

# **Ethnic Enclaves and Immigrant Well-being**

by

**Jun Yuan Tan**

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# Ethnic Enclaves and Immigrant Well-being

## 1. Introduction

As one of the prevailing immigrant-based countries, Canada accepts more than 210,000 new permanent residents annually (Statistic Canada, 2003a). About three-quarters of recent immigrants come from non-European nations and more than 50 percent of the new arrivals are from Asia and the Pacific region (Statistic Canada, 2003a). Europe is no longer the main source of new immigration. Not only are immigrants shaping the diversity of the Canadian population, they are changing the face of Canada's largest urban centres. Immigrants are highly concentrated in Canada's three largest metropolitan areas, Montreal, Toronto and Vancouver (Statistics Canada 2004a). These three Census Metropolitan Areas (CMAs) together are the home of nearly three quarters of the recently landed immigrants<sup>1</sup>. Almost all the immigrants who arrived in the 1990s settled in one of Canada's 27 CMAs; only 4 percent of the new arrivals chose to live in areas outside CMAs (Chui, 2003).

However, it is not surprising to see this trend. Results from Statistic Canada's report on the 2002 Ethnic Diversity Survey shows that immigrants, particularly recently landed immigrants, are more likely to report a strong sense of belonging to their ethnic group than people born in Canada (Statistic Canada, 2003c). According to the results from the Longitudinal Survey of Immigrants to Canada (Statistic Canada, 2003b), recent immigrants often settle in the same areas as their families and friends, who are likely to be from the same ethnic or cultural background. Settling close to their families and

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<sup>1</sup> Census Metropolitan Areas refer to cities in Canada with populations of at least 100,000 in the urban centre. In this paper, Census Metropolitan Areas is referred to as CMAs.

friends, who are often located in one of the CMAs, may help newly arrived immigrants to preserve a strong sense of belonging to their ethnic group and local community. As a result, recent immigrants can turn to their family and friends when they encounter difficulties in settlement.

Ethnic enclaves can provide a better environment for newly arrived immigrants. Some of the advantages of the enclaves could be the reduced cultural and linguistic trauma, greater access to job opportunities, and increased assistance from the social networks present in the community during the initial adjustment period. Conversely, ethnic communities could slow down the attainment of skills essential for labour market success, such as learning the dominant language, learning Canadian customs and manners in the workplace or in doing business.

A large body of research has uncovered that the earning outcomes of recent immigrants in Canada have deteriorated (Picot, Hou and Coulombe, 2007; Aydemir and Skuterud, 2005; Warman and Worswick, 2004; Baker and Benjamin, 1994). The decline in economic outcomes of recent immigrants is due largely to the fall in the returns to foreign work experience, as well as the shift in source region and the accompanying decline in language skills (Aydemir and Skuterud, 2005). In addition, evidence from previous studies (Borjas, 2000; Chiswick and Miller, 2002:2005; Clark and Drinkwater, 2002; Hou and Picot, 2003; Warman, 2007) indicate that ethnic enclaves have a statistically significant negative effect on immigrants' earnings and economic progress.<sup>2</sup> However, it is possible that immigrants enjoy utility other than labour market outcomes

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<sup>2</sup> It is also possible that enclaves attract immigrants of lower innate ability, which would make it appear that enclaves reduce labour market outcomes (see Yuengert (1995) and Warman (2007) for a discussion). As well, it is possible that some common unobservable could cause the lower earnings, rather than the impact of ethnic concentration (see Manski (1993)).

from residing in an enclave. For example, Chiswick and Miller (2005) conceived a concept called “ethnic goods”, which are “the consumption characteristics of an ethnic group not shared with the host population or with other immigrant groups”. They believe ethnic-specific goods and services constitute an important factor for immigrants when choosing their residential location.

As well, it is possible that immigrants living in ethnic enclaves enjoy increased utility from sources other than ethnic goods, such as, a lower level of stress, easy access to public services due to the reduction of language barriers, and a stronger sense of belonging arising from a culture present in enclaves that is matching their cultural origins. Yuengert (1995) suggests that the higher earnings obtained from living outside enclaves is possible evidence of compensating differentials. Immigrants may require higher earnings to compensate for the loss of cultural goods and other utility increasing aspects they would obtain from living inside their enclave. However, there is little empirical evidence on how ethnic enclaves affect the overall utility of immigrants. This paper attempts to examine the impact of ethnic concentrations on different aspects of well-being of immigrants. From the results obtained in this paper, it is hoped to uncover more explanations for the rationale behind an immigrant’s choice of residential location, given that living in an ethnic enclave has been found to lower economic outcomes.

## **2. Literature Reviews**

Numerous studies have been conducted on how living in an ethnic enclave affects immigrants' economic performance. Some researchers have studied the determinants that affect the well-being of immigrants. However, most of the studies focus either on the economic performance or on the well-being of immigrants. Little research has been done on the impact of living in an ethnic enclave on the well-being of immigrants. Nonetheless, findings from previous research can serve as a guideline for the choice of variables to use in this study.

### ***2.1 Studies about Happiness and Immigrants' Well-being***

Utility is a central concept in economic research. Research on happiness and well-being has great advantages for economists because it presents direct observable proxies for utility. Happiness, as an ultimate goal in life, is a better measurement than labour outcomes for the well-being of individuals and society as a whole. Frey and Stutzer (2002) did a comprehensive literature review about "What can economists learn from happiness research?" Their paper demonstrated the insights gained from research on happiness, brought a new light on important issues analyzed in economics, and provided new tests for theories.

The authors suggest three major reasons for economists to consider happiness. First, happiness research can inform economic policy decisions. Second, happiness is affected by institutional conditions, such as the quality of governance and the size of social capital on individual well-being. Third, happiness research can help us understand the formation of subjective well-being. Then, the authors discuss several previous studies

that examined the effects of income, unemployment, inflation, and institutional conditions on happiness. Evidence indicates a positive relationship between individual income and happiness within a society at a given point in time. They suggest that unemployment strongly reduces subjective self-reported well-being. Clark and Oswald (1994) also confirmed that unemployment appears to be the primary economic source of unhappiness.

While some economists believe that happiness research gives a better understanding than other measurements of people's utility, Di Tella and MacCulloch (2006) questioned how reliable the scores from happiness questionnaires are in measuring true utility. They reviewed and constructed an explanation to the puzzle of happiness scores that Easterlin (1974) identified: "that happiness scores carry no meaning, that they are not comparable across people, that people redefine their happiness scores over time, and that happiness should depend on health, the environment, leisure and variables other than income". When the scores are at the top of the scale, they become less representative of the rising true utility. They arrived at the conclusion that happiness scores measure people's true utility with some errors, but the signal-to-noise ratio is acceptably high enough to have meaningful results in empirical research.

Some economists focus solely on determinants of immigrants' well-being. Vega and Valle (1987) found some evidence that suggests that immigrants who are disappointed with their job opportunities in the United States are more likely to feel depressed. Shields and Price (2003) found that all ethnic minority immigrant groups have a significantly lower probability of reporting psychosocial well-being. The major influences of an ethnic minority immigrant's psychological well-being are economic and



social factors. Educational qualifications and household income plays only a small role in explaining the psychological well-being (happiness and psychological distress), but higher levels are significantly associated with enhancement in the psychosocial well-being (family, friends and social support). In contrast, being employed significantly boosts the psychological well-being of ethnic minorities. Hao and Johnson (2000) found that economic factors and human capital variables are the most important determinants of emotional health for both immigrants and natives.

Happiness measured in survey data may not provide a perfect measure of people's utility and income has also been proved to be "a poor predictor of many measures of individual's well-being" (Campbell et al., 1976; Easterlin, 1974, 1995). Therefore, both studies about labour market performance and different aspects of utility should provide a more complete story of individuals' well-being and its determinants.

## ***2.2 Studies about ethnic enclaves***

Some studies found that ethnic minorities generally earn lower wages and obtain fewer promotions and training opportunities than non-visible minorities (Blackaby et al., 2002; Shields and Price, 1998, 1999, 2001; Pudney and Shields, 2000a, 2000b; Stewart, 1983). More recent studies have found a negative impact from living in ethnic enclaves on labour market outcomes of immigrants (Borjas, 2000; Chiswick and Miller, 2002: 2005; Clark and Drinkwater, 2002; Hou and Picot, 2003; Warman, 2007).

One potential explanation for this negative relationship is that clustering inhibits the acquisition of skills necessary for local labour market success (Warman, 2007). One key skill necessary for labour market success is proficiency in the language of the host

country. Chiswick and Miller (2002:2005) found that poor English language ability reduces the earning outcomes of immigrants in the United States. In addition, the people born in non-English speaking countries who are fluent in English earn about 14% more than those lacking this fluency. This may be due to the fact that immigrants with poor language ability look less attractive than native English speakers in potential employers' hiring decision (Shields and Price, 2003). Furthermore, living in their ethnic communities, immigrants do not have as great an incentive or need to learn the dominant language. As well, immigrants may be limited to the job opportunities inside the enclave, which will cause them to experience lower earnings growth than those who reside outside their ethnic communities (Warman, 2007).

However, not all the studies found ethnic communities to have a negative impact on an immigrant's labour market performance. Edin et al. (2003) perceive enclaves as a place that offers a "warm embrace" to immigrants and help them to escape the unfairness that they may come across elsewhere in the labour market. They found that ethnic enclaves increased the level of earnings, but reduced the incentives for moving into a position higher in the job ladder. Although Warman (2007) finds a negative correlation between living in an ethnic enclave and earnings growth and language acquisition, he suggests that it may be possible for ethnic communities to have a positive impact on economic outcomes. An ethnic community may provide a newly arrived immigrant with a better environment in which to successfully establish himself/herself in his/her new country. Ethnic enclaves reduce linguistic traumas because of the exposure to peers and offer job opportunities that fit the language skills of newly arrived immigrants. Hardship may occur in the initial adjustment period to immigrants who choose to reside outside of

their ethnic communities. For example, the insufficient knowledge or information of the local labour market, as well as language barriers, would reduce the chances of successfully finding employment.

