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GENERATIONAL PERSPECTIVE ON THE 1996-2001 INTER-METROPOLITAN MIGRATION IN CANADA

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Abstract.
Based on the 2001 Canadian census, we characterized and explained the 1996-2001 inter-metropolitan migrations of different generations. In the descriptive analysis, we found that being consistent with the expected effects of acculturation, the overall out- and in-migration rates increased monotonically from the 1st to the 3rd+ generation, whereas in Toronto and Vancouver where the attractiveness of well-established co-ethnic communities tended to weaken with increasing generation, the in-migration rate actually decreased monotonically from the 1st to the 3rd+ generation. In the multivariate analysis, we found that the migration behaviours of all generations were in general subject to the expected effects of labor market factors, attraction by co-ethnic communities, and accessibility to the rest of the system; and that with respect to the effects on out-migration propensity, increase in generation had the effects of weakening educational selectivity and strengthening age selectivity.

Key Words: inter-metropolitan migration, immigrant, second generation, Canada
JEL Codes: R230, F220, O150, J110

Résumé. Une perspective générationnelle sur la migration inter-métropolitaine au Canada entre 1996 et 2001
Selon le recensement canadien de 2001, nous avons caractérisé et expliqué les migrations 1996-2001 inter-métropolitaines de différentes générations. Dans l'analyse descriptive, nous avons constaté que d'être compatible avec les effets attendus de l'acculturation, l'ensemble des taux d'émigration et d'immigration a augmenté de façon monotone de la 1ère à la 3ème + génération, alors qu'à Toronto et Vancouver, où l'attrait des communautés ethniques bien établies tend à affaiblir pour la génération montante, le taux de migration a en fait diminué de façon monotone de la 1ère à la 3ème+ génération. En analyse multivariée, nous avons constaté que les comportements de migration de toutes les générations ont été en général l'objet des effets attendus des facteurs du marché du travail, l'attraction par les communautés co-ethniques, et l'accessibilité au reste du système, et qu'en ce qui concerne les effets sur la propension à l'émigration, le changement de génération a eu l'effet d'affaiblir la sélectivité d'enseignement et le renforcement de la sélectivité d'âge.

Mots clé : migration inter-métropolitaine, immigrant, seconde génération, Canada
Codes JEL : R230, F220, O150, J110

Introduction

Immigrants are an important and fast growing component of the Canadian population. According to the two most recent censuses, the immigrant population (i.e., the foreign-born) increased at an average rate of 2.5% per year from 5.45 million in 2001 to

6.19 million in 2006, representing 19.8% of the 2006 total population of Canada. The significant role played by immigrants is not only in terms of the magnitude, but also in terms of their spatial distribution at the time of landing as well as the redistribution through post-immigration relocation.

Immigrants are very unevenly distributed in Canada and were increasingly concentrated in large urban areas through the 1990s. For example, in 1991, around 66% of all immigrants landed in Canada during the previous 10 years lived in the three largest Census Metropolitan Areas (CMAs): Toronto, Montreal, and Vancouver. By 2001, this proportion increased sharply to 74%. In comparison, these three CMAs shared 26% and 27% of native-born individuals in 1991 and 2001, respectively. The long-term distributional impact of immigration can be even more substantial, because not only the immigrants themselves but also their children settle disproportionately in large CMAs. In Toronto, for example, almost three-quarters of Torontonians aged 15 or older in 2001 were immigrants or their Canadian-born children (Schellenberg, 2004). However, our preliminary examinations of the data of the 2006 census and the IMDB (a data system created by Statistics Canada by linking the landing records of the immigrants to their income tax records) revealed that the immigrants' concentration trend was reversed in the early years of the 2000s.

In the extensive literature on internal migration, a large body of studies in Canada and the U.S. have examined the post-landing migration patterns of immigrants (Trovato, 1988; Bartel, 1989; Nogle, 1994; Moore and Rosenberg, 1995; Newbold, 1996; Frey and Liaw, 1999; Ram and Shin, 1999; CIC, 2000, 2001; Edmonston, 2002; Chiswick and Miller, 2004; Liaw and Xu, 2005) and sometimes compared the migration behaviours of the immigrants to those of the native-born (Lin, 1998; Rogers and Henning, 1999; Hou and Bourne, 2004; Ellis and Goodwin-White, 2006). However, research on the migration of generation-specific descendants of the immigrants has been very limited in the literature[1], mainly due to lack of proper data. The 2001 Canadian Census opened up a research opportunity, as it is the first census since 1971 that contains a "Generation Status" variable derived from the information on birthplaces of the parents of each respondent.

Based on the confidential long-form records of the 2001 census, the purpose of this paper is to characterize and explain the 1996-2001 inter-CMA migrations of different generations who were in the prime labour force age interval (25-44) and belonged to seven ethnic groups. We exclude the young adults in the 20-24 age group, because many of them were still pursuing education. We also exclude those aged 45 and over, because their migration propensities were relatively low, and because the numbers in long-form records for the older immigrants residing in smaller CMAs were too small to yield statistically reliable information. Our criteria for selecting the seven ethnic groups are (1) that each group had a reasonably large sample size, and (2) that they originated either from Europe (the major source before the introduction of the point system) or Asia (the major source after the introduction of the point system). Among European ethnic groups, we select British, German, Italian, and Ukrainian. Among Asian ethnic groups, we select Chinese,

[1] Contemporary empirical studies on the second generation have been largely centered on social and economic assimilation (Portes and Zhou, 1993; Perlmann and Waldinger, 1997; Borjas, 2001; Boyd, 2002; Farley and Alba, 2002; Portes et al, 2005; Zhou and Xiong, 2005; Kim, 2006). Research on spatial migration pattern of the second generation has been largely missing in the literature.

Indian, and Filipino. The geographic system used in our study consists of the 27 CMAs defined in the 2001 census.

Our study contributes to the literature in the following ways. First, by taking the generational perspective, we can better explore the connections between the internal migration process and the ideas developed in the literature on acculturation and assimilation. Second, since metropolitan areas are better than provinces as proxies for labour markets, our study has a better chance in revealing the connections between internal migration and labour market factors[2] (Liaw et al, 1986). Furthermore, since the number of CMAs is much greater than the number of provinces, the empirical findings from multivariate analysis tend to be more robust and convincing.

Theoretical Expectations

Although a comprehensive and coherent theory on the effects of generation on inter-metropolitan migration is still lacking, Douglas Massey's spatial assimilation theory (Massey, 1985) contains helpful concepts and ideas for formulating expectations of the generation effects. A key concept is *acculturation*, which is defined as "the gradual acquisition of the language, values, and manners of the host society" (Massey, 1985: 320). In general, immigrants entering the host country as children tend to achieve a higher level of acculturation than do those entering as adults; children born to immigrant parents in the host country tend to achieve an even higher level of acculturation; and those born to native-born parents tend to achieve the highest level of acculturation. Another key concept is *socioeconomic mobility* through which immigrants with little human capital at entry and their descendants can become assimilated into the middle and upper levels of the socioeconomic structure of the host society. Except for the cases of downward assimilation indentified by Portes and Zhou (1993), most ethnic groups of immigrant origin tend to advance in socioeconomic status from one generation to the next. Yet another key concept is *social distance*. In Canada, the social distance from the British mainstream tends to be greater for southern and eastern Europeans (e.g., Italians and Ukrainians) and Asians (e.g., Chinese, Indians, and Filipinos) than for northwest Europeans (e.g., Germans). Social distance may slow down acculturation and socioeconomic mobility and hence blur generation effects. Some distinct ethnic groups (e.g., Cubans in the United States and Italians in Canada) may become quite successful in achieving middle income status via enclave economy or ethnic occupational specialization, while maintaining a high level of spatial concentration from one generation to the next.

In general, through the processes of acculturation and socioeconomic mobility, the propensity to make inter-metropolitan migration can be expected to increase with generation. The first generation tends to have a strong preference for entering and remaining in well-developed co-ethnic communities due to various benefits available to

[2] Most Canadian empirical research studied on the interprovincial or interregional migration patterns, which might have masked the dynamics of movement within a province or region. Earlier studies on interprovincial migration sought to relate migration behaviour to labour market factors and revealed that immigrants tended to move towards Ontario and British Columbia, especially when the provinces experienced relatively rapid employment growth (Edmonston, 2002; Liaw and Xu, 2005). However, as CMA is a better representation of local labour market than province, using CMA as geographic unit would be more appropriate. This is particularly important when the research explores migrants' responsiveness to changes in economic opportunities among local labor markets.

them there (Portes, 1995; Borjas, 2001). This is especially true for those who cannot function effectively in English (or French in Quebec province). Their strong tendency to remain in their co-ethnic communities is also related to the fact that most new immigrants tend to have relatively little knowledge about the opportunities and risks of failures in different areas of Canada and are not quite familiar with the labor and business practices of the mainstream. Since acculturation and the knowledge of the spatial variations in opportunities and risks in Canada tend to increase with generation, those of the higher generations tend to have a greater chance of finding an attractive alternative to their current place of residence and to be psychologically and financially better prepared to migrate.

