0.0914
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.000***	0.019*	0.4082	0.1842	0.7254

education has an overall significant effect on self-employment income. Evidence about the overall effect of education on self-employment income is mixed. In both minority and white immigrant groups, some immigrant groups have an overall significant relationship between education and self-employment income, showing that education is a significant factor in determining levels of self-employment income, but the other immigrant groups show no significant relationship. As we can see in Table 3.2, among minority immigrants, six groups—Chinese ($p<0.001$), South Asian ($p<0.001$), Filipino ($p<0.001$), Latin American ($p<0.05$), Southeast Asian ($p<0.001$), and Arab ($p<0.001$) immigrants—have a significant overall relationship between education and self-employment income, but among four groups—Black, West Asian, Korean, and Japanese immigrants—the relationship is not significant. As we can see in Table 3.4 and 3.6, among white immigrants, evidence is also mixed, with four groups—Irish ($p<0.001$), French ($p<0.05$), Polish ($p<0.01$), Jewish ($p<0.01$) immigrants—having significant overall effects of education on self-employment income, and twelve groups no significant effects. Therefore, compared to minority immigrants, proportionally lower white immigrant groups have a significant overall effect of education on self-employment income (25% vs. 60%).

Next, in order to examine if self-employment income increases with each increase in

level of education, general linear hypotheses tests were conducted, and the results for minority immigrants are presented in Table 3.2. Also, whether the differences in general linear hypotheses are positive or negative was determined by comparing the average differences in self-employment income between each level of education and the baseline category, and the average differences for minority immigrants are presented in the results on class resources in Table 3.1. Positive effects of education on self-employment income are found only among a few minority immigrants, providing weak support for class resources theory. First, a bachelor's degree provides an advantage in self-employment income over a below bachelor's degree only in one minority group—Latin American—with the difference in self-employment income between a below bachelor's degree and a bachelor's degree being positive and significant. Among other groups, the self-employment income advantage of a bachelor's degree is not statistically significant, or the average self-employment income of bachelor's degree holders is even significantly lower than that of below bachelor's degree holders: Among seven groups—Chinese, Black, Filipino, Southeast Asian, West Asian, Korean, Japanese immigrants—the difference in self-employment income between below bachelor's degree and bachelor's degree holders is not statistically significant, and the difference in self-employment income is even negative among two groups—South Asian ($p<0.05$)

and Arab ($p<0.05$) immigrants—indicating higher average self-employment income for below bachelor's degree holders than bachelor's degree holders. Next, the positive effect of an above bachelor's degree on self-employment income is relatively weak. While an above bachelor's degree have an advantage in self-employment income over a bachelor's degree among some minority immigrant groups, with the average self-employment income of above bachelor's degree holders being significantly higher than that of bachelor's degree holders among four minority immigrant groups—Chinese ($p<0.05$), Filipino ($p<0.001$), Southeast Asian ($p<0.001$), and Arab ($p<0.001$) immigrants—the advantage does not exist among other groups, with the difference being not statistically significant among the other six minority immigrant groups—South Asian, Black, Latin American, West Asian, Korean, and Japanese immigrants. Furthermore, positive effects of education on self-employment income are not clear even between an above bachelor's degree and a below bachelor's degree: Among many (seven) minority groups—Chinese, South Asian, Black, Latin American, West Asian, Korean, and Japanese immigrants—the difference in self-employment income between above bachelor's degree holders and below bachelor's degree holders is not significant while the difference is significant only among three minority immigrants—Filipino ($p<0.001$), Southeast Asian ($p<0.001$), and Arab ($p<0.05$) immigrants—indicating

Table 3.4. ANOVA and General Linear Hypotheses Tests of White Immigrants

	English	Irish	Scottish	French	American
Global F-test (ANOVA)	0.9486	0.0004***	0.1328	0.0246*	0.8819
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.9379	0.0540	0.4402	0.2725	0.4634
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.2698	0.0006***	0.0444*	0.1978	0.7196
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.1660	0.0223*	0.0840	0.0073**	0.8301
	Dutch	German	Hungarian	Polish	Russian
Global F-test (ANOVA)	0.2069	0.8202	0.4154	0.0047**	0.0804
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.7777	0.2577	0.1921	0.3089	0.7143
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.5911	0.4102	0.2911	0.1335	0.0139
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.3583	0.0223*	0.9650	0.3841	0.0218*

Table 3.6. ANOVA and General Linear Hypotheses Tests of White Immigrants

	Ukrainian	Greek	Italian	Portuguese	Spanish
Global F-test (ANOVA)	0.5844	0.4613	0.3404	0.8406	0.2619
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.8593	0.7431	0.2723	0.2256	0.1761
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.5241	0.5492	0.0717	0.662	0.0594
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.6032	0.6570	0.2388	0.1278	0.2796

	Jewish
Global F-test (ANOVA)	0.0091**
P-values for Pairwise F-test (Below Bachelor- Bachelor)	0.1877
P-values for Pairwise F-test (Bachelor-Above Bachelor)	0.0327*
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0002***

higher self-employment income for above bachelor's degree holders.

For white immigrants, the results for general linear hypotheses tests are presented in Table 3.4 and 3.6. Also, whether the differences in general linear hypotheses are positive or negative was determined by using the results on class resources in Table 3.3 and 3.5. Among white immigrants, positive effects of education on self-employment income are also found among a few groups, and support for class resources theory is generally weaker than among minority immigrants. First, in no white immigrant group is there evidence that a bachelor's degree have a positive effect on self-employment income over a below bachelor's degree: The difference in self-employment income between a below bachelor's and a bachelor's degree is statistically significant in no white immigrant group. Also, evidence for a positive effect of an above bachelor's degree on self-employment income is weak among white immigrants. A higher average self-employment income of bachelor's degree holders, compared to the average self-employment income of below bachelor's degree holders, is observed only among a few white immigrant groups: Only in two groups—Irish ($p<0.001$) and Scottish ($p<0.05$) immigrants—the difference in self-employment income between above bachelor's and bachelor's degree holders is positive, in support of class resources theory. However, among the majority (thirteen) of groups—English, French, American, Dutch, German,

Hungarian, Polish, Russian, Ukrainian, Greek, Italian, Portuguese, Spanish immigrants—the difference is not statistically significant, and in one group—Jewish immigrants—the difference is even negative ($p<0.05$), indicating no positive effect of an above bachelor's degree over a bachelor's degree on self-employment income. Furthermore, positive effects of education on self-employment income are weak even between an above bachelor's degree and a below bachelor's degree: While the difference in self-employment income between above and below bachelor's degree holders is significant among a relatively small number (five) of white immigrant groups—Irish ($p<0.05$), French ($p<0.01$), German ($p<0.05$), Russian ($p<0.05$), Jewish ($p<0.001$) immigrants—indicating higher average self-employment income for above bachelor degree holders, the difference is not significant among many (eleven) groups—English, Scottish, American, Dutch, Hungarian, Polish, Ukrainian, Greek, Italian, Portuguese, Spanish immigrants.