Another reason for immigrants to live in an ethnic enclave is because of the presence of “ethnic goods”, which are defined as the “market and non-market goods and services, including social interactions for themselves and their children with people of their same origin” (Chiswick and Miller, 2005). Due to economies of scale, the larger the size of a particular ethnic community, the lower the cost of the ethnic goods within that community will be. Obtaining ethnic goods may not only be more costly for immigrants that live far away from ethnic enclaves, but it would be unfeasible in some regions for them to have access to the ethnic goods. These goods can serve as a “factor price equalization to eliminate the negative relation between the concentration measure and earnings” (Chiswick and Miller, 2005).

Given the negative impact of ethnic enclaves that most studies have found, it is important to determine whether the cultural benefits and easy access to ethnic goods compensates for the lower economic opportunities. Kuo (1976) showed that Chinese immigrants who live in ethnic enclaves have less mental health problems than those who live outside of ethnic residential areas. On the contrary, Shields and Wailoo (2002) found inconsistent evidence that either Black Caribbean or South Asian men are less likely to experience unhappiness if they live in an ethnic enclave. Shields and Price (2003) conducted an empirical research on the labour market outcomes and psychological well-being of ethnic minority immigrants in Britain, using the Fourth National Survey of Ethnic Minorities and the Health Survey of England 1999. They also found that by

controlling for other relevant factors, measures of residential location are largely unrelated to the psychological or psychosocial well-being of ethnic minorities, except for male ethnic minority migrants. Interestingly, they found that male ethnic minority immigrants living outside of ethnic enclaves are more likely than immigrants living within an enclave to report emotional well-being.

### 3. Conceptual Framework

The 2001, 2003 and 2005 Canadian Community Health Survey (CCHS) Master files from Statistic Canada are pooled to estimate the well-being of female and male immigrants. The sample is restricted to immigrants age 18 to 64, who live in one of the 27 CMAs. The immigrant ethnic enclaves are classified both in terms of country of birth and first language learned and still understood (mother tongues), which are standard approaches to aggregate concentrations of ethnic groups in order to measure residential segregation<sup>3</sup>. Different regressions are also run with these two approaches in order to compare and justify our results.

The goal of the paper is to examine the impact of ethnic enclaves on the psychological well-being of immigrants and identify the motivation of immigrants for living in ethnic enclaves given that most researchers shows that ethnic enclaves reduce earning outcomes. We use four measure of well-being typically used in the happiness literature: happiness, stress, health and sense of belonging. However, prior to examining the impact of enclaves on psychological well-being, we first look at the impact of ethnic enclaves on the economic outcomes of its inhabitants. Most studies have found a negative impact of enclaves on economic outcomes, and in order for us to be able to make inference to previous studies that looked at economic outcomes, we need to uncover the impact that ethnic concentration has on the economic outcomes for our sample. We use linear regressions to measure the impact of enclaves on personal income and hours worked, Tobit regressions to measure the impact on hours worked and probit regressions when the dependent variable is employment.

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<sup>3</sup> The ethnic enclaves' classification by country of birth was used by Borjas (2000) and Warman (2007). The classification by mother tongue was used by Razin and Langlois (1996) and Logan et al. (2002).

The linear regressions for measuring the impact of ethnic enclaves on personal income are estimated by:

$$\text{Ln}Y_i = \alpha E_{jk} + \sum \beta X_i + \varepsilon_i \quad (1)$$

where the dependent variable  $\text{Ln}Y_i$  represents the natural logarithm of the personal yearly income of individual  $i$ . We discuss the construction of the personal yearly income variable in Section 4.1. Equation 1 is estimated by both linear regressions and Tobit models when hours worked are the dependent variables and by a probit when employment is the dependent variable. Given the ordinal nature of our well-being dependent variables, the effect of enclaves on an immigrant's well-being is estimated by ordered probit regressions as follow:

$$Y_i = \alpha E_{jk} + \sum \beta X_i + \varepsilon_i \quad (2)$$

where the dependent variable  $Y_i$  is the level of well-being for individual  $i$ . The well-being of individual  $Y_i$  is estimated for four different aspects: satisfaction with life in general (happiness), stress, health and sense of belonging. *Satisfaction with life in general (happiness)* data is scored from 1 to 5, ranking from *very dissatisfied* to *very satisfied* respectively. Level of *stress* scores are also represented with values from 1 to 5, ranking from *extremely stressful* to *not at all stressful* correspondingly. Both state of *health* and level of *sense of belonging* are scored from 1 to 4. A state of *health* of 1 means *fair*, 2 for *good*, 3 for *very good*, and 4 for *excellent*. The level of *sense of belonging* is ranked from *very weak* represented by a score of 1 to *very strong* by a score of 4<sup>4</sup>. Ethnic concentration of immigrant group  $j$  in CMA  $k$  is measured by  $E_{jk}$ . Regressions are run with two different measures of ethnic concentration. The exposure index, which is

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<sup>4</sup> More details about these dependent variables can be found in the Appendix Table A1.

calculated as  $E_{jk} = \frac{N_{jk}}{N_k} (\times 100)$ , is the number of people in CMA  $k$  for a given country of birth or first language learned and still understood  $j$  ( $N_{jk}$ ) divided by the total population in that CMA ( $N_k$ ). The exposure index is the more commonly used measure for ethnic concentration since it is more intuitive. The relative cluster index, which is computed as  $R_{jk} = [N_{jk} / N_k] \div [N_j / N]$ , deflates the exposure index ( $N_{jk} / N_k$ ) by dividing it by the proportion of people for each country of origin or language group ( $N_j$ ) in the total population studied ( $N$ ). This adjusts the exposure index by the proportion of the group  $j$  in the population studied<sup>5</sup>. The relative index is used to examine if the interpretation of the impact of enclaves on immigrants' well-being is sensitive to the measure of ethnic concentration<sup>6</sup>. When country of birth is used as the classification of ethnic enclaves, country of birth fixed effects are included, and when language is used, language fixed effects are included.

Separate regressions are run using the exposure and relative indices for both the country of birth and language classifications of ethnic enclaves. Equations (1) and (2) are also run separately for males, for females and for the full sample (both males and females). The matrix  $X_i$  contains variables controlling for sociodemographic and socioeconomic characteristics of the individuals<sup>7</sup>. The variables controlled for include: sex, age, a non-visible minority dummy, marital status, being a lone parent, numbers of children, level of education, and years since immigration. Year dummies and CMA

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<sup>5</sup> The relative cluster index identifies whether the proportion of people from origin group  $j$  living in CMA  $k$  is underrepresented (value less than 1), overrepresented (more than 1) or equal to the proportion of group  $j$  (equal to 1) for all CMAs based on a CMA's population.

<sup>6</sup> Bertrand, Luttermer, and Mullianathan (2000) argued that if people do not disperse randomly within the CMA, the exposure index underweights the available contacts for smaller ethnic groups.

<sup>7</sup> See Table A1 in the Appendix for a description of the variables.

dummies are also controlled for. Immigrants from countries having both a language and a culture similar to the majority of the Canadian population were removed from the sample. The omitted countries include the United Kingdom, the United States, and France<sup>8</sup>.

Regressions are run separately to obtain results from both the full sample and from the sample with only immigrants who immigrated at age 25 or older. The reason for doing so is that there might be crucial differences in the results between these two groups of immigrants. Schaafsma and Sweetman (2001) provided evidence that age at immigration matters for educational and economic outcomes of immigrants. Immigrants who immigrated at an early age have better economic outcomes compared to those who immigrated as adults. Young immigrants acculturate more easily and will have completed a large proportion of their schooling in Canada. Immigrants who did not immigrated at a young age may be less likely to develop connections outside of their ethnic network, and may become more dependent on their ethnic network. Schooling in Canada may assist immigrants to improve their language skills, to develop contacts outside their ethnic network and to obtain education that will be recognized and valued in the general Canadian labour market. Furthermore, Warman (2007) found that ethnic enclaves do not affect the earnings growth of immigrants who immigrated as children or teenagers, but do have a large negative impact on immigrants who immigrated as adults. Therefore, every regression will be further estimated with restrictions on individuals who immigrated at age 25 or older.

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<sup>8</sup> A list of languages and countries used in this study can be found in Table A7 in the Appendix.



## 4. Results Interpretation

### 4.1 Impact of Ethnic Enclaves on Economic Performances

Most studies have focused on the effect of ethnic enclaves on economic performances and earnings in particular. Results from the linear regressions for the impact of ethnic enclaves on personal income enable us to compare with results found in previous studies to uncover whether the negative correlation between ethnic concentration and earnings exists for our sample. Although a direct measure of earnings is not provided in the CCHS, there are questions relating to the main source of personal income, as well as questions on each source of household income, and we can construct a close proxy for earnings using this information<sup>9</sup> The sample in this regression is restricted to individuals whose main or only source of income is from labour earnings, such as wages and salaries. As well, individuals who have household income that comes from Employment Insurance, Canadian Pension Plan, Workers Compensation, Retirement Pensions, Old Age Security and Social Assistant Welfare are excluded<sup>10</sup>. The sample is further restricted to people working 35 hours or more per week. Yearly earnings are used instead of weekly earnings since weeks worked is not available in Cycle 3. This sample restriction will get us closer to the sample used in other research that has examined the impact of enclaves on earnings.

Table 1 summarizes the coefficients of the exposure and relative indices in the earnings regressions, which represent the impact of ethnic concentration on the personal income of immigrants. When there is no restriction on *age at immigration* (Table 1a), the coefficient of the exposure indices for *full sample* and *males* are negative and significant

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<sup>9</sup> See Carpenter (2007) for an in-depth discussion on constructing an earnings variable using the CCHS data.