This general expectation can be negated or partially undermined by the elevated relocation propensities of the new immigrants within the first few years of arrival for the following reasons (Liaw and Xu, 2005). First, a high proportion of the business class immigrants who obtained help from consulting firms in such places as Montreal and Halifax for easy entry but had no intention of staying there had an extremely high propensity to relocate to other places (mainly Vancouver and Toronto). Secondly, the new immigrants of the refugee class also had rather high propensities to relocation within Canada to be close to their co-ethnics or towards large metropolitan areas, because their initial destinations are largely determined either by the government or by their sponsoring organizations.

The general expectation can also be countered by the possibility that location-specific capital tends to increase with generation. The concept of *location-specific capital* was one of the central concepts used for explaining repeat migrations (Da Vanzo, 1981) but has been largely missing in the literature on immigrants. It is defined as the capital or property that is immovable or very expensive to move (e.g., an owned home, a job-related asset such as an existing clientele of a lawyer or store owner, or a kinship or friendship network). It tends to increase with the duration of stay at a particular location. It has a negative effect on the propensity to migrate from a long-term place of residence, because it increases the costs of migration. However, it can also have a positive effect on the propensity to migration from a short-term place of residence, if there is a large location-specific capital left in the previous long-term place of residence. Therefore, to the extent that location-specific capital increases with generation, the propensity of migration may decrease or increase with generation.

With respect to the migration into a CMA, we expect that the in-migration propensity also increases with generation. For CMAs with very rapid employment expansion (e.g., Calgary and Oshawa in the late 1990s), the potential in-migrants (i.e., those who resided in the rest of the geographical system) in a higher generation are expected to be more prone to in-migrating, because they are more likely to be aware of the newly created employment opportunities at different locations in Canada and are more confident that they may find a desirable job there. For CMAs that have a relatively weak economy and a long history of net loss of migrants (e.g., St. John's, Halifax, Sudbury, and Winnipeg), the in-migration propensity of the potential in-migrants is also expected to increase with generation, because the pool of previously out-migrated individuals who became disappointed and then drawn back by the location-specific capital left in the home town tends to represent a larger share of the at-risk population for a higher generation. However, in the three largest metropolitan areas (i.e., Toronto, Montreal, and Vancouver), this expectation may be

substantially undermined or even negated by the greater attractions of lower generations by the well-established co-ethnic communities there.

Based on the strength of the human capital investment theory (Sjaastad, 1962; Massey et al, 1993) and of the theory of social capital (Portes, 1995), we expect that migration behaviours of all generations are subject to the push and pull of conventional labour market factors, and to the retaining and attractive effects of co-ethnic communities. Since a greater distance tends to be associated with a higher cost of movement and a lower amount of reliable information, we also expect that the destination choices of the migrants of all generations are subject to the effect of distance decay.

In sum, we expect our empirical analysis to reveal both systematic differences and commonalities among generations.

Data

Our data on the 1996-2001 inter-CMA migration come from a set of multidimensional tabulations of the long-form records of the 2001 census. The dimensions of the tabulation for each generation include: 1) age (25-29, 30-34, 35-39, 40-44), 2) gender (male, female), 3) educational attainment (less than high school, high school graduation, college graduation, Bachelor's degree, above Bachelor's degree) , 4) official language ability (English only, French only, both English and French, neither English nor French), 5) ethnicity (British, German, Italian, Ukrainian, Chinese, Indian, Filipino), 6) CMA of residence in 1996, and 7) CMA of residence in 2001.

We specify four generations. According to the derived variable "Generation Status" from the 2001 Census, the 1st generation is referred to as the immigrants; the 2nd generation are individuals born in Canada with at least one parent born outside of Canada; and the 3rd+ generation (i.e., the native-born Canadians) are those born in Canada to two Canadian-born parents. We further subdivide the 1st generation immigrants into the 1st and 1.5 generations based on "age at immigration". Among all immigrants who landed in Canada before 1996, those aged 19 or younger at the time of landing are considered as 1.5 generation while those aged 20 or older at landing are defined as the 1st generation.

In addition to the multidimensional tabulations from the primary micro data files of the 2001 Canadian census, we use the 1996 and 2001 Canadian Census Profile Tables[3] to generate various socioeconomic indicators as place attributes to be used in our multivariate analysis (discussed in the section "Multivariate Explanation of Inter-CMA Migration"). As the boundaries of some CMAs have changed between 1996 and 2001, we have made necessary adjustments so that the 1996 and 2001 data correspond to the same geographic scope.

Characterization of the Migration Patterns

In this section, we present a descriptive analysis on the salient features of the migration patterns. In order to measure the propensities to leave and move into a CMA, out- and

[3] These Census Profile Tables (at census tract level) were obtained via Canadian Census Analyser at CHASS (Computing in the Humanities and Social Sciences).

in-migration rates are defined by dividing the number of out- and in-migrants of the CMA by the corresponding at-risk population. For out-migration, the at-risk population is simply the population resided in the CMA in question in 1996. For in-migration, the at-risk population includes all individuals who resided in the remaining 26 CMAs in 1996.[4] To measure the net impact of migration on a CMA, we use a net migration rate, which is computed by dividing its net migration volume by its 1996 population. We stratify the population of each CMA into the four generations before these rates are computed.

To quantify the overall propensities to out- and in-migrate among the 27 CMAs, we used the weighted averages of the CMA-specific rates across all 27 CMAs, with the weights being the respective at-risk populations. These weighted averages are called overall out- and in-migration rates, respectively.

To quantify the overall impact of the inter-CMA migration on the set of net gaining CMAs, we use the overall net gaining rate, which is defined as the sum of the net migration volumes of the net gaining CMAs divided by the sum of the 1996 populations of the net gaining CMAs. To quantify the overall impact of the inter-CMA migration on the set of net losing CMAs, we use the overall net losing rate, which is defined as the sum of the net migration volumes of the net losing CMAs divided by the sum of the 1996 populations of the net losing CMAs.

Out-migration Propensities

We find that the overall propensity of out-migration from a CMA to the rest of the geographical system indeed increased monotonically from the 1st to the 3rd+ generation. The overall out-migration rate increased from 5.2% for the 1st generation to 6.5% for the 1.5 generation, 7.6% for the 2nd generation, and 9.5% for the 3rd+ generation (Table 1). This pattern was particularly clear for the two metropolitan areas with the largest immigrant population: Toronto and Vancouver. Toronto's out-migration rate increased from as low as 2.4% for the 1st generation to 3.7% for the 1.5 generation, 4.7% for the 2nd generation, and 9.1% for the 3rd+ generation, whereas Vancouver's out-migration rate increased from as low as 3.2% for the 1st generation to 4.3% for the 1.5 generation, 6.0% for the 2nd generation, and 9.2% for the 3rd+ generation.

In a large CMA with the most dynamic economy in the late 1990s, namely Calgary, the expected increase in the out-migration propensity can also be seen clearly: its out-migration rate increased monotonically from 4.6% for the 1st generation to 5.7% for the 1.5 generation, 6.8% for the 2nd generation, and 8.2% for the 3rd+ generation. An underlying reason for this pattern was (1) that Calgary has been a boomtown for most of the previous decades and has accumulated a large pool of the so-called "non-natives" (previous in-migrants who were born in the rest of Canada), (2) that the propensity of migration in any time interval is much higher for non-natives than for natives and the foreign-born (Liaw, 1990; Newbold and Liaw, 1994), and (3) that the share of Calgary's population by non-natives can be safely assumed to increase with generation.

[4] It is important to note that the in-migration rate defined here is different from the conventional in-migration rate using the population at the destination as denominator. We agree with Da Vanzo (1981) that the conventional in-migration rate is not a proper measure of the *propensity* to in-migrate. Rather, it measures an *impact* of in-migration flow on the destination population.

It is interesting to note that in several small CMAs with relatively weak local economies (e.g., St. John's, Halifax, Regina, and Saskatoon), the out-migration rates were actually lower for higher generations. For example, the out-migration rate of Halifax decreased from a very high level of 29.6% for the 1st generation to 21.1% for the 1.5 generation, 18.4% for the 2nd generation, and 10.5% for the 3rd+ generation. There were two plausible reasons for this pattern. First, the new immigrants who landed recently in these small CMAs, especially those of the business and refugee classes, tended to have a strong desire to relocate to either Toronto or Vancouver. Second, the location-specific capital accumulated in these small CMAs tended to be greater for higher generations, especially the 3rd generation.