Effects of education on self-employment propensity

In order to test if education has an overall significant effect on self-employment propensity, an ANOVA test was conducted in each immigrant group, and the results for minority and white immigrants are presented in Table 3.8, 3.10, and 3.12. In the overall

Table 3.8. ANOVA and General Linear Hypotheses Tests of Minority Immigrants

	Chinese	South Asian	Black	Filipino	Latin American
Global F-test (ANOVA)	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0001***	0.0000***
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0000***	0.0000***	0.0000***	0.0002***	0.0454*
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***
	Southeast Asian	Arab	West Asian	Korean	Japanese
Global F-test (ANOVA)	0.0000***	0.0000***	0.0002***	0.0018**	0.0000***
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.7341	0.1409	0.1103	0.0005***	0.0000***
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0000***	0.0000***	0.0000***	0.5423	0.7485
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***	0.0000***	0.0022**	0.0399*	0.0000***

Table 3.10. ANOVA and General Linear Hypotheses Tests of White Immigrants

	English	Irish	Scottish	French	American
Global F-test (ANOVA)	0.0000***	0.0000***	0.0000***	0.0000***	0.9611
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0000***	0.8994
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0000***	0.0000***	0.0000***	0.826	0.8851
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0000***	0.781
	Dutch	German	Hungarian	Polish	Russian
Global F-test (ANOVA)	0.0000***	0.0000***	0.0000***	0.0000***	0.5946
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0000***	0.0002***	0.0000***	0.02526*	0.3659
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0001***	0.0000***	0.0130*	0.0000***	0.3691
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0000***	0.9833

Table 3.12. ANOVA and General Linear Hypotheses Tests of White Immigrants

	Ukrainian	Greek	Italian	Portuguese	Spanish
Global F-test (ANOVA)	0.0005***	0.0000***	0.0000***	0.0000***	0.0000***
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0002***	0.0034**	0.0000***	0.0001***	0.002**
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.2253	0.0005***	0.0000***	0.0000***	0.0000***
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0087**	0.0000***	0.0000***	0.0000***	0.0284*

	Jewish
Global F-test (ANOVA)	0.0000***
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0000***
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.3121
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***

effect of education on self-employment propensity, support for class resources theory is stronger than in the overall effect of education on self-employment income because proportionally more minority and white groups have positive relationship between education and self-employment propensity (60% vs. 100% among minority immigrants, and 25% vs. 88% among white immigrants). Specifically, among all ten minority immigrant groups, the overall effect of education is significant on self-employment propensity. Among white immigrants, fourteen groups have significant relationship between education and self-employment propensity, and two groups do not have significant relationship.

Next, similar to self-employment income, general linear hypothesis tests were conducted in order to examine if self-employment propensity increases with each level of education increase, and whether the differences in general linear hypotheses are positive or negative was determined by comparing the average differences between each level of education and the baseline category provided in the results on class resources. The results are contrary to those of self-employment income. As we can see in Table 3.7, and 3.8, among many minority immigrant groups, self-employment propensity increases as education level increases. First, as education increases from below bachelor's to bachelor's degree, the average self-employment propensity also increases among many

minority immigrant groups: Among many (seven) groups—Chinese, South Asian, Black, Filipino, Latin American, Korean, and Japanese immigrants—the average self-employment propensity of bachelor's degree holders is greater than that of below bachelor's degree holders, and the difference in self-employment propensity is significant ($p<0.001$), while among a few (three) groups—Southeast Asian, Arab, and West Asian immigrants—the difference is not statistically significant. Next, as education increases from a bachelor's to above bachelor's degree, the average self-employment propensity also increases among many minority immigrant groups: Among many (eight) groups—Chinese, South Asian, Black, Filipino, Latin American, Southeast Asian, Arab, and West Asian—the average self-employment propensity of above bachelor's degree holders is greater than that of bachelor's degree holders, and the differences in self-employment propensity are positive and significant ($p<0.001$), indicating higher self-employment propensity for bachelor's degree holders, while among a small number (two) of groups—Korean and Japanese—the differences are not significant. Also, the average self-employment propensity of an above bachelor's degree is greater than that of a below bachelor's degree among all minority immigrant groups, and the difference in self-employment propensity is significant ($p<0.05$), showing evidence for growing self-employment propensity with higher levels of

Table 3.9. Logistic Regression Analysis of Self-Employment Propensity of White Immigrants

	Variables	***English (n=78,350)***	Irish (n=20,395)	Scottish (n=28,425)	French (n=25,835)	American (n=4,030)
	Co-ethnic	0.02 (0.003)	-0.02 (0.013)	0.086 (0.012)	0.029 (0.009)	1.883 (0.594)
CMAE	population	O.R: 1.02 ***	O.R: 0.98 ***	O.R: 1.09 ***	O.R: 1.029 **	O.R: ***6.553 *****
thnic	Linguistic	n.a.	n.a.	n.a.	n.a.	n.a.
Reso-	isolation					
Urces	Self-employment	0.022 (0.026)	0.089 (0.046)	0.066 (0.027)	-0.022 (0.035)	0.07(0.013)
		O.R: 1.022	O.R: 1.093 ***	O.R: 1.068 *	O.R: 0.978	O.R: 1.073 ***
Class	(BelowBachelor)					
	Bachelor	0.409 (0.029)	0.449(0.062)	0.283 0.055)	0.433 (0.05)	-0.015(0.118)
Reso-		O.R: 1.505 ***	O.R: 1.567 ***	O.R: 1.327 ***	O.R: 1.542 ***	O.R: 0.985
Urce	AboveBachelor	0.754 (0.031)	1.045(0.058)	1.024 (0.055)	0.444 (0.044)	-0.036(0.13)
		O.R: 2.125 ***	O.R: 2.843 ***	O.R: 2.784 ***	O.R: 1.559 ***	O.R: 0.965
	Variables	Dutch (n=20,940)	German (n=32,265)	Hungarian (n=14,480)	Polish (n=81,165)	Russian (n=24,605)
	Co-ethnic	0.072 (0.015)	-0.004 (0.005)	-0.112 (0.074)	-0.034 (0.022)	0.027 (0.099)
CMAE	population	O.R: 1.075 ***	O.R: 0.996	O.R: 0.894	O.R: 0.967	O.R: 1.027
thnic	Linguistic	-0.548 (0.192)	0.44 (0.126)	-0.024 (0.043)	-0.015 (0.043)	0.013 (0.033)
Reso-	isolation	O.R: 0.578 **	O.R: 1.553 ***	O.R: 0.976	O.R: 0.985	O.R: 1.139
Urces	Self-employment	0.09 (0.018)	0.06 (0.02)	0.034 (0.007)	0.023 (0.011)	0.058 (0.011)
		O.R: 1.094 ***	O.R: 1.062 **	O.R: 1.035 ***	O.R: 1.023 *	O.R: 1.06 ***
Class	(BelowBachelor)					
	Bachelor	0.356 (0.057)	0.178 (0.048)	0.3(0.064)	-0.077 (0.034)	0.039 (0.043)
Reso-		O.R: 1.427 ***	O.R: 1.195 ***	O.R: 1.35 ***	O.R: 0.926 *	O.R: 1.04
Urce	AboveBachelor	0.627(0.058)	0.664 (0.045)	0.497(0.066)	0.335 (0.027)	0.0008(0.040)
		O.R: 1.872 ***	O.R: 1.943 ***	O.R: 1.644 ***	O.R: 1.398 ***	O.R: 1.001

Controlled for: age, age², language, years since immigration, years since immigration², education, marital status, sex, hours worked, industry, CMA average self-employment income, and CMA self-employment rate

***p<0.001; ** p<0.01; * p<0.05

n.a.: not available due to lack of variation in the variable

Source: Canada, 2006 Census Confidential File

Table 3.10. ANOVA and General Linear Hypotheses Tests of White Immigrants

	English	Irish	Scottish	French	American
Global F-test (ANOVA)	0.0000***	0.0000***	0.0000***	0.0000***	0.9611
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0000***	0.8994
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0000***	0.0000***	0.0000***	0.826	0.8851
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0000***	0.781
	Dutch	German	Hungarian	Polish	Russian
Global F-test (ANOVA)	0.0000***	0.0000***	0.0000***	0.0000***	0.5946
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0000***	0.0002***	0.0000***	0.02526*	0.3659
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.0001***	0.0000***	0.0130*	0.0000***	0.3691
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***	0.0000***	0.0000***	0.0000***	0.9833

Table 3.11. Logistic Regression Analysis of Self-Employment Propensity of White Immigrants (continued)