<sup>10</sup> Similar results were found when other restriction rules were applied.

at 10% level. When only people who immigrated at age 25 or older are considered (Table 1b), both coefficients of exposure and relative indices are found to be

<b>Table 1</b>			
<b><i>Impact of Ethnic Enclaves on Personal Yearly Income (1a)</i></b>			
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<b>Exposure Index</b>	-0.028* [1.66]	-0.036* [1.92]	-0.016 [0.51]
<b>R<sup>2</sup></b>	0.25	0.24	0.20
<b>Relative Index</b>	-0.028 [1.54]	-0.023 [1.05]	-0.037 [1.26]
<b>R<sup>2</sup></b>	0.24	0.24	0.19
<b><i>For people who immigrated at age 25 or older (1b)</i></b>			
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<b>Exposure Index</b>	-0.042* [1.70]	-0.060** [2.38]	0.003 [0.05]
<b>R<sup>2</sup></b>	0.22	0.23	0.16
<b>Relative Index</b>	-0.055** [2.00]	-0.074** [2.26]	0.003 [0.05]
<b>R<sup>2</sup></b>	0.22	0.23	0.16

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The robust T-statistics are in brackets. The exposure and relative indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth. Sample is restricted to people working 35 or more hours per week, whose main source of personal income comes from wages and salaries, self employment earnings or investment income, and who does not obtain household income from Employment Insurance, Canadian Pension Plan, Worker’s Compensation, Retirement Pensions, Old Age Security or Social Assistant Welfare.

negative at 5% significant level and larger in magnitude. Ethnic concentration has a negative impact on the personal income of males and such effect is particularly strong for immigrants who immigrated at age 25 or older. These results are consistent with the findings from previous studies that higher level of ethnic concentration is harmful for immigrants’ earnings outcomes (Borjas, 2000; Chiswick and Miller, 2002:2005; Clark and Drinkwater, 2002; Hou and Picot, 2003; Warman, 2007). In this study, the negative impact of enclaves on earnings is especially true for male immigrants and for those who immigrated at age 25 or older. However, ethnic concentration appears to have no effect on the earnings of our female sample.

Previous happiness studies found that unemployment could be the primary economic source of reducing individual's reported well-being (Frey and Stutzer, 2002; Clark and Oswald, 1994). Therefore, attention will also be given to the impact of ethnic enclaves on employment and hours worked to have a more complete picture of how living in an ethnic enclave affects the economic performance of immigrants. The impact of ethnic enclaves on employment is estimated by a probit regression, where the dependent variable *employment* is defined as *employed*=1 and *unemployed*=0. The impact of ethnic enclaves on hours worked is estimated both by linear and Tobit regressions.

<b>Table 2</b>			
<b><i>Impact of Ethnic Enclaves on Employment</i></b>			
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<b>Exposure Index</b>	0.030 [1.27]	0.054 [1.51]	0.007 [0.23]
<b>Pseudo R<sup>2</sup></b>	0.14	0.14	0.16
<b>Relative Index</b>	0.014 [0.50]	0.053 [1.20]	-0.017 [0.47]
<b>Pseudo R<sup>2</sup></b>	0.14	0.14	0.16
<b><i>For people who immigrated at age 25 or older</i></b>			
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<b>Exposure Index</b>	-0.006 [0.14]	0.098* [1.66]	-0.086* [1.69]
<b>Pseudo R<sup>2</sup></b>	0.16	0.18	0.19
<b>Relative Index</b>	-0.045 [0.87]	0.116 [1.44]	-0.141** [2.19]
<b>Pseudo R<sup>2</sup></b>	0.16	0.18	0.19

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The robust T-statistics are in brackets. The exposure and relative indices were calculated using the "Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census" (Statistic Canada, 2001a), classified by country of birth.

Looking at Table 2, there is no impact on employment for the full sample. However, restricting the sample to people who immigrated at age 25 or older, a positive impact on employment is found for males and negative impact is found for females. Male

immigrants who immigrated to Canada at age 25 or older have a greater probability of finding employment by living in areas with higher ethnic density. It is possible that ethnic enclaves offer jobs that better fit with their language skills, especially for the ones that are less likely to obtain training or schooling in Canada. Nonetheless, looking back to the results found in Table 1, ethnic concentration has detrimental impact on the personal income of male immigrants. Conclusions can be drawn from both results that for males who immigrated at age 25 or older, there are more opportunities to find employment in their own ethnic enclaves, but the jobs found are lower paid.

<b>Table 3</b>						
<b><i>Impact of Ethnic Enclaves on Hours worked</i></b>						
	<b>Linear Regression</b>			<b>Tobit</b>		
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<b>Exposure Index</b>	-0.046 [0.16]	-0.026 [0.07]	-0.046 [0.11]	-0.021 [0.06]	-0.040 [0.09]	-0.034 [0.06]
<b>R<sup>2</sup></b>	0.19	0.17	0.15	0.03	0.02	0.02
<b>Relative Index</b>	-0.085 [0.26]	-0.072 [0.15]	-0.107 [0.24]	-0.106 [0.26]	-0.107 [0.19]	-0.186 [0.30]
<b>R<sup>2</sup></b>	0.19	0.17	0.15	0.03	0.02	0.02
<b><i>For people who immigrated at age 25 or older</i></b>						
	<b>Linear Regression</b>			<b>Tobit</b>		
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<b>Exposure Index</b>	-0.704 [1.47]	0.066 [0.10]	-1.483** [2.17]	-0.968 [1.57]	0.082 [0.11]	-2.233** [2.30]
<b>R<sup>2</sup></b>	0.20	0.13	0.16	0.03	0.02	0.03
<b>Relative Index</b>	-1.152* [1.92]	-0.523 [0.58]	-1.772** [2.23]	-1.573** [2.05]	-0.555 [0.53]	-2.846** [2.53]
<b>R<sup>2</sup></b>	0.20	0.13	0.16	0.03	0.02	0.03

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The robust T-statistics are in brackets. The exposure and relative indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth.

The impact of ethnic enclaves on hours worked is presented in Table 3. We estimate hours worked using OLS, but given the corner solution at zero hours worked, we

also present Tobit regression results. Yet again, we find no impact of ethnic enclaves on hours worked for the full sample. Nevertheless, when looking at people who immigrated at age 25 or older, a negative impact can be found on hours worked for *females* in both the linear and Tobit regressions. From the results in both Table 2 and Table 3, one can conclude that living in ethnic enclaves has negative impact on employment status of female immigrants who immigrated at age 25 or older. A plausible explanation is that females living in their ethnic enclaves are more likely to play traditional gender roles, and therefore have less attachment to the labour market.

#### ***4.2 Impact of Ethnic Enclaves on Well-being***

The results for the regressions with country of birth used to create the measure of ethnic concentration are presented in Table 4A. The results suggest that living in an enclave does not have a significant impact on the level of happiness, stress and health of immigrants. However, living in enclaves increases the probability that an immigrant will obtain a higher level of sense of belonging to his or her local community. Immigrants, especially females, obtain a higher sense of belonging by living in cities that have a higher density of their own ethnic groups. The exposure and relative indices are statistically significant at the 1% level for the *full sample* and the *female* results. This impact is smaller in magnitude for *males*, and the exposure index coefficient is statistically significant only at the 10% level, whereas the relative index coefficient is not statistically significant.

<b>Table 4A</b>			
<b>Impact of Ethnic Enclaves on Well-being</b>			
<b>Exposure and Relative Index Classified by Country of Birth</b>			
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<i>Happiness</i>			
<b>(1) Exposure Index</b>	-0.022 [-1.34]	-0.032 [-1.41]	-0.010 [-0.43]
<b>Pseudo R<sup>2</sup></b>	0.0432	0.0384	0.0534
<b>(2) Relative Index</b>	-0.015 [-0.73]	-0.026 [-0.90]	-0.003 [-0.12]
<b>Pseudo R<sup>2</sup></b>	0.0432	0.0383	0.0534
<i>Stress</i>			
<b>(3) Exposure Index</b>	0.008 [0.48]	-0.014 [-0.63]	0.028 [1.27]
<b>Pseudo R<sup>2</sup></b>	0.0152	0.0156	0.0202
<b>(4) Relative Index</b>	0.002 [0.11]	-0.003 [-0.10]	0.006 [0.24]
<b>Pseudo R<sup>2</sup></b>	0.0152	0.0156	0.0200
<i>Health</i>			
<b>(5) Exposure Index</b>	-0.019 [-1.12]	0.000 [0.00]	-0.037 [-1.61]
<b>Pseudo R<sup>2</sup></b>	0.0361	0.0352	0.0394
<b>(6) Relative Index</b>	-0.004 [-0.18]	0.014 [0.45]	-0.025 [-0.88]
<b>Pseudo R<sup>2</sup></b>	0.0361	0.0352	0.0393
<i>Sense of belonging</i>			
<b>(7) Exposure Index</b>	0.059*** [3.54]	0.044* [1.84]	0.075*** [3.18]
<b>Pseudo R<sup>2</sup></b>	0.0287	0.0323	0.0330
<b>(8) Relative Index</b>	0.062*** [3.13]	0.040 [1.37]	0.084*** [3.13]
<b>Pseudo R<sup>2</sup></b>	0.0285	0.0321	0.0329

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The robust Z-statistics are in brackets. The exposure and relative indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, number of children, level of education, year dummies, years since immigration and country of birth fixed effects. The sample is restricted to immigrants aged 18 to 64 who live in one of the 27 CMAs and come from one of the selected country of origin groups in this study (see Table A6 in the appendix).

<b>Table 4B</b>			
<b>Impact of Ethnic Enclaves on Well-being</b>			
<b>Exposure and Relative Index Classified by Country of Birth</b>			
<b>People who were age 25 or older at the time of immigration</b>			
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<i>Happiness</i>			
<b>(1) Exposure Index</b>	-0.066** [2.51]	-0.076** [2.05]	-0.067* [1.78]
<b>Pseudo R<sup>2</sup></b>	0.05	0.05	0.06
<b>(2) Relative Index</b>	-0.085** [2.49]	-0.097* [1.88]	-0.082* [1.77]
<b>Pseudo R<sup>2</sup></b>	0.05	0.05	0.06
<i>Stress</i>			
<b>(3) Exposure Index</b>	0.031 [1.19]	0.028 [0.78]	0.027 [0.75]
<b>Pseudo R<sup>2</sup></b>	0.02	0.03	0.03
<b>(4) Relative Index</b>	0.032 [0.97]	0.076 [1.53]	-0.011 [0.24]
<b>Pseudo R<sup>2</sup></b>	0.02	0.03	0.03
<i>Health</i>			
<b>(5) Exposure Index</b>	-0.028 [1.05]	0.011 [0.27]	-0.076** [2.06]
<b>Pseudo R<sup>2</sup></b>	0.04	0.05	0.04
<b>(6) Relative Index</b>	-0.021 [0.58]	0.027 [0.50]	-0.076* [1.69]
<b>Pseudo R<sup>2</sup></b>	0.04	0.05	0.04
<i>Sense of belonging</i>			
<b>(7) Exposure Index</b>	0.056** [2.03]	0.062 [1.52]	0.056 [1.45]
<b>Pseudo R<sup>2</sup></b>	0.04	0.04	0.05
<b>(8) Relative Index</b>	0.083** [2.35]	0.088* [1.72]	0.086* [1.80]
<b>Pseudo R<sup>2</sup></b>	0.04	0.04	0.05

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The robust Z-statistics are in brackets. The exposure and relative indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, number of children, level of education, year dummies, years since immigration and country of birth fixed effects. The sample is restricted to immigrants aged 18 to 64 who live in one of the 27 CMAs, come from one of the selected country of origin groups in this study (see Table A6 in the appendix) and who were age 25 or older at the time of immigration.