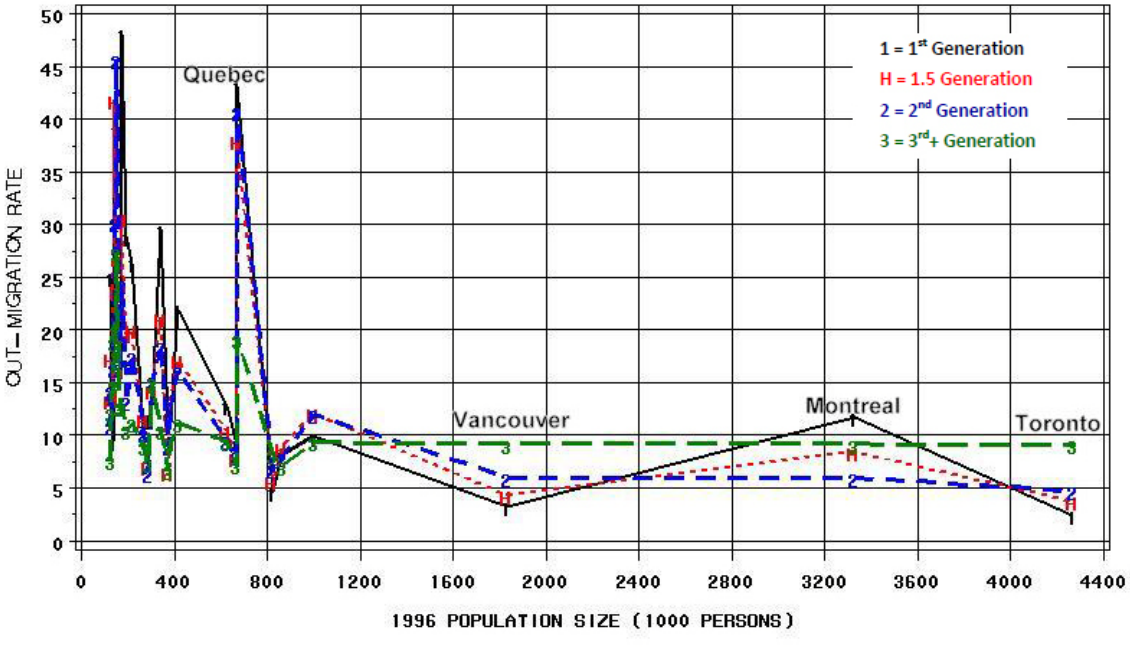
TABLE 1 1996-2001 Metropolitan Out- and In-migration Rates of 7 Selected Ethnic Groups, Aged 25-44

	Out-migration Rate					In-migration Rate			
CMA	1st G.	1.5 G.	2nd G.	3rd+ G.		1st G.	1.5 G.	2nd G.	3rd+ G.
	(%)	(%)	(%)	(%)		(%)	(%)	(%)	(%)
St. John's	48.1	30.6	24.3	12.6		0.01	0.01	0.02	0.09
Halifax	29.6	21.1	18.4	10.5		0.04	0.11	0.14	0.34
Saint John	25.0	13.4	14.2	7.6		0.00	0.02	0.02	0.05
Saguenay	----	----	----	16.7		0.00	0.00	0.00	0.00
Québec	43.2	38.0	40.8	19.1		0.01	0.01	0.02	0.04
Sherbrooke	22.2	23.8	45.7	27.3		0.00	0.00	0.00	0.01
Trois-Rivières	----	----	----	18.9		0.00	0.00	0.00	0.01
Montréal	**11.7**	**8.5**	**6.0**	**9.2**		**0.24**	**0.23**	**0.24**	**0.28**
Ottawa - Gatineau	9.9	12.2	12.0	9.3		0.50	0.53	0.54	0.69
Kingston	39.0	41.9	30.1	19.9		0.05	0.05	0.13	0.16
Oshawa	10.7	11.6	10.3	9.0		0.18	0.30	0.46	0.46
Toronto	**2.4**	**3.7**	**4.7**	**9.1**		**3.07**	**3.13**	**3.12**	**2.13**
Hamilton	12.9	10.5	9.6	9.5		0.22	0.46	0.61	0.62
St. Catharines - Niagara	11.0	6.5	9.0	6.7		0.08	0.10	0.20	0.19
Kitchener	11.8	13.3	12.6	9.3		0.12	0.24	0.28	0.35
London	21.9	17.2	16.1	11.2		0.10	0.16	0.20	0.26
Windsor	11.5	7.1	6.4	7.4		0.14	0.07	0.11	0.12
Greater Sudbury	15.5	16.2	16.4	12.7		0.00	0.02	0.03	0.05
Thunder Bay	13.6	17.4	10.9	12.1		0.01	0.01	0.03	0.05
Winnipeg	9.1	8.0	8.0	7.2		0.07	0.13	0.17	0.31
Regina	28.9	19.6	13.3	10.5		0.02	0.01	0.04	0.16
Saskatoon	26.3	20.1	17.5	11.1		0.06	0.03	0.05	0.16
Calgary	**4.6**	**5.7**	**6.8**	**8.2**		**0.48**	**0.64**	**0.84**	**1.46**
Edmonton	8.2	8.8	7.9	7.1		0.20	0.36	0.41	0.86
Abbotsford	9.4	13.7	16.4	14.8		0.08	0.14	0.13	0.19
Vancouver	**3.2**	**4.3**	**6.0**	**9.2**		**1.15**	**1.24**	**0.98**	**1.03**
Victoria	12.8	14.3	15.2	15.0		0.10	0.17	0.25	0.27
Overall	**5.2**	**6.5**	**7.6**	**9.5**		**0.20**	**0.25**	**0.29**	**0.36**

Note: The value of the migration rate is suppressed when the at-risk population is less than 65 persons.

We find several interesting features in the inter-CMA variation in out-migration rate by plotting the 1996-2001 out-migration rates against the 1996 population size (Figure 1). Firstly, out-migration rate tended to be a declining function of population size. Secondly, an important difference between Montreal on the one hand and Toronto and Vancouver on the other was that Montreal's out-migration rate of the first generation was substantially elevated. To a lesser extent, this also occurred to the 1.5 generation. The relatively weak ability of Montreal to retain the first and 1.5 generations was related to its French milieu and its relatively weak economy as well as the fact that its well-developed "immigration industry" had attracted many business class immigrants who had no intention of settling down there. Thirdly, in the context of population size, the out-migration rates of Quebec CMA were sharply elevated for the 1st, 1.5, and 2nd generations. An underlying reason for this feature was that being dominated even more strongly by the French language than Montreal and having a high proportion of jobs in the government sector, Quebec CMA offered relatively few promising career jobs to those who could not function proficiently in French language.

FIGURE 1 Out-migration Rate versus Population Size by Generation



In-migration Propensities

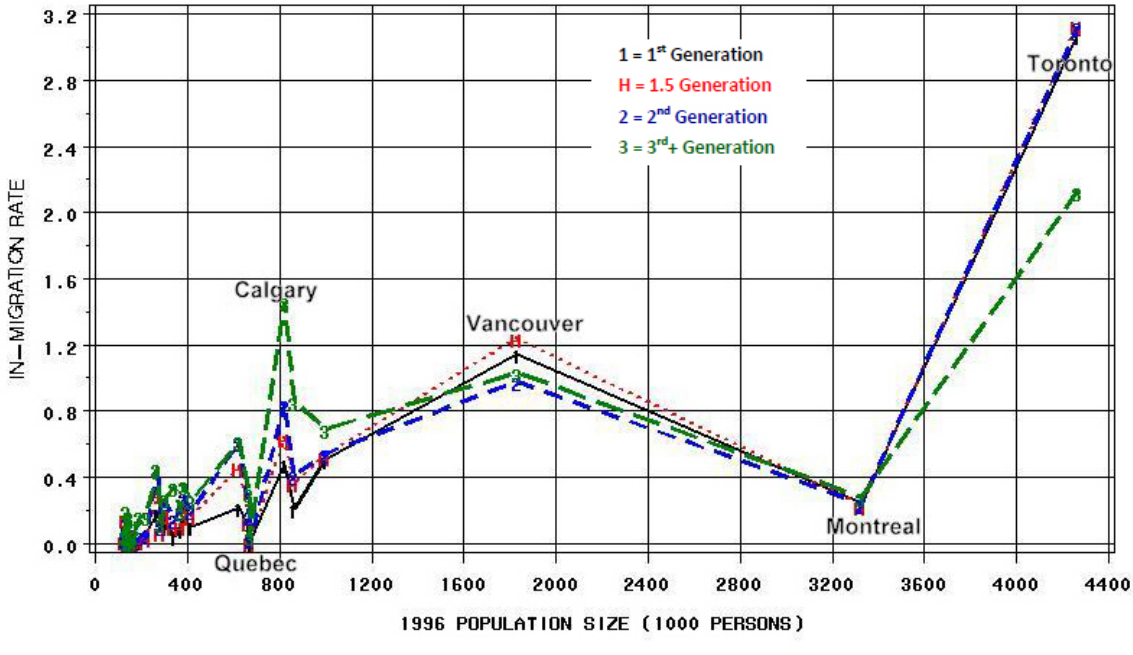
Similar to the overall out-migration rate, the overall in-migration rate also turned out to increase monotonically with generation: it was 0.20% for the 1st generation, 0.25% for the 1.5 generation, 0.29% for the 2nd generation, and 0.36% for the 3rd+ generation (Table 1). This pattern is particularly clear in the booming metropolitan area of Calgary: its in-migration rate increased from 0.48% for the 1st generation to 0.64% for the 1.5 generation, 0.84 for the 2nd generation, and as high as 1.46% for the 3rd+ generation. The particularly strong attraction of Calgary for the 3rd+ generation was related to (1) that the previous in-migrants who were born in many communities in the Atlantic region of Canada became an inducement for the in-migration of their relatives and friends from the Atlantic region via the process of chain migration, and (2) that although its share of newly arrived