	Variables	Ukrainian (n=16,115)	Greek (n=25,480)	Italian (n=96,010)	Portuguese (n=79,195)	Spanish (n=23,425)
CMAE	Co-ethnic	0.031 (0.015)	0.249 (0.114)	0.019 (0.007)	-0.071 (0.035)	-0.342 (0.175)
thnic	population	O.R: 1.031 *	O.R: 1.282 *	O.R: 1.019 **	O.R: 0.931*	O.R: 0.71
Reso-	Linguistic	-0.191 (0.054)	-0.043 (0.021)	-0.095 (0.016)	0.029 (0.015)	-0.025 (0.023)
urces	isolation	O.R: 0.826 ***	O.R: 0.958 *	O.R: 0.909 ***	O.R: 1.029	O.R: 0.975
	Self-employment	0.118 (0.032)	0.124 (0.011)	0.087 (0.015)	0.079 (0.011)	0.124 (0.013)
		O.R: 1.125 ***	O.R: 1.132 ***	O.R: 1.09 ***	O.R: 1.082 ***	O.R: 1.132***
Class	(BelowBachelor)					
	Bachelor	0.209 (0.056)	0.21 (0.072)	0.277 (0.036)	0.22 (0.057)	-0.215 (0.07)
Reso-		O.R: 1.232 ***	O.R: 1.234 **	O.R: 1.32 ***	O.R: 1.246 ***	O.R: 0.807 **
urce	AboveBachelor	0.138 (0.053)	0.53 (0.074)	0.766 (0.04)	0.7 (0.07)	0.153 (0.07)
		O.R: 1.148 **	O.R: 1.699 ***	O.R: 2.151 ***	O.R: 2.014 ***	O.R:1.165 *

	Variables	Jewish (n=21,340)
CMAE	Co-ethnic	-0.208 (0.074)
thnic	population	O.R: 0.812 **
Reso-	Linguistic	0.188 (0.072)
urces	isolation	O.R: 1.207 **
	Self-employment	0.059 (0.008)
		O.R: 1.061 ***
Class	(BelowBachelor)	
	Bachelor	0.205 (0.044)
Reso-		O.R: 1.228 ***
urce	AboveBachelor	0.251 (0.042)
		O.R: 1.285 ***

Table 3.12. ANOVA and General Linear Hypotheses Tests of White Immigrants

	Ukrainian	Greek	Italian	Portuguese	Spanish
Global F-test (ANOVA)	0.0005***	0.0000***	0.0000***	0.0000***	0.0000***
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0002***	0.0034**	0.0000***	0.0001***	0.002**
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.2253	0.0005***	0.0000***	0.0000***	0.0000***
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0087**	0.0000***	0.0000***	0.0000***	0.0284*

	Jewish
Global F-test (ANOVA)	0.0000***
P-values for Pairwise F-test (Bachelor- Below Bachelor)	0.0000***
P-values for Pairwise F-test (Above Bachelor-Bachelor)	0.3121
P-values for Pairwise F-test (Above Bachelor-Below Bachelor)	0.0000***

education.

Like minority immigrants, among many white immigrant groups, self-employment propensity increases as education level increases, as we can see in Table 3.9, 3.10, 3.11, and 3.12. First, as education increases from a below bachelor's to a bachelor's degree, the average self-employment propensity also increases among many white immigrant groups, although there is some variation in the effects of education on self-employment propensity: Among many (twelve) groups—English, Irish, Scottish, French, Dutch, German, Hungarian, Ukrainian, Greek, Italian, Portuguese, Jewish—the average self-employment propensity of bachelor's degree holders is greater than that of below bachelor's degree holders, and the difference in self-employment income is significant ($p<0.01$), in support of class resources theory, while among a few (two) groups—American and Russian immigrants—the difference is not statistically significant, and among two groups—Polish ($p<0.05$) and Spanish ($p<0.01$) immigrants—the average self-employment propensity of below bachelor's degree holders is greater than that of bachelor's degree holders. Next, as education increases from a bachelor's to an above bachelor's degree, the average self-employment propensity also increases among many white immigrant groups: Among many (eleven) groups—English, Irish, Scottish, Dutch, German, Hungarian, Polish, Greek, Italian, Portuguese, Spanish immigrants—the

average self-employment propensity of above bachelor's degree holders is greater than that of bachelor's degree holders, and the difference in self-employment propensity is significant ($p<0.05$), in support of class resources theory, while among a relatively small number (five) of groups—French, American, Russian, Ukrainian, and Jewish immigrants—the difference is not significant. Also, above bachelor's degree holders, in general, have higher average self-employment propensity over a below bachelor's degree holders: The average self-employment propensity of an above bachelor's degree is greater than that of a below bachelor's degree among many (fourteen) white immigrant groups—English, Irish, Scottish, French, Dutch, German, Hungarian, Polish, Ukrainian, Greek, Italian, Portuguese, Spanish, and Jewish immigrants—and the difference in self-employment propensity is significant ($p<0.05$), showing evidence for growing self-employment propensity with higher levels of education. Only among a few (two) groups—American and Russian immigrants—is the difference in self-employment propensity not significant.

MIXED EFFECTS REGRESSION ANALYSES OF IMMIGRANTS

In order to examine the effect of CMA and average ethnic resources on self-

employment income and propensity in the minority and white immigrants, and test reactive ethnicity theory, cross-classified hierarchical linear model and generalized cross-classified hierarchical linear model are fit to the minority and white immigrants.

Reactive Ethnicity Theory

In order to test reactive ethnicity theory for self-employment income, I conducted a cross-classified hierarchical model analysis of the effects of the interactions between CMA and average REC, and average linguistic disadvantage on self-employment income. As Table 4.1 shows, the effects of some types of REC on self-employment income change as average disadvantage increases, but the direction of the effects is not as expected in reactive ethnicity theory.

Among immigrant groups with 0% linguistic isolation, the effect of co-ethnic population on self-employment is negative, with a one percent increase in co-ethnic population associated with a 0.24% ($(1-10^{-0.00034}) \times 100$) decrease in self-employment income. As average linguistically isolated population increases, the effect of co-ethnic population becomes more negative, with a 0.08% ($(1-10^{-0.00034}) \times 100$) decrease in the effect of co-ethnic population on self-employment income for every one percent increase in average linguistically isolated population. Therefore, in immigrant groups

Table 4.1 Cross-Classified Hierarchical Model Analysis of the Effects of the Interactions between CMA and Average REC, and Average Linguistic Disadvantage on Self-Employment Income for the Test of Reactive Ethnicity Theory

Variables	Linguistic Disadvantage Interaction		
	Model 1		
	Estimates	s.e.	p-value
Fixed Effects			
co-ethnic population	-0.00103	0.00026	0.02* [c]
linguistic isolation	0.00646	0.00061	0.01**
self-employment rate	0.00368	0.00032	0.01*
average co-ethnic population	0.00145	0.00197	0.54
average linguistic isolation	0.00051	0.00151	0.7
average self-employment rate	0.00598	0.00079	0.01**
co-ethnic population * average linguistic isolation	-0.00034	0.00006	0.02*
linguistic isolation * average linguistic isolation	-0.00007	0.00017	0.78
self-employment rate * average linguistic isolation	-0.00059	0.00011	0.01**
average co-ethnic population * average linguistic isolation	-0.00148	0.00092	0.38
average self-employment rate * average linguistic isolation	-0.0001	0.00037	0.92
CMA self-employment income	-0.000001	0.000001	0.32
Random Effects (Variance Components)	Variance	Std. Deviation	
CMA	0.00005	0.00716	
Ethnicity	0.00016	0.01251	
Residual Error	0.1081	0.32878	
-2*Loglikelihood	125100		

Controlled for: center.age, center.age^2, language, center.years.since.immigration, center.years.since.immigration^2, education, marital status, sex, industry, center.CMA.average.self-employment.income

***p<0.001; ** p<0.01; * p<0.05

[c] : p-value is calculated using Markov Chain Monte Carlo

Source: Canada, 2006 Census Confidential File

with 9% linguistically isolated population, an increase in co-ethnic population is associated with a more negative decrease in self-employment income, with a one percent increase in co-ethnic population associated with 0.94% ($(1-10^{-0.00103-0.00034\times9})\times100$) decrease in self-employment income.

Also, a one percent increase in CMA self-employment rate is associated with a 0.85% ($(10^{0.00368}-1)\times100$) increase in self-employment income in immigrant groups with 0% linguistic isolation. However, as average linguistically isolated population increases, the effect of CMA self-employment rate becomes more negative, with a 0.14% ($(1-10^{-0.00059})\times100$) decrease in the effect of CMA self-employment rate on self-employment income for every one percent increase in average linguistically isolated population. Therefore, in immigrant groups with 9% linguistically isolated population, the effect of CMA self-employment rate on self-employment income becomes negative, with a one percent increase in CMA self-employment rate associated with 0.37% ($(1-10^{-0.00368-0.00059\times9})\times100$) decrease in self-employment income.