Table 4A was redone by restricting the analysis to include only the individuals who immigrated at 25 years of age or older. Results are presented in Table 4B. Contrary to the assumption that immigrants should enjoy an increase in utility from living in their ethnic enclave, a negative impact of ethnic concentration on happiness was found. The coefficients of both the exposure and relative indices are negative and statistically significant in all three samples in the happiness model, which implies that living in ethnic enclaves does not improve their general satisfaction in life. This result is comparable to the results found by Shields and Price (2003) that male ethnic minority immigrants living within ethnic enclaves are less likely than immigrants living outside of enclaves to report higher emotional well-being. Such findings are disparate to the findings of Kuo (1976), however, it is likely that the differences in the composition of immigrants between the periods covered by the studies may cause this difference. As well, Kuo (1976) focus his analysis solely on Chinese immigrants.

The results from Table 4B also show that females who are living in ethnic enclaves are less likely to report being healthy than those living outside of their enclave. This may be partially explained by the findings of Deri (2005). She observed that certain ethnic groups underutilize the healthcare system due to the fact that they face various natural barriers, such as language. Therefore, immigrants living in such ethnic enclaves are less likely to have a high demand for healthcare services, which could have an impact on the state of health of these individuals.

However, immigrants who were age 25 or older at the time of immigration did benefit from living in enclaves since they experienced a stronger sense of belonging. The results from Table 4A and Table 4B were restricted further to the sample used in the



earnings regression in order to uncover whether the results for this group would differ (see Appendix Table A2a and Table A2b). Similar conclusions as in the previous analysis can be derived from these new results. The only outstanding difference is that males

<b>Table 5</b>			
<b>Impact of Ethnic Enclaves on Well-being</b>			
<b>Exposure and Relative Index Classified by Mother Tongues</b>			
	<b>Full Sample</b>	<b>Males</b>	<b>Females</b>
<i>Happiness</i>			
<b>(1) Exposure Index</b>	-0.001 [-0.09]	-0.014 [-1.00]	0.013 [0.88]
<b>Pseudo R<sup>2</sup></b>	0.046	0.034	0.063
<b>(2) Relative Index</b>	0.004 [0.22]	-0.024 [-1.10]	0.031 [1.36]
<b>Pseudo R<sup>2</sup></b>	0.046	0.034	0.063
<i>Stress</i>			
<b>(3) Exposure Index</b>	0.012 [1.26]	0.005 [0.33]	0.020 [1.47]
<b>Pseudo R<sup>2</sup></b>	0.013	0.013	0.018
<b>(4) Relative Index</b>	0.018 [1.27]	0.005 [0.26]	0.032 [1.55]
<b>Pseudo R<sup>2</sup></b>	0.013	0.013	0.018
<i>Health</i>			
<b>(5) Exposure Index</b>	-0.012 [-1.14]	-0.018 [-1.24]	-0.005 [-0.34]
<b>Pseudo R<sup>2</sup></b>	0.034	0.028	0.041
<b>(6) Relative Index</b>	-0.010 [-0.63]	-0.031 [-1.44]	0.012 [0.60]
<b>Pseudo R<sup>2</sup></b>	0.034	0.0282	0.041
<i>Sense of belonging</i>			
<b>(7) Exposure Index</b>	0.030*** [2.86]	0.014 [0.96]	0.043*** [2.99]
<b>Pseudo R<sup>2</sup></b>	0.026	0.028	0.028
<b>(8) Relative Index</b>	0.013 [0.86]	-0.007 [-0.30]	0.032 [1.48]
<b>Pseudo R<sup>2</sup></b>	0.026	0.028	0.028

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The Z-statistics are in brackets. The exposure and relative indices were calculated using the 2001 Census data, classified by mother tongues. The values in parentheses indicate the corresponding robust z-statistics of each coefficient. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, numbers of children, level of education, year dummies, years since immigration and language fixed effects. The sample is restricted to immigrants aged 18 to 64 who live in one of the 27 CMAs and come from one of the selected mother tongue groups in this study (see Table A6 in the appendix).

who immigrated at age 25 or older are more likely to report a higher level of stress in life by living in ethnic enclaves.

When ethnic enclaves are measured based on language groups, ethnic concentration is again found to have a positive impact on the sense of belonging (see Table 5). However, only the exposure indices for *the full sample* and for *the female sample* are statistically significant. The distribution and change in predicted probability<sup>11</sup> is very similar to the models where ethnic concentration is measured based on country of birth, which will be discussed in further details below. As the level of exposure increases, the predicted probability of lower level of sense of belonging decreases and the predicted probability of higher level of sense of belonging increases. More than 50% of the people have somewhat strong or very strong sense of belonging to their local communities.

The predicted probabilities<sup>12</sup> of the different levels of sense of belonging for a few selected levels of ethnic concentration are reported in Table 6. Each column represents concentration, which is measured by the exposure index E. For example, an exposure index of 0.5 (E=0.5) means that 0.5% of the people in the CMA an individual lives in are of the same country of origin as the respondent. For people living in a CMA with a 0.5% (E=0.5) ethnic concentration of their given ethnic group, 14.71% are predicted to have a very weak level of sense of belonging (S=1)<sup>13</sup>. For each of the levels of ethnic concentration calculated in Table 6, more than half of the people are predicted to have somewhat strong or very strong sense of belonging to their local community.

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<sup>11</sup> See results in Appendix Table A6.

<sup>12</sup> The predicted probabilities were calculated with the method presented in Becker and Kennedy (1992). The predicted probabilities are given by the cumulative density of the standard normal distribution determined by the sign and magnitude of the slope coefficient and the estimated thresholds.

<sup>13</sup> See Table 2 where row S=1 and column E=0.5 for *both males and females*.

**Table 6**  
**Predicted Probability of Immigrants' Sense of Belonging when Exposure Index varies in the Country of Birth Model**

<i>For both males and females</i>					
Sense of belonging /Exposure Index	<b>E=0.5</b>	<b>E=1</b>	<b>E=2</b>	<b>E=3</b>	<b>E=4</b>
S=1 (very weak)	14.71%	14.04%	12.76%	11.56%	10.45%
S=2 (somewhat weak)	30.40%	29.90%	28.85%	27.75%	26.61%
S=3 (somewhat strong)	43.43%	44.02%	45.12%	46.10%	46.96%
S=4 (very strong)	11.46%	12.04%	13.27%	14.59%	15.98%
<i>For females</i>					
Sense of belonging /Exposure Index	<b>E=0.5</b>	<b>E=1</b>	<b>E=2</b>	<b>E=3</b>	<b>E=4</b>
S=1 (very weak)	15.33%	14.46%	12.82%	11.31%	9.93%
S=2 (somewhat weak)	30.91%	30.29%	28.98%	27.58%	26.11%
S=3 (somewhat strong)	43.63%	44.44%	45.93%	47.24%	48.36%
S=4 (very strong)	10.13%	10.81%	12.27%	13.87%	15.60%
<i>For males</i>					
Sense of belonging /Exposure Index	<b>E=0.5</b>	<b>E=1</b>	<b>E=2</b>	<b>E=3</b>	<b>E=4</b>
S=1 (very weak)	13.81%	13.33%	12.42%	11.54%	10.72%
S=2 (somewhat weak)	30.11%	29.72%	28.93%	28.12%	27.27%
S=3 (somewhat strong)	43.48%	43.88%	44.64%	45.33%	45.96%
S=4 (very strong)	12.61%	13.07%	14.01%	15.01%	16.05%

NOTES: Each row represents different level of sense of belonging and each column represents different level of ethnic concentration. E is exposure index, which measures the level of ethnic concentration in each CMA. E=0.5 denotes 0.5% of the people in a CMA j are from the same origin i. E=1 denotes 1%, E=2 denotes 2%, E=3 denotes 3% and E=4 denotes 4%. Other variables are all set at their mean values.

The predicted probability of having a very weak (S=1) or a somewhat weak (S=2) sense of belonging is decreasing, while the predicted probability of having either a somewhat strong (S=3) or a very strong (S=4) sense of belonging is increasing as the level of the exposure index increases. For example, 30.4% of the people living in low ethnic density area (E=0.5) reported a somewhat weak level of sense of belonging. As the ethnic concentration of the area increases, E=4 for instance, the percentage of the people who reported the same level of sense of belonging decreased to 26.61%. The change in the predicted probability is about one percentage point for every one percentage point change in the exposure index for the values calculated. For example, in the model *for both males and females*, 14.59% of the people living in enclaves, where the exposure

index is 3 (E=3), reported a very strong sense of belonging, whereas 15.98% of the people living in enclaves where exposure index is 4 (E=4) reported the same level of sense of belonging.

Looking at how the other independent variables affect the *sense of belonging*<sup>14</sup>, we find that for males, being married and having children increases their level of sense of belonging. For females, non-visible minorities had a higher level of sense of belonging. Having some post secondary, or having completed a post secondary level of education increased the probability of strong sense of belonging for female immigrants. For the model with both male and female, only immigrants with post secondary education have a stronger sense of belonging relative to immigrants with lower than secondary education. No significant result was found for the impact of education on male immigrants. *Year since immigration* is also an important factor affecting immigrants' level of sense of belonging, especially for women. The sense of belonging of an immigrant increases with the amount of time since immigration. Models using relative cluster index classified by country of birth<sup>15</sup> have similar results as the models with exposure index. Furthermore, comparable results are found for *sense of belonging* models with the exposure index classified by mother tongues<sup>16</sup>.

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<sup>14</sup> Results can be found in Table A3a. From now on, results for both male and female immigrants refers to Column 1, for only males refers to Column 3 and for only females refers to Column 5.

<sup>15</sup> See results in Appendix Table A3b and A5.

<sup>16</sup> See results in Appendix Table A4.