immigrants have been increasing, Calgary still had much smaller immigrant communities than do the three largest metropolitan areas. To a large extent, Edmonton was similar to Calgary: its in-migration rate increased from 0.20% for the 1st generation to 0.36% for the 1.5 generation, 0.41 for the 2nd generation, and 0.86% for the 3rd+ generation.

In line with the spatial assimilation theory, the increase of in-migration rate with generation prevailed through most of the mid-sized and small CMAs. As suggested in the section "Theoretical Expectations", in the CMAs with relatively weak economies (e.g., Halifax and Winnipeg), this pattern could be accounted for by the idea that the location-specific capital left behind in the hometown could be a powerful attractive force for the previous out-migrants who failed or were disappointed at their chosen destination, and that this location-specific capital tended to increase with generation.

It is interesting that the pattern of the increase of in-migration rate with generation was substantially negated in the two metropolitan areas with the largest immigrant populations, namely Toronto and Vancouver. A plausible reason for this finding was that there were very large co-ethnic communities of the immigrants in these metropolitan areas, and that the attractiveness of these large co-ethnic communities tended to become weaker for the potential in-migrants of a higher generation. To get a better view of this exception and to reveal other features, we plot the 1996-2001 in-migration rates against the 1996 population size (Figure 2).

FIGURE 2 In-migration Rate versus Population Size by Generation



The following features in Figure 2 are worth highlighting. First, in-migration rate tended to be a positive function of population size. Second, being the metropolitan area with the best developed immigrant communities, Toronto's attractiveness to the in-migrants was similarly strong among the 1st, 1.5 and 2nd generations and became substantially weaker for the 3rd+ generation. Third, being dominated by French language

and having a relatively weak economy, Montreal's attractiveness was much weaker than those of Toronto and Vancouver for every generation. Fourth, with the highest 1996-2001 employment growth rate (22.4%) among all CMAs, Calgary had sharply elevated in-migration rates for the 2nd and especially the 3rd+ generations. Fifth, being strongly dominated by French language, Quebec CMA had sharply depressed in-migration rates for all generations.

Net Migration Patterns

The net effects of the inter-CMA migration process were determined by not only the 1996-2001 out- and in-migration rates but also the distributions of the 1996 generation-specific populations (Table 2). Being increasingly more attractive to newly arrived immigrants up to the end of the 1990s, Toronto and Vancouver were distinguished as the only two CMAs with its share of the 1996 stock being decreasing with increasing generation. Toronto's share decreased from 47.1% for the 1st generation to 40.9% for the 1.5 generation, 35.3% for the 2nd generation, and only 17.6% for the 3rd+ generation. Similarly, Vancouver's share decreased from 23.4% for the 1st generation to 20.4% for the 1.5 generation, 13.9% for the 2nd generation, and 11.5% for the 3rd+ generation. In contrast, Calgary's share of the 1996 stock was much greater for the 3rd+ generation than for any other generations.

In terms of net migration volume, Calgary was by far the greatest net gainer, achieving a net gain of 10,540 inter-CMA migrants (Table 3). Its net gain spanned all generations and was particularly great for the 3rd+ generation. Next to Calgary was Toronto, which achieved a net gain of 5,915 migrants. The net gain of Toronto also spanned all generations. A major difference between Calgary and Toronto was that the former achieved most of its gain from the 3rd+ generation, whereas the latter achieved its gain mainly from the 1st and 2nd generations.

The two CMAs that were contiguous to Toronto, namely Oshawa and Hamilton, were also major net gainers, achieving a net gain of 4,820 and 2,600 migrants, respectively. These net gains also spanned all generations. The combined net gain of these three CMAs (13,335) turned out to be greater than the net gain of Calgary. Thus, the sphere of Toronto metropolitan area that includes the three contiguous CMAs could be considered as the greatest net gainer in 1996-2001.

The remaining major net gainers were Ottawa-Gatineau and Edmonton, achieving 2,975 and 1,260 migrants, respectively. The gain of Ottawa-Gatineau spanned all generations, whereas the net gain of Edmonton was limited to the 2nd and 3rd+ generation. Ottawa-Gatineau, like Toronto, benefited greatly from the boom of the IT industry, whereas Edmonton, like Calgary, benefited from the expansion of the energy industry.

How about Vancouver? It suffered a sharp economic downturn that started in late 1997 and persisted until around 2002. Consequently, it experienced a net loss of 1,380 migrants for the 3rd+ generation in 1996-2001. Despite the economic downturn, it continued to experience net gains for the three lower generations, although the net gains were rather meager. Since the long-term economic prospect of Vancouver remains strong, it is likely to re-emerge as a major net gainer in the 2000s.

In terms of net migration volume, the greatest net loser turned out to be Montreal, with the net loss being 6,565 migrants. The net loss spanned all generations and was larger for

the 2nd and 1st generations than for the 3rd+ generation. In terms of net migration rate, the net loss was more serious for lower generations: -8.2% for the 1st generation, -5.2% for the 1.5 generation, -3.9% for the 2nd generation, and -3.4% for the 3rd+ generation.

TABLE 2 The 1996 Distribution and Composition of 7 Selected Ethnic Groups (Aged 25-44) among the CMAs: by Generation