Next, tests of reactive ethnicity theory for self-employment propensity were conducted in Table 4.2 using a generalized cross-classified hierarchical model analysis of the effects of the interactions between CMA and average REC, and average linguistic disadvantage on self-employment propensity.

Table 4.2 Generalized Cross-Classified Hierarchical Model Analysis of the Effects of the Interactions between CMA and Average REC, and Average Linguistic Disadvantage on Self-Employment Propensity for the Test of Reactive Ethnicity Theory

Variables	Linguistic Disadvantage Interaction		
	Model 1		
	Estimates	s.e.	p-value
Fixed Effects			
co-ethnic population	0.0054	0.00092	0.000 ***
language barrier	-0.01224	0.0022	0.000 ***
self-employment rate	0.06721	0.00121	0.000 ***
average co-ethnic population	-0.01336	0.02365	0.550
average language barrier	-0.00543	0.0168	0.747
average self-employment rate	0.06609	0.00894	0.000 ***
co-ethnic population * average linguistic isolation	-0.00214	0.00022	0.000 ***
language barrier * average linguistic isolation	0.00561	0.00061	0.000 ***
self-employment rate * average linguistic isolation	0.00088	0.00039	0.024 *
co-ethnic population * average linguistic isolation	-0.0086	0.01051	0.413
self-employment rate * average linguistic isolation	0.00294	0.00418	0.482
CMA self-employment rate	1.96592	0.67015	0.003 **
Random Effects (Variance Components)	Variance	Std. Deviation	
CMA	0.00779	0.08827	
Ethnicity	0.02193	0.14812	
-2*Loglikelihood	1510340		

Controlled for: center.age, center.age^2, language, center.years.since.immigration, center.years.since.immigration^2, education, marital status, sex, industry, center.CMA.average.self-employment.rate

***p<0.001; ** p<0.01; * p<0.05

Source: Canada, 2006 Census Confidential File

As in self-employment income, the effects of some types of REC on self-employment propensity change as average linguistic disadvantage increases. Also, the direction of the change varies among the effects, providing only partial support for reactive ethnicity theory.

Among immigrant groups with 0% linguistically isolated population, a one percent increase in co-ethnic population is positively associated with an average 0.54% (($e^{0.0054}$-1) ×100) increase in self-employment propensity. However, with increasing average linguistic isolation, the effect of co-ethnic population becomes more negative. For one percent increase in average linguistic isolation, the positive effect of co-ethnic population on self-employment propensity decreases by 0.21% ((1-$e^{-0.00214}$) ×100). Therefore, in immigrant groups with 9 percent average linguistic isolation, the effect of co-ethnic population becomes negative, with a one percent increase in co-ethnic population associated with an average 1.3% ((1-$e^{0.0054-0.00214\times9}$) ×100) decrease in self-employment propensity.

Also, a one percent increase in CMA linguistically isolated population is associated with an average 1.22% ((1-$e^{-0.01224}$) ×100) decrease in self-employment propensity, in immigrant groups with 0% linguistically isolated population. However, with increasing average linguistic isolation, the effect of CMA linguistically isolated population

becomes more positive. For a 1 percent increase in average linguistic isolation, the effect of CMA linguistically isolated population on self-employment propensity becomes more positive by 0.56% ($(e^{0.00561}-1) \times 100$). Therefore, in immigrant groups with 9 percent average linguistic isolation, the effect of CMA linguistically isolated population on self-employment propensity becomes positive, with a one percent increase in CMA linguistically isolated population associated with an average 3.90% ($(e^{-0.01224+0.00561\times 9}-1) \times 100$) increase in self-employment propensity.

Furthermore, a one percent increase in CMA self-employment rate is associated with an average 6.95% ($(e^{0.06721}-1) \times 100$) increase in self-employment propensity, in immigrant groups with 0% linguistically isolated population. With increasing average linguistic isolation, the effect of CMA self-employment rate becomes more positive. For one percent increase in average linguistic isolation, the effect of CMA self-employment rate on self-employment propensity becomes more positive by 0.09% ($(e^{0.00088}-1) \times 100$). Therefore, in immigrant groups with 9 percent average linguistic isolation, the effect of CMA self-employment rate on self-employment propensity becomes more positive, with a one percent increase in CMA self-employment rate associated with an average 7.80% ($(e^{0.06721+0.00088\times 9}-1) \times 100$) increase in self-employment propensity. The above results are presented in Figure2.9 and 2.10.

Figure 2.9 Effects of CMA Co-ethnic Population and Self-Employment Rate on Self-Employment Income as Linguistic Disadvantage Increases. Fitted Self-Employment Income Was Derived From the Cross-Classified Hierarchical Model Analysis of Self-Employment Income.