## 5. Conclusions

Using data from the Statistics Canada's 2001, 2003 and 2005 Canadian Community Health Survey (CCHS), the impact of living in an ethnic enclave on earnings, employment status and different aspects of well-being of immigrants was examined. Findings presented in this paper advance our understanding of the determinants of life satisfaction of ethnic minorities in Canada. We find that living in ethnic enclaves increases the likelihood of finding employment in Canada; however, consistent with previous research, the jobs found are not as well paid, particularly for male immigrants who immigrated at age 25 or older. The increased likelihood of finding employment in ethnic enclaves could be one of the explanations of why immigrants tend to cluster in enclaves, since the utility gains from job opportunities provided by ethnic networks might serve as compensation for the lost utility caused by the lower earnings. Conversely, a negative impact of ethnic enclaves was found on both employment and hours worked for females who immigrated at age 25 or older. These females might play a more traditional role living in their ethnic enclaves than immigrants living outside.

In terms of psychological well-being, the main benefit of living in an ethnic enclave appears to be the positive impact on an immigrant's sense of belonging to his or her local community. Another important finding is that for people who immigrated at age 25 or older, living in an ethnic enclave has a negative impact on an immigrant's level of happiness. As well, ethnic enclaves deteriorated the state of health of females who were age 25 or older at the time of immigration. No significant impact was found on the stress level of immigrants.

Moreover, the greater employment opportunities and the higher level of sense of

belonging that immigrants obtain by living in an ethnic enclave may compensate for the negative effect that ethnic enclaves have on labour earnings. This conclusion is consistent with our hypotheses that enclaves should generate some utility gain for immigrants since it impedes their economic growth. The fact that overall happiness is not statistically different for people who live within or outside their ethnic enclave suggests that the higher earnings of living outside of the enclave may be evidence of compensating differentials for the lost sense of belonging. However, for people who immigrated as adults, enclaves have a negative impact on overall happiness. The better earning opportunities from living outside of the ethnic enclave appears to be larger and seems to outweigh the benefits of the stronger sense of belonging obtained from living inside the ethnic enclave.

Two major limitations occurred in this study. First, the cross-sectional data used contains no dynamic information that could be used to control for individual specific unobserved characteristics. Therefore, we cannot control for the possibility that immigrants with either different levels of innate ability or intrinsic happiness are more or less likely to live in enclaves. The second drawback is that the social and human capital indicators of life satisfaction of different ethnic groups may be even more contingent and complex than those we used in our models. Corin (1995) suggests that “predictive factors specific to the individual, identified in European and North American cultures, may not be sufficient, or even relevant, to explain prognosis in other cultures”. We are conscious that the dependent variables included in this analysis certainly do not completely explain the complex phenomenon of individuals’ well-being, but they provide a survey of the most important factors in the happiness literature.

## References

- Aydemir, Abdurrahman, and Mikal Skuterud (2005) 'Explaining the Deteriorating Entry Earnings of Canada's Immigrant Cohorts: 1966-2000,' *Canadian Journal of Economics* 38(2), 641-71
- Baker, Michael, and Dwayne Benjamin (1994) 'The Performance of Immigrants in the Canadian Labor Market,' *Journal of Labor Economics* 12(3), 369-405
- Becker, William E., and Peter E. Kennedy (1992) 'A Graphical Exposition of the Ordered Probit,' *Economy Theory* 8, 127-131
- Bertrand, Marianne, Erzo F. P. Luttmer, and Sendhil Mullianathan (2000) 'Network Effects and Welfare Cultures,' *Quarterly Journal of Economics* 115(3), 1019-1055
- Blackaby, David H., Derek G. Leslie, Philip D. Murphy, and Nigel C. O'Leary, (2002) 'White/Ethnic Minority Earnings and Employment Differentials in Britain: Evidence from the LFS,' *Oxford Economic Papers* 54, 270-297
- Borjas, George J. (2000) 'Ethnic enclaves and assimilation,' *Swedish Economic Policy Review* 7, 89-122
- Campbell, Angus, Philip E. Converse, and Willard L. Rodgers (1976) *The Quality of American Life: Perceptions, Evaluations and satisfactions* New York: Russell Sage
- Carpenter, Christopher S. (2007) 'Sexual Orientation, Work, and Income in Canada,' *November 2007 Working Paper*
- Chiswick, Barry R., and Paul W. Miller (2002) 'Immigrants earnings: language skills, linguistic concentrations and the business cycle,' *Journal of Population Economics* 15, 31-57
- (2005) 'Do enclaves matter in immigrant adjustment?' *City Community* 4(1), 5-35
- Chui, Tina (2003) 'Longitudinal Survey of Immigrants to Canada: Process, progress and prospects,' *Statistics Canada* Cat. No. 89-611-XIE
- Clark, Kenneth, and Stephen Drinkwater (2002) 'Enclaves, neighbourhood effects and employment outcomes: ethnic minorities in England and Wales,' *Journal of Population Economics* 15(1), 5-29
- Clark, Andrew E., and Andrew J. Oswald (1994) 'Unhappiness and Unemployment,' *The Economic Journal* 104(424), 648-659
- Corin, Ellen (1995) 'The cultural frame: Context and meaning in the construction of health,' *Society & Health*, ed. Amick BC III, Levine S, Tarlov AR, Walsh DC. New York, NY: Oxford University Press 272-304

- Deri, Catherine (2005) 'Social networks and health service utilization,' *Journal of Health Economics* 24, 1076-1107
- Di Tella, Rafael, and Robert MacCulloch (2006) 'Some Uses of Happiness Data in Economics,' *Journal of Economic Perspectives* 20, 25-46
- Easterlin, Richard A. (1974) 'Does Economic Growth Improve the Human Lot? Some Empirical Evidence,' *Nations and Households in Economic Growth* New York and London: Academic Press
- (1995) 'Will Raising the Incomes of All Increase the Happiness of All?' *Journal of Economic Behaviour and Organisation* 27(1), 35-48
- Edin, Per-Anders, Peter Fredriksson, and Olof Aslund (2003) 'Ethnic Enclaves and the Economic Success of Immigrants – Evidence from a Natural Experiment,' *Journal of Economic Literature* 118(1), 329-357
- Frey, Bruno S., and Alois Stutzer (2002) 'What Can Economists Learn from Happiness Research,' *Journal of Economic Literature* XL, 40(2), 402-435
- Hao, Lingxin, and Richard W. Johnson (2000) 'Economics, Cultural, and Social Origins of Emotional Well-Being,' *Research on Aging* 22(6), 599-629
- Hou, Feng, and Garnett Picot (2003) 'Visible-Minority Neighbourhood Enclaves Labour Market Outcomes of Immigrants,' *Canadian Immigration Policy for the 21st Century*, ed. Charles M. Beach, Alan G. Green, and Jeffrey G. Reitz (Kingston, ON: John Deutsch Institute)
- Kuo, Wen (1976) 'Theories of Migration and Mental Health: An Empirical Testing on Chinese-Americans,' *Social Science & Medicine* 10(3), 297-306
- Liao, Futing Tim (1994) 'Ordinal Logit and Probit Models,' *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models* Sage University Paper series on Quantitative Applications in the Social Sciences, 07-101. Thousand Oaks, CA: Sage.
- Logan, John R., Wenquen Zhang, and Richard D. Alba (2002) 'Immigrant Enclaves and Ethnic Communities in New York and Los Angeles,' *American Sociological Review* 67(2), 299-322
- Manski, Charles F. (1993) 'Identification of Endogenous Social Effects: The Reflection Problem,' *Review of Economic Studies* 60, 531-42
- Picot, Garnett, Feng Hou, and Simon Coulombe (2007) 'Chronic Low Income and Low-income Dynamics Among Recent Immigrants,' *Statistics Canada, Analytical Studies Research Paper* 294



- Pudney, Stephen, and Michael Shields (2000a) 'Gender, Race Pay and Promotion in the British Nursing Profession: Estimation of a Generalized Ordered Probit Model,' *Journal of Applied Econometrics* 15(4), 367-99
- (2000b) 'Gender and Racial Discrimination in Pay and Promotion for NHS Nurses,' *Oxford Bulletin of Economics and Statistics* 62, 801-35
- Razin, Eran, and Andre Langlois (1996) 'Metropolitan Characteristics and Entrepreneurship among Immigrants and Ethnic Groups in Canada,' *International Migration Review* 30(3), 703-727
- Schaafsma, Joseph, and Arthur Sweetman (2001) 'Immigrant earnings: age at immigration matters,' *The Canadian Journal of Economics* 34(4), 1066-1099
- Shields, Michael A., and Allan Wailoo (2002) 'Exploring the determinants of unhappiness for ethnic minority men in Britain,' *Scottish Journal of Political Economy* 49(4), 445-466
- Shields, Michael A., and Stephen Wheatley Price (2003) 'The labour market outcomes and psychological well-being of ethnic minority migrants in Britain,' *Home Office Online Report*
- (2001) 'The English language fluency and occupational success of ethnic minority immigrant men living in English metropolitan areas,' *Journal of Population Economics* 15(1), 137-160
- (1999) 'Ethnic differences in the incidence and determinants of employer-funded training in Britain,' *Scottish Journal of Political Economy* 46(5), 523-51
- (1998) 'The earnings of male immigrants in England: evidence from the quarterly LFS,' *Applied Economics* 30(9), 1157-68
- Statistic Canada (2003a) 'General Social Survey on Social Engagement,' *Cycle 17: an overview of findings*, Catalogue 89-598
- (2003b) 'Longitudinal Survey of Immigrants to Canada,' *The Daily Sep 4<sup>th</sup>*, 2003. <http://www.statcan.ca/Daily/English/030904/d030904a.htm>
- (2003c) 'Ethnic Diversity Survey,' *The Daily Sep 29<sup>th</sup>*, 2003. <http://www.statcan.ca/Daily/English/030929/d030929a.htm>
- (2003d) 'Earnings of immigrant workers and Canadian-born workers,' *The Daily Oct 8<sup>th</sup>*, 2003. <http://www.statcan.ca/Daily/English/031008/d031008a.htm>
- (2004a) 'Study: Immigrants in Canada's urban centres,' *The Daily Aug 18<sup>th</sup>*, 2004. <http://www.statcan.ca/Daily/English/040818/d040818b.htm>
- (2001a) 'Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations,' 2001 Census
- (2001b) 'Profile of Language, Mobility and Migration, for Census Metropolitan Areas and Census Agglomerations,' 2001 Census
- Stewart, Mark B. (1983) 'Racial discrimination and occupational attainment in Britain,' *The Economic Journal* 93(371), 521-41