	Size of the stock in 1996				Distribution				Composition			
CMA	1st G. (persons)	1.5 G. (persons)	2nd G. (persons)	3rd+ G. (persons)	1st G. (%)	1.5 G. (%)	2nd G. (%)	3rd+ G. (%)	1st G. (%)	1.5 G. (%)	2nd G. (%)	3rd+ G. (%)
St. John's	405	490	1 130	24 035	0.1	0.2	0.2	2.5	1.6	1.9	4.3	92.2
Halifax	1 200	1 915	4 760	36 335	0.4	0.7	0.9	3.8	2.7	4.3	10.8	82.2
Saint John	180	410	1 060	11 480	0.1	0.1	0.2	1.2	1.4	3.1	8.1	87.4
Saguenay	60	15	45	750	0.0	0.0	0.0	0.1	6.9	1.7	5.2	86.2
Québec	590	395	650	5 065	0.2	0.1	0.1	0.5	8.8	5.9	9.7	75.6
Sherbrooke	90	105	230	1 575	0.0	0.0	0.0	0.2	4.5	5.3	11.5	78.8
Trois-Rivières	25	25	60	715	0.0	0.0	0.0	0.1	3.0	3.0	7.3	86.7
Montréal	**21 880**	**19 150**	**57 185**	**44 435**	**6.5**	**6.5**	**10.3**	**4.6**	**15.3**	**13.4**	**40.1**	**31.1**
Ottawa - Gatineau	8 250	9 705	20 800	52 130	2.5	3.3	3.8	5.4	9.1	10.7	22.9	57.4
Kingston	795	1 230	3 965	12 235	0.2	0.4	0.7	1.3	4.4	6.7	21.8	67.1
Oshawa	1 690	3 795	9 655	20 410	0.5	1.3	1.7	2.1	4.8	10.7	27.2	57.4
Toronto	**157 400**	**120 395**	**195 420**	**169 900**	**47.1**	**40.9**	**35.3**	**17.6**	**24.5**	**18.7**	**30.4**	**26.4**
Hamilton	5 245	9 345	28 940	40 835	1.6	3.2	5.2	4.2	6.2	11.1	34.3	48.4
St. Catharines – Niagara	1 780	4 225	15 740	24 510	0.5	1.4	2.8	2.5	3.8	9.1	34.0	53.0
Kitchener	3 520	5 370	12 250	31 745	1.1	1.8	2.2	3.3	6.7	10.2	23.2	60.0
London	2 210	5 005	13 115	33 870	0.7	1.7	2.4	3.5	4.1	9.2	24.2	62.5
Windsor	2 265	2 965	10 325	15 615	0.7	1.0	1.9	1.6	7.3	9.5	33.1	50.1
Greater Sudbury	290	555	3 140	8 925	0.1	0.2	0.6	0.9	2.2	4.3	24.3	69.1
Thunder Bay	405	720	4 225	10 565	0.1	0.2	0.8	1.1	2.5	4.5	26.5	66.4
Winnipeg	8 430	8 670	18 820	60 980	2.5	2.9	3.4	6.3	8.7	8.9	19.4	62.9
Regina	865	1 095	3 350	24 255	0.3	0.4	0.6	2.5	2.9	3.7	11.3	82.0
Saskatoon	1 235	1 245	3 770	28 740	0.4	0.4	0.7	3.0	3.5	3.6	10.8	82.1
Calgary	**16 565**	**16 575**	**26 840**	**79 580**	**5.0**	**5.6**	**4.8**	**8.3**	**11.9**	**11.9**	**19.2**	**57.0**
Edmonton	14 055	13 470	25 935	81 145	4.2	4.6	4.7	8.4	10.4	10.0	19.3	60.3
Abbotsford	3 600	2 990	4 260	9 385	1.1	1.0	0.8	1.0	17.8	14.8	21.1	46.4
Vancouver	**78 070**	**60 070**	**76 755**	**110 690**	**23.4**	**20.4**	**13.9**	**11.5**	**24.0**	**18.4**	**23.6**	**34.0**
Victoria	3 080	4 545	11 725	23 555	0.9	1.5	2.1	2.4	7.2	10.6	27.3	54.9
Total	334 180	294 475	554 150	963 460	100	100	100	100	15.6	13.7	25.8	44.9

Overall, there were more net losing CMAs than net gaining CMAs. All of the 8 CMAs in the economically weak Atlantic Provinces and Quebec province were net losers. So were the two CMAs on the remote western fringe of Ontario and all CMAs in the agricultural provinces of Manitoba and Saskatchewan. The overall net losing rate had a monotonic generational pattern, being most serious for the 1st generation (-7.0%) and least serious for the 3rd generation (-3.7%). With respect to the set of net gaining CMAs, the overall net gaining rate was greater for the 3rd+

generation (3.1%) than for the 1st, 1.5, and 2nd generations (1.6%, 1.4%, and 1.8%). The impact of the 1996-2001 inter-CMA migration turned out to be greater on the set of net losers than on the set of net gainers.

TABLE 3 1996-2001 Metropolitan Net Migration Volumes and Rates of 7 Selected Ethnic Groups, Aged 25-44

	Net Migration Volume						Net Migration Rate				
CMA	1st G.	1.5 G.	2nd G.	3rd+ G.	All G.		1st G.	1.5 G.	2nd G.	3rd+ G.	All G.
	(persons)	(persons)	(persons)	(persons)	(persons)		(%)	(%)	(%)	(%)	(%)
St. John's	-160	-120	-175	-2 190	-2 640		-39.5	-24.5	-15.5	-9.1	-10.1
Halifax	-225	-95	-85	-650	-1 060		-18.8	-5.0	-1.8	-1.8	-2.4
Saint John	-35	-10	-15	-375	-435		-19.4	-2.4	-1.4	-3.3	-3.3
Saguenay	-15	0	10	-80	-85		----	----	----	-10.7	-9.7
Québec	-235	-120	-155	-600	-1 105		-39.8	-30.4	-23.8	-11.8	-16.5
Sherbrooke	-20	-25	-85	-290	-410		-22.2	-23.8	-37.0	-18.4	-20.5
Trois-Rivières	-15	-10	-5	-50	-85		----	----	----	-7.0	-10.3
Montréal	**-1 805**	**-995**	**-2 250**	**-1 510**	**-6 565**		**-8.2**	**-5.2**	**-3.9**	**-3.4**	**-4.6**
Ottawa - Gatineau	820	320	395	1 435	2 975		9.9	3.3	1.9	2.8	3.3
Kingston	-140	-355	-495	-895	-1 890		-17.6	-28.9	-12.5	-7.3	-10.4
Oshawa	425	430	1 495	2 465	4 820		25.1	11.3	15.5	12.1	13.6
Toronto	**1 605**	**960**	**1 980**	**1 375**	**5 915**		**1.0**	**0.8**	**1.0**	**0.8**	**0.9**
Hamilton	35	325	420	1 825	2 600		0.7	3.5	1.5	4.5	3.1
St. Catharines - Niagara	85	25	-325	190	-25		4.8	0.6	-2.1	0.8	-0.1
Kitchener	-10	-10	-40	315	255		-0.3	-0.2	-0.3	1.0	0.5
London	-150	-390	-1 050	-1 385	-2 970		-6.8	-7.8	-8.0	-4.1	-5.5
Windsor	220	-10	-85	5	130		9.7	-0.3	-0.8	0.0	0.4
Greater Sudbury	-35	-35	-340	-705	-1 110		-12.1	-6.3	-10.8	-7.9	-8.6
Thunder Bay	-25	-85	-305	-845	-1 260		-6.2	-11.8	-7.2	-8.0	-7.9
Winnipeg	-550	-310	-600	-1 605	-3 065		-6.5	-3.6	-3.2	-2.6	-3.2
Regina	-200	-175	-240	-1 030	-1 640		-23.1	-16.0	-7.2	-4.2	-5.5
Saskatoon	-135	-150	-405	-1 700	-2 395		-10.9	-12.0	-10.7	-5.9	-6.8
Calgary	**765**	**815**	**2 605**	**6 365**	**10 540**		**4.6**	**4.9**	**9.7**	**8.0**	**7.6**
Edmonton	-495	-165	120	1 800	1 260		-3.5	-1.2	0.5	2.2	0.9
Abbotsford	-70	5	30	475	445		-1.9	0.2	0.7	5.1	2.2
Vancouver	**425**	**340**	**50**	**-1 380**	**-570**		**0.5**	**0.6**	**0.1**	**-1.2**	**-0.2**
Victoria	-60	-155	-430	-975	-1 625		-1.9	-3.4	-3.7	-4.1	-3.8
Net gaining rate	**----**	**----**	**----**	**----**	**----**		**1.6**	**1.4**	**1.8**	**3.1**	**2.3**
Net losing rate	----	----	----	----	----		**-7.0**	**-4.8**	**-4.3**	**-3.7**	**-3.2**

Multivariate Explanation of Inter-CMA Migration

Statistical Model and Estimation Method

From a multivariate perspective, the observed migration behaviours can be analyzed with a two-level nested logit model. A potential migrant with personal attributes *s* and residing in

CMA *i* is considered to make a choice within a two-level choice framework. At the upper level, the potential migrant chooses to depart (and thus become an inter-CMA migrant) or to stay in the current CMA of residence. His propensity to depart is represented by a departure probability *P*(*s, i)*. At the lower level, the inter-CMA migrant chooses a specific destination in the choice set (i.e., the remaining CMAs in the system). A set of destination choice probabilities, *P* (*j* | *s, i)* for all *j* not equal to *i*, are used to represent the propensities to make the destination choices. Based on a set of reasonable assumptions, these probabilities then become functions of observable explanatory variables in the following two sub-models (Kanaroglou et al, 1986; Liaw, 1990).

Destination Choice Sub-model:

$$P(j \mid i,s) = \frac{\exp(b' x[j,i,s])}{\sum_{k \neq i} \exp(b' x[k,i,s])} \qquad j \neq i \tag{1}$$

where *x* [*j, i, s]* is a column-vector of observable explanatory variables; *b'* is a row-vector of unknown coefficients.