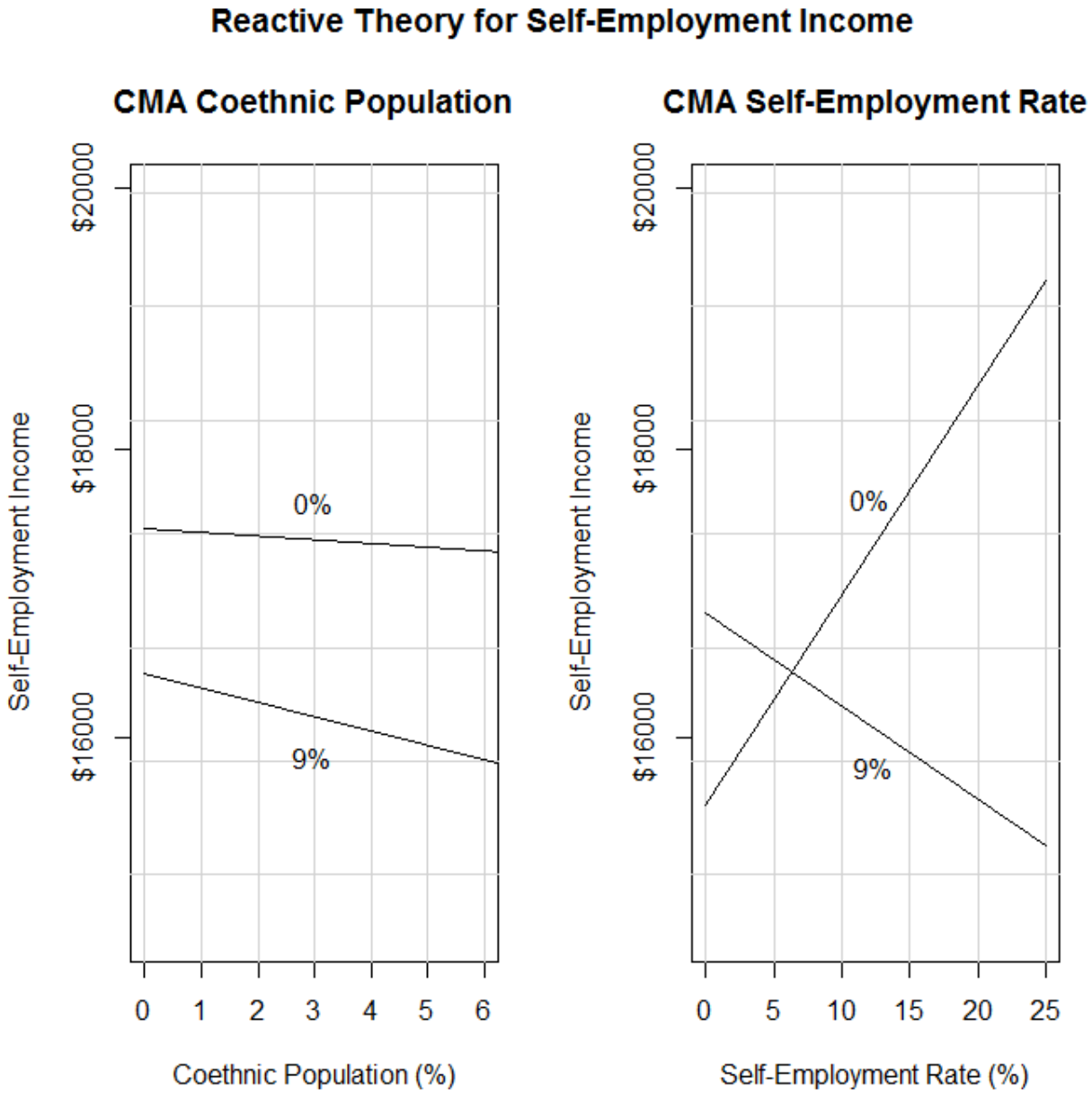
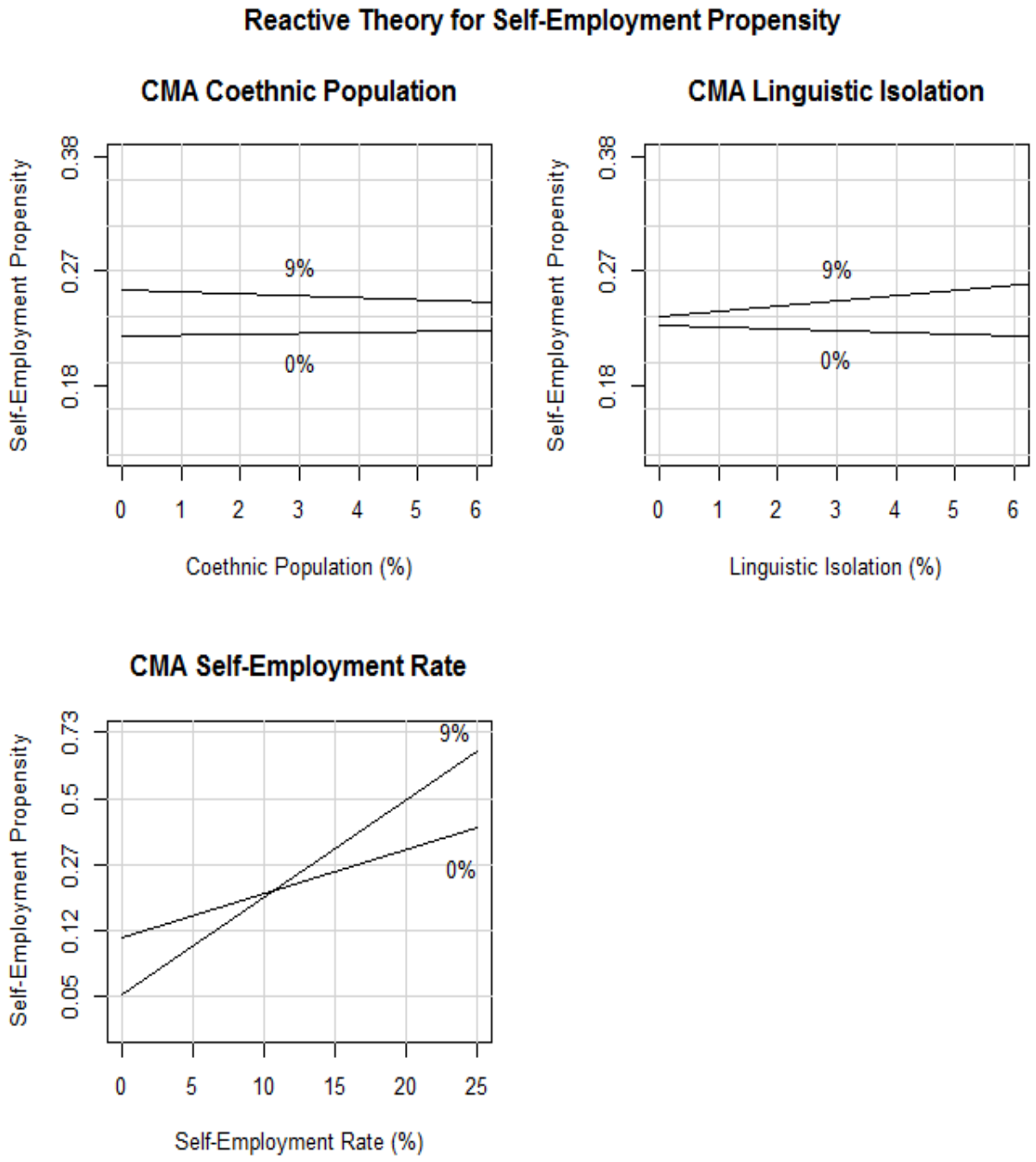


Figure 2.10 Effects of CMA Co-ethnic Population, Linguistic Isolation and Self-Employment Rate on Self-Employment Probability as Linguistic Disadvantage Increases. Fitted Self-Employment Probability Was Derived From the Generalized Cross-Classified Hierarchical Model Analysis of Self-Employment Propensity.



Conclusion

In order to examine the effects of REC and education on self-employment outcomes, I first look into results from ordinary least squares and logistic regression models of each of the immigrant groups. In all three measures of residential and entrepreneurial concentration of most minority and white immigrants, the effects of REC on self-employment income are insignificant or negative, supporting Bates's and intra-group competition theory. In contrast, the effects of residential concentration on self-employment propensity vary among immigrant groups, and the effects of CMA co-ethnic population on self-employment propensity is positive in more immigrant groups than on self-employment income, providing support for ethnic resources theory among these immigrant groups. Besides, the effects of entrepreneurial concentration on self-employment propensity are positive among most immigrant groups, supporting ethnic resources theory. Similarly, the effects of education on self-employment income are not positive among many minority and white immigrant groups, but those of education on self-employment propensity are positive among much more immigrant groups. Next, I examine the results of cross-classified hierarchical and generalized cross-classified hierarchical linear models. Contrary to the argument of reactive ethnicity theory, the

effects of CMA co-ethnic population and self-employment rate on self-employment income become more negative, and the effects of CMA linguistic isolation do not change with increasing average linguistic isolation, failing to provide support. However, the effects of REC on self-employment propensity are different: The effects of CMA linguistic isolation and CMA self-employment rate on self-employment propensity becomes more positive as disadvantage increases, in support of reactive ethnicity theory, while the effect of CMA co-ethnic population becomes more negative. The next chapter discusses and draws conclusions about the findings of the analyses presented in this chapter.

CHAPTER SIX: DISCUSSION AND CONCLUSION

Introduction

This study contributes to the literature on immigrant entrepreneurship by addressing theoretical debates about the effects of REC (Residential and Entrepreneurial Concentration), and overcoming the methodological and empirical limitations of previous studies. Using 2006 Census data, this study examines quantitatively the effects of REC, education, and interactions between REC and linguistic disadvantage on the self-employment outcomes of 26 minority and white immigrant groups in 33 CMAs in Canada.

Based on the previous literature, I posed five research questions: (1) How does REC influence the self-employment outcomes of immigrants? (2) How does education influence the self-employment outcomes of immigrants? (3) How do REC and education influence the different stages of immigrant self-employment? (4) Do the effects of REC become more positive as disadvantage increases? (5) Is there any difference in the effects of REC between white and minority immigrants? In the following, I will address these questions, based on the findings of this study.

Residential and Entrepreneurial Concentration

The debate over the effects of REC on self-employment outcomes was the starting point of this study. While ethnic resources theory, and intra-group competition and Bates's theory focus on the consistently one-directional effects of REC, the direction of the effects of REC that they argue for is opposite: Ethnic resources theory argues for positive effects of REC while intra-ethnic competition and Bates's theory argue for negative effects. However, the findings of this study indicate that the effects of REC is not consistent, but varies by type of self-employment outcome, REC, and immigrant group, indicating that both theories find support only in some types of REC and self-employment outcome among some immigrant groups, but fail to account for its effects in other cases.