- Vega, William A., Bohdan Kolody, and Juan Ramon Valle (1987) 'Migration and mental health: An empirical test of depression risk factors among Mexican American women,' *International Migration Review* 21(3), 512-30
- Warman, Casey, and Christopher Worswick (2004) 'Immigrant Earnings Performance in Canadian Cities: 1981 through 2001,' *Canadian Journal of Urban Research* 13(1), 62-84
- Warman, Casey (2007) 'Ethnic enclaves and immigrant earning growth,' *Canadian Journal of Economics* 40(2), 401-422
- Yuengert, Andrew M. (1995) 'Testing Hypotheses of Immigrant Self-Employment,' *Journal of Human Resources* 30(1), 194-204

## Appendix

<b>Table A1</b>	
<b>List of Variables</b>	
<i>Dependent Variable</i>	
SATISFACTION WITH LIFE IN GENERAL (HAPPINESS)	In score of 1(very dissatisfied), 2(dissatisfied), 3 (neither satisfied nor dissatisfied), 4 (satisfied) and 5 (very satisfied)
STRESS	In score of 1(extremely stressful), 2(quite a bit stressful), 3(a bit stressful), 4(not very stressful), 5(not at all stressful)
HEALTH	In score of 1(fair), 2(good), 3(very good), 4(excellent)
SENSE OF BELONGING	In score of 1(very weak), 2(somewhat weak), 3(somewhat strong), 4(very strong)
<i>Independent Variables</i>	
EXPOSURE INDEX/ RELATIVE INDEX	Exposure Index: the fraction of the population in each Census Metropolitan Area (CMA) by country of birth / first language learned and still understood. Relative Cluster Index: deflates the exposure index by dividing it by the proportion of the group i for all CMAs in the population of all CMAs studies.
CYCLE 1	If individual i was pooled from Cycle 1 (CCHS 2003) =1, otherwise=0
CYCLE 2	If individual i was pooled from Cycle 2 (CCHS 2005) =1, otherwise=0
CMAs	List of independent variables, which if individual is living in a Census Metropolitan Area=1, otherwise=0 (CMAs includes: St Johns, Halifax, Saint John, Saguenay, Quebec, Sherbrooke, Trois Rivieres, Montreal, Ottawa, Kingston, Oshawa, Hamilton, Niagara, Kitchener, London, Windsor, Greater Sudbury, Thunderbay, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Abbotsford, Vancouver and Victoria)
SEX	Male=1, female=0
AGE	Range from 18 to 64
AGE^2	Age to the power of two
WHITE	Caucasoid=1, visible minority=0
MARITAL STATUS	Married or common-law=1, otherwise=0
LONE PARENT	Being a couple=1, otherwise=0
INFANT	Number of children less than 5 years old in the household
CHILDREN	Number of children from 6 to 11 years old in the household
EDU_SECONDARY	High school, no post-secondary degree, cert. or diploma
EDU_SOME POSTSECONDARY	Trades certificate or diploma/college/cegep/university cert. below bachelor
EDU_POSTSECONDARY	Bachelor or cert. above bachelor level.
YEARS SINCE IMMIGRATION	Length of time in Canada since immigration=0-95
YEARS SINCE IMMIGRANTION^2	Year of immigration to the power of two
COUNTRY OF BIRTH	List of independent variables, which if individual's country of birth is the following countries=1, otherwise=0 (Country of birth: China, Germany, Greece, Guyana, Hongkong, Hungary, India, Italy, Jamaica, Holland, Philippines,

	Poland, Portugal and Vietnam)
FIRST LANGUAGE LEARNED AND STILL UNDERSTOOD	List of independent variables, which if individual's first language is the following languages=1, otherwise=0 (Languages: Arabic, Chinese, German, Greek, Hungarian, Italian, Korean, Persian, Polish, Portuguese, Punjabi, Spanish, Tagalog, Ukrainian and Vietnamese)

<b>Table A2a</b>			
<b>Table 1 repeated for sample used in earnings regression analysis (corresponds to Table 1a)</b>			
	<b>Full sample</b>	<b>Males</b>	<b>Females</b>
<i>Happiness</i>			
<b>(1) Exposure Index</b>	-0.014 [0.60]	-0.021 [0.75]	0.012 [0.32]
<b>Pseudo R<sup>2</sup></b>	0.04	0.04	0.05
<b>(2) Relative Index</b>	-0.002 [0.06]	-0.004 [0.12]	0.018 [0.38]
<b>Pseudo R<sup>2</sup></b>	0.04	0.04	0.05
<i>Stress</i>			
<b>(3) Exposure Index</b>	-0.009 [0.39]	-0.006 [0.21]	-0.006 [0.15]
<b>Pseudo R<sup>2</sup></b>	0.02	0.02	0.02
<b>(4) Relative Index</b>	-0.002 [0.06]	0.021 [0.62]	-0.021 [0.48]
<b>Pseudo R<sup>2</sup></b>	0.02	0.02	0.02
<i>Health</i>			
<b>(5) Exposure Index</b>	-0.006 [0.24]	-0.011 [0.35]	-0.005 [0.12]
<b>Pseudo R<sup>2</sup></b>	0.03	0.03	0.04
<b>(6) Relative Index</b>	0.008 [0.27]	0.003 [0.08]	0.012 [0.25]
<b>Pseudo R<sup>2</sup></b>	0.03	0.03	0.04
<i>Sense of belonging</i>			
<b>(7) Exposure Index</b>	0.073*** [3.04]	0.066** [2.22]	0.079** [2.05]
<b>Pseudo R<sup>2</sup></b>	0.03	0.04	0.05
<b>(8) Relative Index</b>	0.076*** [2.69]	0.069* [1.87]	0.081* [1.84]
<b>Pseudo R<sup>2</sup></b>	0.03	0.03	0.05

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The robust Z-statistics are in brackets. The exposure and relative indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, numbers of children, level of education, year dummies, years since immigration and country of birth fixed effects. The sample is restricted to immigrants aged 18 to 64 who live in one of the 27 CMAs, who come from one of the selected country of origin groups in this study (see Table A7 in the appendix), who works 35 or more hours per week, whose main source of personal income comes from wages and salaries, self-employment earnings or investment income, and who does not obtain household income from Employment Insurance, Canadian Pension Plan, Worker’s Compensation, Retirement Pensions, Old Age Security or Social Assistant Welfare.

**Table A2b**

**Table 1 repeated for sample used in earnings regression analysis for people who immigrated at age 25 or older (corresponds to Table 1b)**

	Full sample	Males	Females
<i>Happiness</i>			
(1) Exposure Index	-0.079** [2.26]	-0.098** [2.28]	-0.052 [0.83]
Pseudo R <sup>2</sup>	0.04	0.05	0.07
(2) Relative Index	-0.123*** [2.66]	-0.149** [2.55]	-0.087 [1.11]
Pseudo R <sup>2</sup>	0.04	0.05	0.07
<i>Stress</i>			
(3) Exposure Index	0.027 [0.82]	0.031 [0.76]	0.012 [0.20]
Pseudo R <sup>2</sup>	0.03	0.03	0.04
(4) Relative Index	0.060 [1.38]	0.094* [1.72]	0.005 [0.08]
Pseudo R <sup>2</sup>	0.03	0.03	0.04
<i>Health</i>			
(5) Exposure Index	-0.033 [0.95]	-0.030 [0.66]	-0.055 [0.93]
Pseudo R <sup>2</sup>	0.04	0.06	0.04
(6) Relative Index	-0.065 [1.41]	-0.069 [1.13]	-0.073 [0.99]
Pseudo R <sup>2</sup>	0.04	0.06	0.04
<i>Sense of belonging</i>			
(7) Exposure Index	0.047 [1.23]	0.084 [1.63]	-0.004 [0.07]
Pseudo R <sup>2</sup>	0.05	0.05	0.07
(8) Relative Index	0.054 [1.08]	0.106 [1.57]	-0.023 [0.29]
Pseudo R <sup>2</sup>	0.05	0.05	0.07

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The robust Z-statistics are in brackets. The exposure and relative indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, numbers of children, level of education, year dummies, years since immigration and country of birth fixed effects. The sample is restricted to immigrants aged 18 to 64 who live in one of the 27 CMAs, who come from one of the selected country of origin groups in this study (see Table A7 in the appendix), who works 35 or more hours per week, whose main source of personal income comes from wages and salaries, self-employment earnings or investment income, and who does not obtain household income from Employment Insurance, Canadian Pension Plan, Worker’s Compensation, Retirement Pensions, Old Age Security or Social Assistant Welfare.