Departure Sub-model:

$$P(i,s) = \frac{\exp(d + c' y[i,s] + u * I[i,s])}{1 + \exp(d + c' y[i,s] + u * I[i,s])} \tag{2}$$

where *y*[*i , s*] is another column-vector of observable explanatory variables; *d, c'* and *u* are unknown coefficients, with *u* being bounded between 0 and 1; and *I* [*i , s*] is the inclusive variable defined as:

$$I[i,s] = Ln\left(\sum_{k \neq i} \exp(b' x[k,i,s])\right) \tag{3}$$

The inclusive variable represents the attractiveness of the rest of the system. Since an explanatory variable in *x* [*k, i, s*] represents the distance between *i* and *k*, the inclusive variable can be interpreted as a measure of *accessibility* of the i^{th} CMA to the opportunities in the rest of the system.

Assuming that the migration behaviours of all persons in the same cell of the multidimensional migration tabulations depend on the same set of *P* (*i, s*) and *P* (*j* | *i, s*), we estimate the unknown coefficients in equations (1) and (2) sequentially by the maximum quasi-likelihood method (McCullagh, 1983; Liaw and Ledent, 1987), done with SAS (Statistical Analysis System) programs.

In searching for the best fit model, we retain only the explanatory variables whose coefficients are statistically significant (i.e., those whose t-ratios have a magnitude of at least 2.0) and substantively sensible.

The goodness of fit of a given specification of a sub-model is to be measured by

$$\textit{Rho-square} = 1 - L_g / L_o, \tag{4}$$

where L_g is the maximum quasi-log-likelihood of the given specification and L_o is the corresponding quantity of the null specification (i.e., the destination choice sub-model with $b' = 0$ or the departure sub-model with $c' = 0$). It is important to note that the upper bound of Rho-square is much less than 1.0 so that a value of 0.2 may indicate a very good fit (McFadden, 1974).

Selection of Explanatory Factors

Guided by a few theories and previous empirical findings, we choose both personal attributes of the choice makers and the place attributes of the alternatives in the choice set to be used as the explanatory factors in our multivariate analysis. The personal attributes include the first five dimensions used for the generation of our migration data: age, gender, educational attainment, official language ability, and ethnicity. Each of these factors is represented by a set of dummy variables. The place attributes are as follows.

Labour market factors: The human capital investment theory considers migration as a form of investment to increase an individual's productivity of human resources, and to maximize the present value of future income stream (Sjaastad, 1962:83; Massey et al., 1993). In line with this theory, we choose the following factors.

Income, defined as a CMA's average employment income earned by full-time full-year workers, based on the 1996 census and measured in $1,000 as the unit. If the potential migrant is male, then the CMA's male average employment income is applied; otherwise, the female average income is used.

Employment growth, defined as the 1996-2001 employment growth rate, with the unit being percentage per 5 years.

Unemployment rate, defined as the unemployment rate during the year prior to the date of 1996 census. Empirical evidence has shown that young adults tend to move from places with relatively high unemployment rates to places with relatively low unemployment rates (Liaw and Frey, 1996). However, compared to employment growth rate, unemployment rate is more likely to have a weaker explanatory power (Newbold and Liaw, 1994), to be statistically insignificant, and to even have a "wrong" effect on migration at the interprovincial scale (Liaw, 1990)[5]. In this study, we seek to discover the effect of unemployment rate at the CMA level.

Employment size, defined as the log of employment size of a CMA. Employment size is often considered as a proxy of population size, a control factor without which the effects of other factors cannot be assessed properly. Here we classify it as a labor market factor because a labor market with large employment base can provide relative large amount of employment opportunities created by the great number of job turnovers.

Income, employment growth and employment size are expected to have a positive effect in our destination choice model and a negative effect in the departure model. Unemployment rate is expected to have an opposite effect.

Ethnic similarity: The ethnic enclave theory, or the theory of social capital, assumes that ethnic communities have social, cultural, and economic resources that can assist their co-ethnic members in many ways – ranging from providing various services in familiar ethnic language to creating employment opportunities that are unavailable in the external labor market (Li, 1992; Portes, 1995; Wang, 1999). Furthermore, strong ethnic enclaves and social networks can directly reinforce parental authority (Djajic, 2003). The reinforcement of immigrant parental authority is important in the sense that parental values

[5] One possible reason is that a low unemployment rate in an economically weak province is a *result* of large outflows of young adults. Another possible reason is that potential migrants may be more prone to remain in high unemployment provinces (e.g., Atlantic Provinces) due to the generous unemployment insurance benefits provided there.

of "hard work" and "achievement" can be emphasized and the downward assimilation of the 2nd generation can be prevented to a large extent.

Studies on the 1st generation have shown substantial evidence for the attractiveness of pre-existing ethnic communities (Newbold, 1999; Liaw and Xu, 2005). In this research, we are particularly interested in querying if the 1.5, 2nd and 3rd+ generations are also subject to the impact of ethnic communities. To examine how ethnic attraction affects inter-metropolitan migrations, we use *Ethnic similarity* as an explanatory factor. Ethnic similarity for ethnic group *e* in CMA_i is defined in terms of "ethnic quotient" - the ratio of the share of the size of ethnic group *e* by CMA_i to the share of total population by CMA_i. It is expected to enhance the metropolitan area's pulling power as a destination and retaining power as the origin for all generations.

Distance to destination: The conventional distance variable, defined as the natural log of distance between the origin and destination CMAs, represents the costs of migration and the increasing uncertainty about the opportunities at potential destinations. It is expected to have a negative effect on the destination choice decision (Liaw et al, 1998).

Coldness: Coldness, defined as the average annual number of degree days below 18°C, is used in our study to represent the quality of the physical amenity of a CMA. It is expected to show a positive sign in the departure sub-model and a negative sign in the destination choice sub-model (Frey et al., 1996).

French Milieu: Based on the findings of earlier studies (Kaplan, 1995; Liaw et al, 2002; Xu and Liaw, 2003; Liaw and Xu, 2005), the attractiveness of the CMAs that are fully or partly inside the French-speaking province of Quebec is expected to be stronger for those with French language ability than for those without. Consequently, we use a dummy variable that assumes the value of 1 if the CMA in question is fully or partly inside the province of Quebec. To detect the potentially stronger attraction of Montreal than Ottawa for those with French language ability, we also use two additional dummy variables, named Montreal and Ottawa. These dummy variables are then used to create interaction terms with the dummy variable representing the French language ability. The coefficients of these interaction terms are expected to be positive in the destination choice sub-model and negative in the departure sub-model.

Other factors: We also use a set of dummy variables to represent a few specific CMAs. The interaction terms between these dummy variables allow us to capture the specific connection between a pair of CMAs that cannot be fully accounted for by the above-mentioned place attributes (e.g., the large exchange of migrants between Toronto on the one hand and Hamilton and Oshawa on the other, because they belong to the same metropolitan sphere).

Multivariate Findings

Estimation Results of the Destination Choice Sub-model: The estimation results of destination choice sub-model for each generation are shown in Table 4. With a large Rho-square, the sub-model appears to provide a good fit for every generation. To a large extent, the estimated coefficients of the sub-models for all generations support our prior expectations.

With respect to income level, the estimated coefficients show that the migrants of all generations were more prone to selecting destinations with a higher income level. For

those in the 2nd and 3rd+ generations, the tendency could only be revealed for those with at least a Bachelor's degree. With respect to variables representing employment opportunities, all generations were less prone to choosing destinations with relatively high unemployment rate and more prone to choosing destination with relative high employment growth. With the minor exception of the 1.5 generation, all generations were more prone to going to destinations with relatively large labor markets. In short, the effects of conventional *labor market factors* on each generation were to a large extent consistent with the human capital investment theory.

The estimated coefficients of *ethnic similarity* are consistent with the ethnic enclave theory in the sense that for each ethnic group, the migration behaviors of most generations and all ethnic groups were subject to the pulling effect of co-ethnic communities. Furthermore, for the Chinese, Indian, and Italian migrants of the first generation, the attraction of co-ethnic communities was particularly strong for those with no more than high school education. It is worth noting that even the 3rd+ generation migrants had a tendency to select destinations with large co-ethnic communities.

As expected, the estimated coefficient of *distance* shows that the destination choices of the migrants of all generations were subject to the distance decay effect. Except for the 3rd+ generation, the estimated coefficient of *coldness* shows that the migrants were less prone to selecting destinations with a relatively cold winter. For the 1st generation, the effect of coldness was stronger on the 40-44 age group than on the younger age groups.

With respect to the effect of *French milieu*, the 1st and 1.5 generation individuals who could speak French were more likely to choose a CMA in Quebec province, while French- speaking individuals in the 2nd and 3rd+ generations were found to be more attracted into Montreal and Ottawa-Gatineau, with the attraction of Montreal being somewhat stronger than the attraction of Ottawa-Gatineau.