In particular, a notable variation in the effects of REC is observed between two types of self-employment outcome—self-employment income and propensity. Although some variations exist depending on the immigrant group, and type of REC, in all measures of REC among most minority and white immigrant groups, the effects of REC on self-employment income are insignificant or negative, providing general support for Bates's and intra-group competition theory. The results point to the

limitations of community-based ethnic resources: Community-based ethnic resources, specifically ethnic markets and linguistically isolated populations formed by concentration of immigrant population, and high proportions of the self-employed resulting from concentration of immigrants in self-employment, do not, in general, lead to higher self-employment income, possibly due to the limited size of ethnic markets, the impoverishment of the immigrant population, failure in paternalistic labor relations, and internal competition among businesses.

In contrast, the effects of REC on self-employment propensity vary by type of REC. The effects of one type of REC—residential concentration—on self-employment propensity vary substantially according to the immigrant group and type of residential concentration among minority and white immigrants: The effects of some types of residential concentration among some immigrant groups on self-employment propensity are positive, with higher levels of residential concentration associated with higher self-employment propensity, which is consistent with ethnic resources theory. In contrast, in other cases, the effects of residential concentration are not significant or even negative, with the level of residential concentration not or negatively associated with self-employment propensity, consistent with intra-ethnic competition and Bates's theory. However, neither theory is successful in accounting for the full pattern of residential

concentration effects on self-employment propensity. Therefore, this study, which examines the effects of REC in each immigrant group, points to the limitations of positive effects of REC on self-employment propensity, although the majority of sociological research focuses on positive effects of REC on self-employment outcomes as shown in the literature review: The positive effects of REC on self-employment propensity are not universal among immigrant groups, and are limited to some types of REC among some immigrant groups. That is, only among some minority and white immigrant groups do ethnic resources resulting from one type of REC—residential concentration—facilitate establishment of self-employment, but among other immigrant groups, the community-based ethnic resources deriving from residential concentration do not significantly facilitate the establishment of self-employment.

Despite the fact that the positive effects of residential concentration on self-employment propensity are not shared by all immigrant groups, and are limited to some types of residential concentration among some immigrant groups, the benefits and advantages that residential concentration provides for immigrant groups should not be underestimated. The significance of residential concentration as a resource in facilitating self-employment among those immigrant groups becomes even more critical because its positive effects are not available to all immigrant groups, giving those who

can utilize the positive effects of residential concentration a critical advantage over those who cannot.

The various effects of REC on self-employment propensity may be the product of the interaction of multiple factors, as immigrant self-employment involvement is considered the product of the interaction of multiple factors by the interactive model of immigrant entrepreneurship (Waldinger et al. 1990). Therefore, rather than arguing for the consistently one-directional effects of REC on self-employment propensity, the more meaningful theoretical project will be to investigate factors that cause the effects of REC to vary, in the types of REC and among immigrant groups, and future research should focus on answering this question. Although the Census data do not provide the necessary information to investigate reasons for variations in the effects of residential concentration, the variations are likely to derive from several sources.

First, the level of ethnic solidarity in the immigrant community determines how effective an immigrant group is in converting their REC into positive business resources. Immigrant groups with strong ethnic solidarity can be more effective in converting their REC into positive business resources while those with weak ethnic solidarity may fail to transform it into positive business resources. As indicated in the literature review, formal and informal institutions of the immigrant community, like churches, business

associations, and rotating credit associations, often contribute to promoting and maintaining the ethnic solidarity of the community. Cultural homogeneity is another factor that affects the ethnic solidarity of immigrant groups. As Min and Bozorgmehr (2000) demonstrate, immigrant groups that share a common culture, values and customs, especially language, can relatively easily achieve strong solidarity, while those composed of distinct ethno-religious subgroups with a diverse history, language, and other characteristics, have difficulty achieving it. Also, intergroup conflicts often facilitate ethnic solidarity. Immigrant groups facing high levels of intergroup conflict in their life and business, like Koreans in the U.S., develop strong group solidarity in the process of protecting their interests. They often develop active trade associations resorting to collective actions, which in turn promote group solidarity (Min 1996).

Second, the characteristics of businesses can also moderate the relationship between REC and self-employment outcomes. According to Min and Bozorgmehr (2000), the types of business that immigrants enter differ because their endowments of ethnic and class resources, and motivations to enter the self-employment sector, are different. Immigrant groups with language barriers, foreign education, cultural distinctiveness, and low levels of class resources that choose self-employment as a way to escape disadvantage in the labor market tend to enter small scale, labor intensive, and co-

ethnic-customer-oriented businesses, while those with high education in the host country, high levels of class resources that choose self-employment as a way to achieve greater independence and financial success tend to enter large scale, professional, and white-customer-oriented businesses. Among immigrant groups whose businesses are small, labor intensive, heavily embedded in ethnic networks, and dependent on co-ethnic customers, the REC of co-ethnics would lead to more favorable self-employment outcomes, while among those whose businesses are large, in professional niches, and dependent on a non-ethnic, white clientele, co-ethnic REC may be irrelevant, or even negatively influence self-employment outcomes, because, in some cases, they will have to compete for the same clientele[22].

While the effects of residential concentration on self-employment propensity vary, the effects of the other kind of REC—entrepreneurial concentration—are consistently positive among most minority and white immigrants, showing variation in the effects of REC depending on the type of REC. The findings support the view of ethnic resources theory that favorable training opportunities, business information, and the favorable business environment created by immigrants' concentration in self-employment in a given area will facilitate further involvement of immigrants in self-employment.

[22] Unfortunately, the Census does not contain such details on the nature of the business.

This study reveals that the effects of REC are not consistent but vary by type of self-employment outcome, REC, and immigrant group. In particular, the difference in the effects of REC by type of self-employment outcome needs more attention. While the effects of REC on self-employment income are insignificant or negative among most immigrant groups, the effects of REC—especially CMA co-ethnic population and self-employment concentration—on self-employment propensity are, in general, positive among more immigrant groups than the effects of REC on self-employment income. The evidence seems to indicate that community-based ethnic resources deriving from REC—business networks, support, and exclusive ethnic markets—are effective in facilitating self-employment involvement, but are not effective in increasing self-employment income, possibly because of excess internal competition, and limitations of ethnic markets. These results reveal the complexity of the consequences of ethnic resources for self-employment outcomes: Even the same type of ethnic resources can have contrary consequences for different aspects of self-employment.

Another important finding of this study is that despite the predominant emphasis on the ethnic resources of minority immigrants, the positive effects of REC are not limited to minority immigrants, and some white immigrant groups also demonstrate strong positive effects of REC on self-employment outcomes. While there have been relatively

few studies of how white immigrants benefit from ethnic resources[23], the findings of this study indicate that ethnic resources are also likely to be an important factor for the development of some white immigrant groups' self-employment. However, the ethnic resources of white immigrants may be different from those of minority immigrants in their origin, roles, and characteristics. Further research on these topics is needed.

Education

Among most minority and white immigrant groups, the effects of education on self-employment income are not significant, contrary to class resources and Bates's theory but consistent with the findings of an earlier study (Maxim 1992). That is, with removal of the extremes in the top and bottom three percent of self-employed income, higher levels of education, especially a bachelor's and above degree, does not significantly increase self-employment income among both minority and white self-employed immigrants. The result is surprising considering that entrepreneurship and self-employment have been considered an escape from discrimination, where immigrants and minorities disadvantaged in the mainstream labor market can achieve economic mobility by utilizing the knowledge and skills obtained through their education, which

[23] Rare exceptions areTeixeira (1998, 2001), who examined the cultural and community resources of Portuguese immigrants in Toronto, and Richman (2006), who examined the role of enforceable trust in the Jewish diamond trade in New York.

is not recognized in the employment sector of the host society (Sanders and Nee 1996).