**Table A3a**  
**Impact of Ethnic Enclaves on Sense of Belonging with Exposure Index Classified by Country of Birth**

Variables	Model with full sample		Model with only males		Model with only females	
	Col1	Col2	Col3	Col4	Col5	Col6
	$\beta$	z	$\beta$	z	$\beta$	z
EXPOSURE INDEX	0.059***	3.54	0.044*	1.84	0.075***	3.18
CYCLE 1	-0.087**	-2.33	-0.060	-1.1	-0.114**	-2.27
CYCLE 2	-0.003	-0.08	0.253	-0.42	0.022	0.44
STJOHNS	0.133	0.53	0.040	0.86	0.291	0.76
HALIFAX	0.067	0.37	-0.022	0.13	-0.050	-0.21
SAINTJOHN	0.416	0.9	-0.265	-0.7	1.036	1.57
SAGUENAY	-0.840**	-2.23	-0.553	-1.53	-8.193***	-40.82
QUEBEC	-0.088	-0.38	0.174	0.46	-0.565*	-1.92
SHERBROOKE	-0.249	-1.05	-0.315	-0.89	-0.198	-0.61
TROISRIVIERES	1.049	1.59	0.643	0.51	1.384**	2.33
MONTREAL	0.173**	2.53	0.312	1.13	0.255***	2.86
OTTAWA	0.231***	3.1	0.263**	2.36	0.213**	2.18
KINGSTON	0.132	0.73	0.137	0.51	0.083	0.35
OSHAWA	0.075	0.58	-0.011	-0.07	0.140	0.66
HAMILTON	0.323***	4.37	0.113***	3.33	0.350***	3.05
NIAGARA	0.327**	2.39	0.480***	2.73	0.173	0.84
KITCHENER	0.322***	3.87	0.298**	2.2	0.363***	3.43
LONDON	0.165**	2.1	0.169	1.39	0.148	1.43
WINDSOR	0.194**	1.95	0.150	0.95	0.251*	1.96
GREATERSUDBURY	0.187	1.16	0.755***	2.67	-0.069	-0.4
THUNDERBAY	0.564***	4.52	0.633***	3.2	0.493***	3.11
WINNIPED	0.298***	4.62	0.377***	3.73	0.258***	3.09
REGINA	0.430**	2.47	0.664***	3.26	0.328	1.35
SASKATON	0.431*	1.87	0.680**	2.13	0.086	0.29
CALGARY	0.142**	1.97	0.278***	3.02	0.020	0.18
EDMONTON	0.228***	3.12	0.094	0.86	0.408***	4.19
ABBOTSFORD	0.282**	2	0.203	1.07	0.449**	2.17
VANCOUVER	0.240***	5.76	0.300***	4.87	0.199***	3.55
VICTORIA	0.328***	2.99	0.352**	2.15	0.286*	1.96
SEX	0.017	0.58	---	---	---	---
AGE	0.010	1.05	0.009	0.68	0.012	0.95
AGE^2	-0.000	-0.4	-0.000	-0.21	-0.000	-0.54
WHITE	-0.164	-1.65	0.015	0.11	-0.381***	-2.72
MARITAL STATUS	0.052	1.28	0.120**	1.97	-0.017	-0.31
LONE PARENTS	-0.112	-1.88	-0.001	-0.01	0.011***	-2.8
INFANTS	-0.043	-1.41	-0.063	-1.4	-0.024	-0.6
CHILDREN	0.046*	1.95	0.071**	2.03	0.018	0.61
EDU_SECONDARY	0.031	0.48	0.051	0.58	-0.205	0.12
EDU_SOME POST SECONDARY	0.042	1.07	-0.109	-1.87	0.174***	3.44
EDU_POST SECONDARY	0.090**	2.29	0.063	1.1	0.000**	2.13
YEARS SINCE IMMIGRATION	0.007*	1.78	0.003	0.55	0.012**	2.12
YEARS SINCE	-0.003	-0.36	0.005	0.43	-0.011	-0.99

IMMIGRATION <sup>2</sup> /100						
Country of Birth						
GERMANY	0.336***	2.62	0.072	0.41	0.657***	3.87
GREECE	0.596***	3.67	0.319	1.41	0.997***	3.94
GUYANA	0.630***	5.91	0.534***	3.5	0.673***	5.32
HONGKONG	0.197***	3.59	0.191**	2.44	0.202***	2.62
HUNGARY	0.437***	2.69	0.137	0.63	0.805***	3.41
INDIA	0.634***	11.29	0.620***	7.72	0.676***	8.67
ITALY	0.430***	3.58	0.332**	2.09	0.593***	3.35
JAMAICA	0.489***	5.82	0.464***	3.41	0.504***	4.78
HOLLAND	0.504***	3.84	0.254	1.46	0.829***	4.25
PHILIPINES	0.611***	10.09	0.631***	6.73	0.595***	7.63
POLAND	0.400***	3.34	0.258	1.57	0.615***	3.63
PORTUGAL	0.585***	4.73	0.409**	2.31	0.813***	4.87
VIETNAM	0.078	0.97	0.074	0.63	0.089	0.79
Wald	477.57		258.14		7021.81	
Chi-square						
n	10568		4909		5659	
R <sup>2</sup>	0.0287		0.0323		0.0330	
Cut 1	-0.344		-0.341		-0.333	
Cut 2	0.581		0.595		0.595	
Cut 3	1.907		1.893		1.963	

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The exposure indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth. Column 1, 3 and 5 are the coefficients of explanatory variables for the full sample, male and female model respectively. The values in column 2, 4 and 6 are the corresponding robust z-statistics of each coefficient. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, numbers of children, level of education, year dummies, years since immigration and country of birth fixed effects. The sample is restricted to immigrants age 18 to 64, who live in one of the 27 CMAs and come from one of the selected country of origin groups in this study (see Table A7 in the appendix).



**Table A3b**  
**Impact of Ethnic Enclaves on Sense of Belonging with Relative Index Classified by Country of Birth**

Variables	Model with both males and females		Model with only males		Model with only females	
	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
	$\beta$	z	$\beta$	z	$\beta$	z
RELATIVE INDEX	0.062***	3.13	0.040	1.37	0.084***	3.13
CYCLE 1	-0.087*	-2.33	-0.060	-1.09	-0.114**	-2.26
CYCLE 2	-0.002	-0.06	-0.021	-0.41	0.023	0.47
STJOHNS	0.123	0.49	0.015	0.05	0.323	0.82
HALIFAX	0.066	0.36	0.259	0.88	-0.065	-0.28
SAINTJOHN	0.447	0.96	-0.266	-0.7	1.110*	1.7
SAGUENAY	-0.826***	-2.18	-0.548	-1.5	-7.976***	-36.42
QUEBEC	-0.069	-0.30	0.172	0.45	-0.517*	-1.72
SHERBROOKE	-0.226	-0.95	-0.318	-0.89	-0.135	-0.43
TROISRIVIERES	1.049	1.56	0.635	0.5	1.395**	2.29
MONTREAL	0.170**	2.49	0.105	1.05	0.259***	2.87
OTTAWA	0.225***	3.00	0.249**	2.23	0.216**	2.19
KINGSTON	0.119	0.66	0.126	0.47	0.068	0.28
OSHAWA	0.072	0.55	-0.018	-0.12	0.144	0.66
HAMILTON	0.316***	4.30	0.300***	3.25	0.350***	3.05
NIAGARA	0.313**	2.28	0.468***	2.7	0.155	0.74
KITCHENER	0.309***	3.73	0.287**	2.12	0.346***	3.3
LONDON	0.148*	1.90	0.152	1.25	0.132	1.29
WINDSOR	0.188*	1.87	0.135	0.85	0.256**	1.99
GREATERSUDBURY	0.179	1.11	0.744***	2.61	-0.073	-0.43
THUNDERBAY	0.565***	4.48	0.633***	3.18	0.495***	3.1
WINNIPED	0.299***	4.63	0.376***	3.72	0.262***	3.12
REGINA	0.426**	2.43	0.647***	3.13	0.337	1.38
SASKATON	0.422*	1.83	0.671**	2.09	0.075	0.26
CALGARY	0.131*	1.81	0.264***	2.87	0.011	0.10
EDMONTON	0.215***	2.92	0.078	0.71	0.398***	4.11
ABBOTSFORD	0.335**	2.40	0.251	1.33	0.503**	2.46
VANCOUVER	0.263***	6.60	0.319***	5.39	0.224***	4.22
VICTORIA	0.311***	2.85	0.333**	2.04	0.273*	1.88
SEX	0.018	0.61	---	---	---	---
AGE	0.010	1.07	0.009	0.69	0.012	0.95
AGE^2	0.000	-0.41	0.000	-0.21	0.000	-0.54
WHITE	-0.163	-1.65	0.013	0.1	-0.378***	-2.71
MARITAL STATUS	0.051	1.26	0.119**	1.96	-0.019	-0.35
LONE PARENTS	-0.114*	-1.90	-0.003	-0.03	-0.207***	-2.82
INFANTS	-0.043	-1.41	-0.063	-1.4	-0.024	-0.6
CHILDREN	0.046**	1.98	0.072**	2.04	0.019	0.64
EDU_SECONDARY	0.031	0.49	0.052	0.59	0.010	0.11
EDU_SOME POST SECONDARY	0.041	0.49	-0.110*	-1.88	0.174***	3.44
EDU_POST SECONDARY	0.089	1.06	0.062	1.08	0.112**	2.12
YEARS SINCE IMMIGRATION	0.007**	2.27	0.003	0.57	0.012**	2.13

YEARS SINCE IMMIGRATION <sup>2</sup> /100	-0.003*	-0.39	0.005	0.41	-0.011	-1.00
Country of Birth						
GERMANY	0.241*	1.95	0.003	0.02	0.534***	3.27
GREECE	0.498***	2.98	0.222	1.01	0.833***	3.4
GUYANA	0.428***	4.49	0.416***	2.87	0.452***	3.81
HONGKONG	0.149***	2.70	0.157**	2.02	0.139*	1.77
HUNGARY	0.306**	1.96	0.042	0.2	0.639***	2.8
INDIA	0.620***	11.16	0.609***	7.7	0.658***	8.51
ITALY	0.409***	3.42	0.317**	2.01	0.565***	3.21
JAMAICA	0.359***	4.51	0.372***	2.92	0.330***	3.25
HOLLAND	0.374***	2.96	0.162	0.97	0.656***	3.5
PHILIPINES	0.556***	9.70	0.590***	6.60	0.526***	7.14
POLAND	0.317***	2.72	0.198	1.23	0.511***	3.12
PORTUGAL	0.488***	4.04	0.339**	1.96	0.688***	4.23
VIETNAM	-0.012	-0.16	0.006	0.06	-0.022	-0.12
Wald	476.52		257.73			5112.13
Chi-square						
N	10568		4909			5659
R <sup>2</sup>	0.0285		0.0321			0.0329
Cut 1	-0.407		-0.398			-0.402
Cut 2	0.518		0.537			0.526
Cut 3	1.844		1.836			1.894

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The relative cluster indices were calculated using the “Profile of Citizenship, Immigration, Birthplace, Generation Status, Ethnic Origin, Visible Minorities and Aboriginal Peoples, for Census Metropolitan Areas and Census Agglomerations, 2001 Census” (Statistic Canada, 2001a), classified by country of birth. Column 1, 3 and 5 are the coefficients of explanatory variables for the full sample, male and female model respectively. The values in column 2, 4 and 6 are the corresponding robust z-statistics of each coefficient. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, numbers of children, level of education, year dummies, years since immigration and country of birth fixed effects. The sample is restricted to immigrants age 18 to 64, who live in one of the 27 CMAs and come from one of the selected country of origin groups in this study (see Table A7 in the appendix).