The interaction terms involving pairs of the CMA-specific dummy variables showed strong ties between certain CMAs. First, reflecting the fact that Montreal is clearly at the peak of the settlement hierarchy in the province of Quebec, migrants of all generations from a smaller CMA in Quebec province had a strong tendency to choose Montreal. Second, being a contiguous part of the sphere of Toronto metropolitan area, Hamilton and Oshawa had a particularly strong pull effect on the migrants of most generations moving away from Toronto, and vice versa. Third, being the only two CMAs on the mainland of British Columbia and being separated by the Rocky Mountains from the

CMAs of the other provinces, Vancouver and the nearby Abbotsford had strong attraction on each other's out-migrants for the 2nd and 3rd+ generations. Fourth, being the two dominant metropolitan areas of the province of Alberta, Calgary and Edmonton had particularly strong attraction on each other's out-migrants for the 2nd and 3rd+ generations. Finally, there were close ties between Halifax on the Atlantic coast and Victoria on the Pacific coast, but the strong bonds existed only for the 2nd and 3rd + generation. This special tie has been noted by Liaw et al (1986) in their study on the metropolitan out-migration patterns of Canadian labor force entrants in 1971-1976. A possible reason was the naval personnel transfers between Halifax and Victoria, the two largest naval bases in Canada.[6]

[6] Note that Canadian Forces Maritime Command (MARCOM) has the Atlantic headquarters based in Halifax and the Pacific headquarters based in Esquimalt, a municipality within Victoria CMA.

TABLE 4 Estimation Results of Destination Choice Model for 1996-2001 Inter-CMA Migrants Aged 25-44: the 1st, 1.5, 2nd and 3rd+ Generations

	1st Generation		**1.5 Generation**		**2nd Generation**		**3rd+ Generation**	
Rho-Square	0.3852		0.3228		0.3388		0.2771	
Explanatory Variables	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
Labour Market Factors								
Income	0.103	9.7	0.180	19.8	----	----	----	----
Income * Bachelor's Degree or Above	----	----	----	----	0.068	8.1	0.060	11.0
Unemployment Rate	-0.220	-9.3	-0.158	-8.3	-0.246	-16.1	-0.161	-17.2
Employment Growth Rate	0.012	2.2	0.060	13.5	0.031	9.4	0.037	19.3
Employment Size	0.856	27.6	----	----	0.939	51.4	0.873	75.9
Ethnic Similartiy								
Ethnic Similarity * Chinese	0.525	13.1	1.233	27.8	0.593	10.9	0.956	6.3
Ethnic Similarity * Chinese * High School or Lower	0.337	4.4	----	----	----	----	----	----
Ethnic Similarity * Indian	0.386	7.6	0.991	19.5	0.431	6.4	0.656	2.8
Ethnic Similarity * Indian * High School or Lower	0.465	5.7	----	----	----	----	----	----
Ethnic Similarity * Filipino	0.630	8.7	1.432	12.2	0.247	2.2	1.041	2.7
Ethnic Similarity * British	0.629	8.6	----	----	0.595	18.2	0.639	33.2
Ethnic Similarity * Italian	----	----	0.504	4.3	0.229	5.1	0.215	3.3
Ethnic Similarity * Italian * High School or Lower	1.502	2.3	----	----	----	----	----	----
Ethnic Similarity * German	0.440	3.8	0.291	2.5	0.502	11.5	0.871	24.7
Ethnic Similarity * Ukrainian	0.470	3.1	----	----	0.445	6.0	0.644	20.0
Distance								
Ln(Distance)	-0.471	-32.9	-0.490	-34.4	-0.522	-46.2	-0.529	-68.1
Coldness								
Coldness	-0.073	-2.0	-0.243	-8.1	-0.148	-7.0	----	----
Coldness * Aged 40 or over	-0.118	-2.4	----	----	----	----	----	----
French Milieu								
Quebec Province * French Language Ability	1.053	8.2	1.169	11.3	----	----	----	----
Montreal * French Language Ability	----	----	----	----	0.856	8.0	1.088	13.2
Ottawa * French Language Ability	----	----	----	----	0.713	9.5	0.795	14.2
Other Factors								
Rest of Quebec Province to Montreal	1.847	6.9	3.469	8.5	1.764	6.4	1.745	12.8
Toronto to Oshawa/Hamilton	----	----	----	----	0.455	8.2	0.386	9.2
Oshawa/Hamilton to Toronto	1.591	2.9	1.816	6.3	0.845	4.9	0.702	6.0
Vancouver to Abbotsford	0.682	3.4	----	----	1.077	9.3	0.954	12.9
Abbotsford to Vancouver	----	----	----	----	0.872	4.5	0.657	5.2
Calgary * Edmonton	----	----	----	----	0.719	8.4	0.469	9.7
Halifax * Victoria	----	----	----	----	1.248	5.9	1.044	8.8

In sum, the different generations were mostly subject to the effects of the same explanatory factors in the destination choice sub-model. The estimated coefficients for all generations generally support our theoretical expectations.

Estimation Results of the Departure Sub-model: Although the goodness of fit of the departure sub-model for each generation was weaker than that of the corresponding destination choice sub-model, the estimated coefficients of the departure sub-models turned out to be similarly informative (Table 5).

With respect to *personal factors*, for all generations, the propensities to out-migrate were subject to the positive effect of educational attainment and the negative effect of age. For all generations, those with above Bachelor's degree were most migratory, and those with Bachelor's degree were more migratory than those with less education. These educational effects were particularly strong for the first generation and became weaker towards higher generations. This generation pattern suggests that although the less educated of each generation tended to be less knowledgeable about opportunities in the rest of the system and less able to succeed in finding a satisfactory career job at destination than did their better educated counterparts, this disadvantage appeared to be partially compensated for by being better assimilated to the Canadian society through successive generations. For all generations, the propensity of out-migration declined monotonically from the 25-29 age group to the 40-44 age group. This decline was increasingly stronger for those in the higher generations. This generational pattern suggests that the migrants in the higher generations tended to be more successful in finding a career job and adjusting to a new labor market at a relatively early stage of their life course so that the need for making an additional migration at an older age became smaller.

With respect to the effect of ethnic background, Italians turned out to be less migratory than other ethnic groups. This was true even for those in the 3rd+ generation. This finding was consistent with the findings of previous studies on interprovincial migration in Canada that showed that at least since the late 1960s, Italians were much less migratory than other ethnic groups, except for the French (Trovato and Halli, 1983, 1990; Ma and Liaw, 2007). Our additional analysis of the long-form records of the 2001 census revealed that the 1996-2001 overall out-migration rate was 4.0% for Italians, compared with 7.9% for all seven ethnic groups combined. This large difference prevailed through all generations: 3.5% versus 5.2% for the 1st generation, 2.4% versus 6.5% for the 1.5 generation, 3.7% versus 7.6% for the 2nd generation, and 7.6% versus 9.5% for the 3rd+ generation.

A likely reason for the very low migration propensities of the Italians was that they had succeeded in creating reasonably well-paying employment niches (especially in construction industry and police) in Toronto and Montreal that did not require a high level educational qualification. Another likely reason was that their co-ethnic communities were institutionally complete in these two metropolitan areas (Breton, 1964). In our sample, Toronto CMA shared as many as 45.0% of the Italians of all generations in 2001, compared with 30.2% of all the seven ethnic groups combined. By generation, the contrast was 48.5% versus 47.6% for the 1st generation, 49.9% versus 41.2% for the 1.5 generation, 47.6% versus 35.6% for the 2nd generation, and 25.3% versus 17.8% for the 3rd+ generation. The strength of the cling of the Italians to Montreal was similarly impressive.