Why, then, is there no or even a negative relationship between education and self-employment income among a majority of self-employed immigrants? One possible explanation is that many immigrants with a bachelor's or above degree choose self-employment in order to supplement their employment income (Li 2001), possibly more so than those with lower education, because the more highly educated, in general, have higher motivation for economic mobility. Their part-time self-employment income may not be as high as their education would allow if they were self-employed full-time. Therefore, their self-employment income alone may not be significantly higher than those with lower education levels**.** Another possibility is that self-employed immigrants in Canada may not be able to translate their skills into higher self-employment income because of the barriers that they face in self-employment. For example, they may not be able to enter lucrative professional self-employment sectors, which often require close personal contact, because of language barriers and consumer discrimination. Also, immigrants may not be able to be self-employed in profitable professional fields because their professional credentials are not recognized in Canada. Immigrants with a high education in the home country may experience a more severe disadvantage from these types of structural barriers because they lose more potential self-employment

income that they might have been able to make without the barriers. Although comparisons with the native-born are necessary to determine whether immigrants continue to experience disadvantage in the self-employment sector compared to the native-born, the findings of this study suggest the possibility that self-employed immigrants are also disadvantaged in the self-employment sector as are immigrants in wage labour.

The effects of education on self-employment propensity differ from those on self-employment income. While education is not crucial to improving the operation of businesses, as we see in the non-significant effects of education on self-employment income, it plays a significant role in facilitating self-employment involvement. Consistent with class resources and Bates's theory, the effects of education are consistently positive on self-employment propensity among most minority and white immigrants. In addition to their strong aspiration for economic mobility (Waldinger and Aldrich 1990), the evidence suggests that immigrants with higher education seem to have both the willingness and resources to establish businesses. The positive effects of education imply that while immigrants' education is undervalued in the mainstream labor market, it still reflects knowledge and skills that are conducive to establishing (starting and maintaining) a business. However, the positive effects of immigrants'

education, and broadly class resources, on self-employment outcomes should not be exaggerated. As we see in the results on self-employment income, immigrants may be successful in establishing businesses using their class resources, but their education and other class resources associated with it are not effective in improving their economic mobility, which is likely their ultimate and most critical motivation for getting into self-employment in the first place.

Ethnic and Class Resources

Through the stages of business development, some researchers argue, the effectiveness of ethnic and class resources changes and follows certain patterns. Recently, patterns in the changing effectiveness of ethnic and class resources have attracted increasing attention of researchers (Yoon 1991; Bates 1994; Yoo 1998). Although I cannot address this issue directly, we can examine the effects of ethnic and class resources on different aspects of self-employment outcomes, self-employment income and propensity. According to the findings of this study, the effects of REC on self-employment income and propensity vary widely, depending on type of residential and entrepreneurial concentration, self-employment outcome, and immigrant group. However, some patterns regarding the relationship between REC and class resources, on

the one hand, and the stages of self-employment development, on the other hand, emerge.

First, while the effects of REC are not significant on self-employment income among most immigrant groups, the effects of REC on self-employment propensity are significant and positive among many groups, although the effects of residential concentration are less consistent than those of entrepreneurial concentration. Second, the effects of education are generally positive on self-employment propensity, but they are generally insignificant or negative on the self-employment income of most minority and white immigrants.

Therefore, although there are variations in the effects of REC on self-employment income and propensity among immigrant groups, the following conclusions can be drawn about the general pattern of their effects. Inasmuch as self-employment income has to do with the operation of self-employment, and self-employment propensity has to do with the establishment of self-employment, the findings suggest that both community-based ethnic resources deriving from REC, and education—one type of class resources—are effective only in establishing self-employment, but are not effective in operating businesses among many immigrant groups. The findings suggest that provision of cheap, reliable co-ethnic labour, business information, skills and

experience, business associations, etc., coming from REC and education are effective in facilitating establishment of immigrant businesses as predicted by the traditional sociological literature. However, these factors are not effective in raising self-employment income, possibly because of barriers to lucrative and professional industries, and the limits of ethnic resources due to severe internal competition. Therefore, the findings of this study, which examines various types of REC for a wide range of immigrant groups, do not support any of the general hypotheses put forward by researchers on this topic, which are based on findings from one or a few immigrant groups.

Reactive Ethnicity Theory

Many studies argue that community-level ethnic resources are the resources and advantages with which disadvantaged groups can achieve economic mobility, putting such resources mostly in a positive light. However, by looking at more than one type of self-employment outcome and multiple aspects of REC among a wide range of immigrant groups, this study shows that the effects of community-level ethnic resources are much more complex. The evidence indicates that while the effects of some types of REC on self-employment outcomes are more positive as average linguistic isolation

increases, producing an advantage in self-employment, the effects of other types of REC can be more negative.

Contrary to the argument of reactive ethnicity theory, this study failed to find evidence that the disadvantaged position of immigrants contributes to increasing positive effects of REC on self-employment income. The findings on reactive ethnicity theory show that as the linguistic disadvantage of an immigrant group increases, the effect of CMA co-ethnic population on self-employment income becomes more negative. In many sociological studies of immigrant self-employment, co-ethnic population has been considered an important resource for minority and immigrant businesses by providing them with advantageous ethnic markets, loyal employees, and informal financing. The findings of this study do not support this view. As Bates (1997) argues, the co-ethnic population of disadvantaged immigrant groups may be so impoverished that its concentration in an area, and the consequent dependence of immigrant business on co-ethnic population, may lead to a more negative effect of CMA co-ethnic population on self-employment income. Also, the effect of CMA self-employment rate on self-employment income becomes more negative with an increase in average linguistic isolation. While linguistically less disadvantaged immigrant groups can take advantage of their concentration in self-employment to increase self-

employment income, linguistically more disadvantaged immigrant groups are not able to take advantage of the same self-employment benefit, possibly because of severe intra-group competition due to the clustering of their work in a small line of business.

In contrast, the effect of another type of REC—CMA linguistic isolation—on self-employment income does not change with the average linguistic isolation of immigrant groups. Linguistically disadvantaged immigrants experience positive effects of a linguistically isolated population in the CMA in comparison to linguistically less disadvantaged immigrants possibly because the lines of business in which they depend on loyal employees may be in small-scale, low profit sectors, offsetting the financial advantage obtained from loyal co-ethnic employees. The effects of average co-ethnic population and average self-employment rate also do not change with average linguistic isolation. In this study, advantages of REC in increasing self-employment income among disadvantaged immigrants are not found, which is not consistent with reactive ethnicity theory.

The change in the effects of REC on self-employment propensity as average linguistic isolation increases is different from the change in the effects of REC on self-employment income. As in the case of self-employment income, the effects of CMA co-ethnic population on self-employment propensity become more negative as linguistic

disadvantage increases. Contrary to studies that found positive effects of co-ethnic population in improving self-employment outcomes among disadvantaged immigrant groups, this study, which examines a wide range of immigrant groups, both minority and white, finds that the effects of co-ethnic population are more negative among disadvantaged immigrants than among less disadvantaged immigrants. Possibly, as co-ethnic population in the CMA increases, entrepreneurs in disadvantaged immigrant groups may hire more employees from their own groups, providing more employment opportunities for the group. Consequently, the self-employment propensity of the group will decline.

In contrast, the effect of CMA linguistic isolation on self-employment propensity is more positive among disadvantaged immigrants, consistent with reactive ethnicity theory and previous research by Evans (1989), which showed that a linguistically isolated labor pool facilitates individuals' self-employment involvement more among linguistically disadvantaged groups than among others. Also, the change in the effect of the CMA self-employment rate on self-employment propensity with increasing linguistic disadvantage is different from the change in its effect on self-employment income. While its effect on self-employment income is more negative, the effect of CMA self-employment rate on self-employment propensity is more positive as

linguistic disadvantage increases. Although the effect of concentration in self-employment facilitates self-employment involvement more among linguistically disadvantaged groups, the accompanying intra-group competition leads to a decline in self-employment income, possibly due to severe concentration of disadvantaged immigrants in narrow lines of business with limited market size. This suggests that co-ethnic population and high self-employment rate, which are conventionally considered beneficial particularly for disadvantaged immigrants, can simultaneously be not so beneficial for other types of self-employment outcomes.