**Table A4**  
**Impact of Ethnic Enclaves on Sense of Belonging with Exposure Index Classified by Mother Tongues**

Variables	Model with full sample		Model with only males		Model with only females	
	Col 1	Col 2	Col 3	Col 4	Col 5	Col 6
	$\beta$	z	$\beta$	z	$\beta$	z
EXPOSURE INDEX	0.030***	2.86	0.014	0.96	0.043***	2.99
CYCLE 1	-0.029	-0.96	-0.002	-0.04	-0.047	-1.12
CYCLE 2	-0.002	-0.08	-0.010	-0.23	0.011	0.26
STJOHNS	0.158	0.88	0.235	1.25	0.043	0.11
HALIFAX	0.020	0.13	0.374**	2.1	-0.330	-1.37
SAINTJOHN	0.032	0.09	-0.260	-0.89	0.587	0.94
SAGUENAY	-0.618**	-1.98	-0.268	-0.8	-8.472***	-40.44
QUEBEC	0.004	0.03	-0.073	-0.32	0.057	0.33
SHERBROOKE	-0.142	-0.75	-0.352	-1.19	0.134	0.59
TROISRIVIERES	-0.094	-0.2	-0.039	-0.06	-0.020	-0.03
MONTREAL	0.040	0.95	0.008	0.12	0.067	1.19
OTTAWA	0.100	1.57	0.054	0.56	0.153*	1.87
KINGSTON	0.176	1.21	0.120	0.56	0.242	1.23
OSHAWA	0.215***	2.8	0.109	0.97	0.347***	3.44
HAMILTON	0.365***	6.68	0.357***	4.96	0.367***	4.56
NIAGARA	0.388***	4.26	0.491***	3.89	0.302**	2.35
KITCHENER	0.299***	4.38	0.232**	2.18	0.359***	4.02
LONDON	0.060	0.78	0.051	0.41	0.060	0.63
WINDSOR	0.291***	4.02	0.316***	2.97	0.284***	2.82
GREATERSUDBURY	0.315***	2.61	0.354**	2.00	0.308*	1.83
THUNDERBAY	0.411***	3.84	0.294*	1.68	0.479***	3.71
WINNIPED	0.231***	4.13	0.334***	4.04	0.146*	1.95
REGINA	0.288**	2.2	0.518***	3.35	0.139	0.71
SASKATON	0.536***	4.43	0.639***	3.44	0.422***	2.83
CALGARY	0.160**	2.45	0.249***	2.82	0.077	0.81
EDMONTON	0.201***	3.49	0.124	1.46	0.295***	3.76
ABBOTSFORD	0.410***	3.83	0.386**	2.23	0.445*	1.73
VANCOUVER	0.244***	6.77	0.239***	4.55	0.258***	5.27
VICTORIA	0.315***	2.72	0.239*	1.90	0.379***	3.46
SEX	0.037	1.55	---	---	---	---
AGE	-0.007	-0.9	0.000	-0.03	-0.014	-1.25
AGE^2	0.000	1.4	0.000	0.37	0.000	1.64
WHITE	-0.022	-0.4	-0.013	-0.17	-0.032	-0.4
MARITAL STATUS	0.108***	3.25	0.158***	3.28	0.067	1.44
LONE PARENTS	-0.115**	-2.25	-0.046	-0.6	-0.161**	-2.36
INFANTS	-0.042*	-1.82	-0.033	-0.97	-0.055*	-1.73
CHILDREN	0.099***	5.59	0.095***	3.72	0.102***	4.16
EDU_SECONDARY	-0.016	-0.34	-0.025	-0.37	-0.008	-0.11
EDU_SOME POST SECONDARY	0.052	1.65	-0.079*	-1.74	0.173***	3.97
EDU_POST SECONDARY	0.074**	2.3	0.008	0.17	0.133***	2.99
YEARS SINCE IMMIGRATION	0.012***	3.17	0.011**	1.98	0.012**	2.46
YEARS SINCE	-0.014*	-1.83	-0.011	-0.95	-0.017*	-1.66

IMMIGRATION <sup>2</sup> /100						
Language						
ARABIC	0.439***	7.15	0.409***	4.8	0.474***	5.3
GERMAN	0.256***	3.23	0.199*	1.71	0.313***	2.92
GREEK	0.411***	4.22	0.406***	3.06	0.419***	2.87
HUNGARIAN	0.164	1.55	-0.043	-0.3	0.359**	2.41
ITALIAN	0.258***	3.74	0.291***	3.06	0.241**	2.43
KOREAN	0.006	0.06	-0.104	-0.92	0.114	0.82
PERSIAN	0.370***	3.43	0.420***	2.93	0.326**	2.02
POLISH	0.170**	2.12	0.123	1.10	0.225**	1.97
PORTUGUESE	0.345***	4.33	0.314***	2.71	0.375***	3.4
PUNJABI	0.576***	10.44	0.534***	6.84	0.636***	8.24
SPANISH	0.197***	3.32	0.165*	1.89	0.232***	2.9
TAGOLOG	0.540***	9.21	0.477***	5.61	0.582***	7.32
UKRAINIAN	0.275***	2.93	0.266**	2.04	0.278**	2.04
VIETNAMESE	0.042	0.5	0.103	0.88	-0.021	-0.18
Wald	578.01		333.53		4226.71	
Chi-square						
n	15455		7272		8183	
R <sup>2</sup>	0.026		0.028		0.028	
Cut 1	-.681		-.666		-0.739	
Cut 2	.286		0.315		0.221	
Cut 3	1.635		1.660		1.584	

NOTES: Significance levels are indicated by \* for 10%, \*\* for 5%, and \*\*\* for 1%. The exposure indices were calculated using the 2001 Census data, classified by first language learned and still understood. Column 1, 3 and 5 are the coefficients of explanatory variables for the full sample, male and female model respectively. The values in column 2, 4 and 6 are the corresponding robust z-statistics of each coefficient. Regressions include the following variables: CMA dummies, sex, age, a non-visible minority dummy, marital status, being a lone parent, numbers of children, level of education, year dummies, years since immigration and language fixed effects. The sample is restricted to immigrants age 18 to 64 who live in one of the 27 CMAs and come from one of the selected mother tongue groups in this study (see Table A7 in the appendix).

**Table A5 Predicted Probability of Immigrants' Sense of Belonging when Relative Cluster Index varies in the Country of Birth Model**

<b>For both males and females</b>					
Sense of belonging /Relative Index	<b>R=0.5</b>	<b>R=1</b>	<b>R=2</b>	<b>R=3</b>	<b>R=4</b>
S=1 (very weak)	14.46%	13.77%	12.46%	11.23%	10.10%
S=2 (somewhat weak)	30.20%	29.67%	28.57%	27.42%	26.21%
S=3 (somewhat strong)	43.66%	44.26%	45.37%	46.36%	47.22%
S=4 (very strong)	11.68%	12.30%	13.60%	14.99%	16.47%
<b>For females</b>					
Sense of belonging /Relative Index	<b>R=0.5</b>	<b>R=1</b>	<b>R=2</b>	<b>R=3</b>	<b>R=4</b>
S=1 (very weak)	15.21%	14.24%	12.43%	10.78%	9.30%
S=2 (somewhat weak)	30.83%	30.13%	28.63%	27.04%	25.36%
S=3 (somewhat strong)	43.73%	44.63%	46.27%	47.68%	48.53%
S=4 (very strong)	10.22%	11.00%	12.66%	14.50%	16.51%

NOTES: Each row represents different level of sense of belonging and each column represents different level of ethnic concentration. S=1 denotes very weak, S=2 denotes somewhat weak, S=3 denotes somewhat strong and S=4 denotes very strong level of sense of belonging. R is relative cluster index, which measured level of ethnic concentration in each CMA. R=0.5 denotes 0.5% of the people in a CMA j are from the same origin i. R=1 denotes 1%, R=2 denotes 2%, R=3 denotes 3% and R=4 denotes 4%. Other variables are all set at their mean values. The results for males are not displayed since the relative index was not statistically significant.

**Table A6 Predicted Probability of Sense of Belonging when Exposure Index varies in the Language Model**

<b>For both males and females</b>					
Sense of belonging /Exposure Index	<b>E=0.5</b>	<b>E=1</b>	<b>E=2</b>	<b>E=3</b>	<b>E=4</b>
S=1 (very weak)	13.87%	13.55%	12.91%	12.29%	11.69%
S=2 (somewhat weak)	31.39%	31.12%	30.58%	30.03%	29.46%
S=3 (somewhat strong)	43.80%	44.11%	44.71%	45.28%	45.83%
S=4 (very strong)	10.94%	11.22%	11.80%	12.40%	13.02%
<b>For females</b>					
Sense of belonging /Exposure Index	<b>E=0.5</b>	<b>E=1</b>	<b>E=2</b>	<b>E=3</b>	<b>E=4</b>
S=1 (very weak)	15.56%	14.55%	13.58%	12.65%	11.77%
S=2 (somewhat weak)	32.36%	31.65%	30.90%	30.11%	29.30%
S=3 (somewhat strong)	42.57%	43.55%	44.47%	45.34%	46.15%
S=4 (very strong)	9.50%	10.26%	11.05%	11.90%	12.78%

NOTES: Each row represents different level of sense of belonging and each column represents different level of ethnic concentration. S=1 denotes very weak, S=2 denotes somewhat weak, S=3 denotes somewhat strong and S=4 denotes very strong level of sense of belonging. E is Exposure index, which measured level of ethnic concentration in each CMA. E=0.5 denotes 0.5% of the people in a CMA j are from the same origin i. E=1 denotes 1%, E=2 denotes 2%, E=3 denotes 3% and E=4 denotes 4%. Other variables are all set at their mean values. The results for males are not displayed since the exposure index was not statistically significant.

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**Table A7**  
**List of Country of Birth and Mother Tongues Used in the Study**

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<b>Country of Birth</b>	<b>Mother Tongues (Languages)</b>
China (omitted category)	Chinese (omitted category)
Germany	German
Greece	Greek
Guyana	Arabic
Hong Kong	Korean
Hungary	Hungarian
India	Punjabi
Italy	Italian
Jamaica	Spanish
Holland	Ukrainian
Philippines	Tagalog
Poland	Polish
Portugal	Portuguese
Vietnam	Vietnamese
	Persian

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