TABLE 5 Estimation Results of the Departure Model for 1996-2001 Inter-CMA Migrants Aged 25-44: the 1st, 1.5, 2nd and 3rd+ Generations

	1st Generation		1.5 Generation		2nd Generation		3rd Generation	
Rho-Squre	0.1260		0.1215		0.1090		0.0668	
Explanatory Variables	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
Constant	-3.551	-29.3	-1.030	-8.3	-0.585	-6.6	-1.257	-25.7
Personal Factors								
Above Bachelor's Degree	2.952	16.9	1.716	20.4	1.536	14.3	1.169	15.4
Bachelor's Degree	2.439	14.2	1.329	16.9	1.157	11.0	0.833	11.4
College Degree	----	----	0.261	5.3	0.209	6.3	0.234	11.3
Aged 30-34	-0.330	-5.2	-0.283	-6.0	-0.331	-10.8	-0.437	-20.8
Aged 35-39	-0.705	-11.2	-0.724	-14.2	-0.802	-23.7	-0.973	-43.2
Aged 40-44	-0.800	-12.6	-1.013	-17.2	-1.198	-31.4	-1.317	-54.7
Italian	-1.132	-1.7	-1.979	-5.9	-2.433	-19.2	-1.064	-5.8
Labour Market Factors								
Income	----	----	-0.086	-19.2	----	----	----	----
Income * Bachelor's Degree or Above	-0.042	-9.2	----	----	-0.050	-15.8	-0.008	-3.8
Employment Growth Rate	-0.071	-15.4	-0.021	-4.7	-0.045	-15.6	-0.018	-10.4
Employment Size	----	----	-0.068	-2.2	----	----	----	----
Employment Size * Bachelor's Degree or Above	-0.233	-7.2	-0.260	-7.5	-0.270	-13.0	-0.257	-17.8
Ethnic Similartiy								
Ethnic Similarity * Chinese	-0.367	-19.5	-0.501	-19.5	-0.362	-17.6	-0.287	-6.7
Ethnic Similarity * Indian	-0.316	-18.3	-0.457	-21.1	-0.253	-13.1	-0.194	-3.8
Ethnic Similarity * Filipino	-0.187	-9.7	-0.587	-17.6	-0.117	-4.7	-0.343	-5.7
Ethnic Similarity * British	-0.297	-4.2	-0.210	-4.2	-0.187	-6.6	-0.139	-9.3
Ethnic Similarity * Italian	-0.388	-1.7	-0.640	-5.6	-0.664	-15.0	-0.332	-5.4
Ethnic Similarity * German	-0.302	-7.2	----	----	-0.309	-16.8	-0.245	-12.5
Ethnic Similarity * Ukrainian	-0.201	-4.9	----	----	-0.279	-12.8	-0.205	-12.8
Coldness								
Coldness	0.218	9.0	----	----	0.058	3.7	----	----
French Milieu								
Montreal * French Language Ability	-0.553	-5.0	-0.653	-6.8	-0.323	-5.9	-0.531	-10.1
Attractiveness of the rest of the system								
Inclusive Variable	0.428	20.7	0.496	24.4	0.760	27.6	0.292	14.9

Montreal CMA shared as many as 21.1% of the Italians of all generations in 2001, compared with 6.3% of all the seven ethnic groups combined. By generation, the contrast was 20.3% versus 6.0% for the 1st generation, 20.6% versus 6.2% for the 1.5 generation, 21.7% versus 9.9% for the 2nd generation, and 18.1% versus 4.5% for the 3rd+ generation.

With respect to *labour market factors*, the individuals of all generations were less prone to out-migrating from CMAs with relatively high income. Except for the 1.5 generation, this effect was, however, limited to those with at least a Bachelor's degree. Similar to the findings of interprovincial migration studies (e.g., Liaw, 1990), we found that unemployment rate at origin did not have statistically significant push effect, whereas employment growth rate at origin had a rather strong retaining effect. This was true for all generations. We also found that employment size had a retaining effect on out-migration. Except for the 1.5 generation, this effect was, however, limited to those with at least a Bachelor's degree.

Ethnic similarity played an important role in retaining potential out-migrants. The interaction terms between ethnic similarity and the dummy variables representing each ethnicity had statistically significant negative coefficients for practically all ethnic groups and all generations. It is worth noting that for most of the ethnic groups, the coefficient of ethnic similarity had the smallest magnitude for the 3rd+ (presumably the most assimilated) generation.

The push effect of *coldness* at origin was limited to the 1st and 2nd generations. Being the largest metropolitan area with French-speakers as the majority, Montreal indeed had a strong retaining power over the potential out-migrants with French language ability. This was consistent with the findings of earlier research on migration and language (Kaplan, 1995).

Finally, the estimated coefficient of the inclusive variable implied that the *attractiveness of (or accessibility to the opportunities in) the rest of the geographical system* had a positive effect on the out-migration propensity for all generations. The relatively large magnitude of the associated t-ratio for all generations implied that the inclusive variable was one of the most important explanatory factors. For each origin CMA, the inclusive variable can be considered as the sum of discounted utilities of the remaining 26 CMAs, with the intensity of discount being an increasing function of distance. Thus, the relative location of a CMA within the spatial system of the 27 CMAs was one of the main determinants of the out-migration propensities. The fact that the estimated coefficient of this factor increased from 0.428 for the 1st generation, to 0.496 for the 1.5 generation, and 0.760 for the 2nd generation helped account for the monotonic increase of the overall out-migration rate from the 1st to the 1.5 and 2nd generations. But, its further increase towards the 3rd+ generation was not related to the changing effect of the inclusive variable. This further increase could be better explained by the extensive decline in the attractiveness of co-ethnic communities for the 3rd+ generation.

Concluding Discussion

Based on the long-form records of the 2001 census, we have characterized and explained the 1996-2001 inter-metropolitan migrations of different generations in Canada who were aged 25-44 and belonged to the seven selected ethnic groups. Our analyses have revealed both systematic differences and commonalities among generations.

We have found that both overall out- and in-migration rates increased monotonically with increasing generation, and that with respect to the effects on out-migration propensity through successive generations, the positive effect of educational attainment became more muted, whereas the negative effect of age became more marked. This set of findings suggested that acculturation and the knowledge of the opportunities in the spatial economy of Canada had become more widespread through successive generations. The increase in the geographical mobility through successive generations was beneficial at the societal level, because it helped improve the overall productivity of the Canadian economy by making the adjustment of labor supply to the changing spatial pattern of labor demand more efficient. The decline in the negative effect of age on out-migration propensity through successive generations suggested that the migrants of higher generations were more likely to succeed in developing a satisfactory career at destination at a relative early stage of their life course so that additional migration at an older age became unnecessary. Thus, inter-metropolitan migration tended to yield greater and earlier benefits to the individuals in higher generations.

In the two metropolitan areas with the largest immigrant populations (Toronto and Vancouver), we found that the pattern of increasing in-migration rate through successive generation was negated. This finding suggested that the increasing acculturation towards higher generations tended to weaken the attraction of co-ethnic communities. However, it is important to keep in mind that the retaining power of co-ethnic communities remained much stronger for the Italians than for other ethnic groups, because they largely succeeded in achieving socioeconomic mobility via specialized occupational niches, with little need to relocate to other metropolitan areas.

It turned out that the concept of *location-specific capital* was useful in achieving a better understanding of the migration process. By making the reasonable assumption that location-specific capital tended to be greater for higher generations, we were able to provide a plausible reason for the finding that in some small CMAs such as St. John's, Halifax, Saskatoon and Regina, the out-migration rates were actually lower for higher generations, and the finding that even though its immigrants still represented a relative small component of its population, the in-migration rate of Calgary increased markedly towards higher generations.

We also found several features that prevailed through all generations. The most important one was the barrier between the French-speaking province of Quebec and the rest of Canada. The barrier was clearly revealed by the finding that, relative to population size, the in-migration rates of Montreal and Quebec CMA for all generations were exceptionally low (Figure 2). Although those with French language ability were found to be less likely to out-migration from Montreal and more likely to select a CMA in Quebec province as a destination, they represented only a small proportion of the ethnic groups studied in this paper. Consequently, both Montreal and Quebec CMA ended up as significant net losers for all generations (Table 3).

Another commonality among the generations was the finding that employment growth rate had a positive effect in the destination choice sub-model and a negative effect in the departure sub-model for every generation. In line with this finding, it was not surprising that Calgary, with the highest employment growth rate among all the CMAs, turned out to have a large net gain of migrants in every generation, making it the largest net gaining CMA. The responsiveness of the inter-metropolitan migration system to the changing spatial pattern of job creation abilities was also reflected by Vancouver's unusual overall net loss of migrants as a consequence of the sharp weakening of its job creation ability in the late 1990s. Since the severe economic setback of Vancouver, which was to a large extent due to external shocks such as (1) the sharp decline in Japan's demand for British Columbia's lumber after its weakness was revealed by the massive destruction of Kobe by a strong earthquake in 1995 and (2) the economic crisis in several Asian countries starting in late 1997, was of a transient nature, Vancouver is likely to reemerge as a net gaining CMA. Anyway, the responsiveness to the changing spatial pattern of job creation abilities was a highly beneficial feature of Canada's inter-metropolitan migration system, because it

enhanced the productivity of the Canadian economy by reducing the spatial mismatch between the supply and demand in the labor market.

Finally, our use of the nested logit model has yielded the insight that the accessibility to the opportunities in the rest of the geographical system, which was represented by the inclusive variable in the departure sub-model, had a strong positive effect on out-migration propensity. This turned out to be true for every generation. Together with the very strong and pervasive effect of distance in reducing the attractiveness of a potential destination revealed in the destination choice sub-model, this finding implied that *relative location*, a key concept in geography, was one of the major determinants on the migration behaviors of all generations.

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