All in all, although the effects of some types of REC on self-employment outcomes are more positive among more disadvantaged immigrants, consistent with reactive ethnicity theory, the effects are not consistent in terms of the type of REC and among immigrant groups. The findings imply that ethnic resources coming from REC may give disadvantaged immigrants a boost over immigrants with no disadvantage in establishing businesses, but they can be less efficient or even become a hindrance for other self-employment outcomes, especially self-employment income. Overall, the findings of this study point out the positive effects of some types of REC among linguistically disadvantaged immigrant groups, especially on facilitating self-employment involvement, but at the same time, they also point to the limitations of REC in achieving

economic mobility of disadvantaged immigrant groups. As some previous studies indicate, the decreasing positive effects of some types of REC on some self-employment outcomes among disadvantaged immigrant groups can be due to their inability to cultivate large enough, profitable business opportunities. See, for example, Waldinger et al. (1990).

Limitations

The 2006 Census does not provide direct measures of facilitating and limiting factors associated with immigrant entrepreneurial and residential concentration, such as training opportunities, expertise in trades, immigrant business associations, ethnic markets, informal sources of capital, reliable and cheap co-ethnic labor, and intra-ethnic competition. Therefore, the use of the Census data poses several limitations on the research.

This study cannot test the facilitating and limiting effects of REC separately, and therefore it cannot address how facilitating and limiting activities affect self-employment propensity and income. This study was only able to examine the net effect of immigrant REC on self-employment propensity and income of individual immigrants.

Also, the relationship between the facilitating and limiting influences of REC, and

self-employment propensity and income was only indirectly measured by examining the relationship between immigrant REC, on the one hand, and self-employment propensity and income, on the other, because the level of immigrant REC reflects the level of the facilitating and limiting influences. Therefore, this study cannot directly test the relationship between ethnic resources coming from immigrants' REC and self-employment outcomes.

In addition, in this study, the effect of community-based ethnic resources from self-employment involvement of the group on self-employment propensity is measured as the effect of immigrant groups' self-employment rate on self-employment propensity after controlling for the effects of other factors. However, because of their unavailability in the 2006 Census, I cannot control for cultural and other confounding factors that can potentially influence both the independent and dependent variables. Immigrants who are admitted to Canada under the Business Immigration Program enter Canada with pre-immigration intentions of starting their own business unlike the majority of immigrant entrepreneurs, who decide to be self-employed only after their entry into Canada. Since the Census does not contain information about the immigration category of immigrants, I cannot examine how these two groups of individuals differ in the relationship between REC and education, and self-employment outcomes, especially self-employment

propensity. Further research on this subject is needed.

Last, the unusually extreme effects of co-ethnic population on self-employment income and propensity of American immigrants need to be interpreted carefully because of the imprecisely estimated coefficients of American immigrants due to their small sample size.

Policy Implications

The positive effects of some mechanisms of community-based ethnic resources found in this study can be advantageously utilized by government to promote self-employment and improve self-employment outcomes of immigrants. For example, information about government policy, business programs, and training opportunities can be effectively disseminated among immigrant entrepreneurs through immigrant business associations and the ethnic media. Immigrant business associations can also function as a communication channel between government and immigrant entrepreneurs. Similarly, referral services to co-ethnic employers can benefit some immigrant entrepreneurs.

The findings regarding the effects of education on self-employment outcome suggest that the current immigration policy—the points system—which favors immigrants with higher education, encourages more immigrants in Canada into self-

employment. However, the current system is not able to improve the economic standing of self-employed immigrants. The non-significant effects of education on immigrants' self-employment income are especially notable because the relationship between education and self-employment income is significantly positive among the self-employed native-born (Maxim 1992). The discrepancy possibly arises because of institutional barriers (see Teixeira et al. 2007) and the resulting immigrants' failure to get into self-employment niches where their education can be financially rewarded.

In the U.S., many studies have attributed the successes of some minority-owned businesses to their strong ethnic resources. However, this study shows that ethnic resources from REC among disadvantaged immigrant groups are limited in their ability to facilitate self-employment and improve its outcomes. Therefore, efforts to eradicate disadvantage and barriers in the labor market and self-employment to immigrants' economic mobility are still critical in improving disadvantaged immigrant groups' economic standing.

Conclusions

This study first looked at the effects of REC on self-employment outcomes in order

to test theories that argue for effects in opposite directions. Both ethnic resources theory, on the one hand, and Bates's and intra-group competition theory, on the other hand, find support only in some types of REC and self-employment outcome among some immigrant groups, but fail to account for its effects in other cases: the effects of REC are not consistent, but vary by type of self-employment outcome, REC, and immigrant group. Variation in the effects of REC on self-employment income and propensity is especially notable. The effects of REC on one type of self-employment outcome—self-employment income—are either negative or not significant among most minority and white immigrant groups, in support of Bates's and intra-group competition theory. The effects of REC on self-employment propensity are, however, more diverse than its effects on self-employment income. While the effects of REC on self-employment propensity are positive among some minority and white immigrant groups, in support of ethnic resources theory, the effects are negative or not significant among other immigrant groups, in support of Bates's and intra-group competition theory. Therefore, contrary to some critics of community-based ethnic resources theory arguing that community-based ethnic resources are no longer effective among contemporary immigrants, there is evidence that the effects of REC are positive on self-employment propensity, although its positive effects are limited to some minority and white

immigrants, and one type of self-employment outcome.

Effects of education on self-employment income and propensity also differ: While education is not effective in improving the self-employment income of immigrants contrary to Bates' and class resources theory, possibly because of structural barriers to more profitable sectors of self-employment, education plays a significant role in facilitating self-employment involvement among many minority and white immigrant groups. The findings suggest that although education is a useful resource in facilitating self-employment, allowing immigrants to take advantage of knowledge and skills that are undervalued in the mainstream labour market, it is not effective in directly improving the economic mobility of immigrants. The inability of education to improve the social mobility of immigrants has serious implications for the economic inequality of immigrants, because self-employment is often represented as a way that disadvantaged groups overcome difficulties in the mainstream labour market.

Growing attention has been paid to the changing effectiveness of ethnic and class resources throughout the developmental stages of business. Although the Census data do not allow a direct examination of the effectiveness of REC and education in the establishment and operation of business, the effects of REC and education on self-employment income and propensity reflect, at least to a degree, effects on the

establishment and operation of business, respectively. The findings show that both community-based ethnic resources deriving from REC and education are effective only in establishing self-employment among some and most immigrant groups, respectively, but not effective in operating business among many immigrant groups.

Community-level ethnic resources have been considered the resources and advantages that disadvantaged groups depend on for their success in self-employment. The positive effects of REC, however, are found to depend on the type of REC and self-employment outcome. As reactive ethnicity theory argues, the effects of some types of REC on self-employment propensity become more positive, giving disadvantaged groups stronger positive effects of REC on facilitating self-employment. However, in increasing self-employment income, some types of REC can be less efficient or even become a hindrance for disadvantaged immigrant groups, contrary to reactive ethnicity theory. These results along with the findings about the effects of REC and education on self-employment outcomes demonstrate the effectiveness of the community-based ethnic resources and class resources of immigrant groups in facilitating self-employment involvement, but at the same time, they also point to the limitations of REC in achieving economic mobility of immigrants, especially disadvantaged immigrant groups.

As mentioned above, the effects of REC vary, most notably depending on the type of self-employment outcomes. However, the evidence shows that some white immigrant groups also benefit from REC in facilitating their self-employment involvement as do some minority immigrant groups. The effects of REC—especially the effects of co-ethnic population and entrepreneurial concentration in the CMA—on self-employment propensity are positive among more minority and white immigrant groups than on self-employment income, indicating that some white immigrant groups benefit from REC in facilitating their self-employment involvement as do some minority immigrant groups. However, it is not certain whether white immigrants employ the same process in utilizing their community-based ethnic resources because there are not enough studies that examine the utilization of community-based ethnic resources of white immigrants. Further research on the issue is needed.

The findings of this study show greater variations in the relationship between REC and self-employment outcomes within each of the white and minority immigrant groups than between them. This may be because many other factors specific to ethnic groups, including opportunity structure, and the cultural and demographic characteristics of immigrants groups, intervene in the relationship, as the interactive model of immigrant entrepreneurship suggests. The substantial diversity within each of the white and

minority immigrant groups points to the importance of the ethnic-group-specific approach in the study of ethnic resources of immigrant and ethnic businesses, as opposed to treating racial groups as a homogeneous entity.

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