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the Interprovincial Migration Propensities in Canada: From the
Late 1970s to the Late 1990s**

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SEDAP Research Paper No. 208

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The Roles of Ethnicity and Language Acculturation in Determining the Interprovincial Migration Propensities in Canada: from the Late 1970s to the Late 1990s *

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Abstract:

The main purpose of this paper is to study the roles of *ethnicity* and *language acculturation* in determining the propensities to make interprovincial migration in Canada in 1976-81, 1981-86, and 1996-2001, based on the micro data of the 1981, 1986 and 2001 censuses. Since these propensities are also subject to the strong effects of other explanatory factors, a multivariate analysis using a binomial logit model is conducted. An important methodological contribution of this paper is the clarification of the interpretational mistakes in the previous multivariate analyses of Trovato and Halli (1983 and 1990) that depended on the widely used log linear models.

Our empirical findings turn out to be substantively more sensible than the earlier findings in the literature. With respect to the less complicated case of non-French minority ethnic groups, the empirical data are found to be mostly supportive of the following two hypotheses. H1: *The propensities to make inter-provincial migration are lower for minority ethnic groups than for the mainstream ethnic group.* H2: *The use of English as home language, which represents an important cultural shift towards the mainstream, increases the inter-provincial migration propensities of minority ethnic groups.* The very strong support for these two hypotheses by the Italian ethnic group and the lack of support for H2 by the Jewish ethnic group are highlighted and explained. With respect to the more complicated case of the French ethnic group, our findings are supportive of the following two hypotheses. H3: *Among those residing outside Quebec, the propensities to make inter-provincial migration are greater for the French ethnic group than for the mainstream ethnic group.* H4: *This difference is greater for the French ethnic group that continues to use French as the home language than for the French ethnic group that has shifted the home language to English.* It is unfortunate that the support for H4, which could aggravate the spatial polarization of the French and Non-French populations between Quebec and the rest of Canada, became successively stronger towards the late 1990s. Fortunately, this trend was countered by a mild narrowing of the extremely wide gap in the propensities to leave Quebec between the English-speaking British and the French-speaking French.

Keywords: Interprovincial Migration, Ethnic Selectivity, Language Acculturation, Canada

JEL Classification: J61

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Résumé:

En s'appuyant sur les micro-données des recensements de 1981, 1986 et 2001, l'objectif majeur de cette recherche est d'étudier le rôle de *l'acculturation ethnique et linguistique* dans la détermination des tendances de migration interprovinciale au Canada de 1976 à 1981, de 1981 à 1986 et de 1996 à 2001. Afin de tenir compte des importants effets joués par d'autres facteurs explicatifs sur ces tendances, notre analyse repose sur un modèle de choix (logit) binomial. Une contribution méthodologique importante de cette étude est la clarification des erreurs d'interprétation présente dans les analyses multivariées de Trovato et Halli (1983 et 1990) qui reposaient sur des modèles log-linéaires très souvent utilisés dans les études antérieures.

Nos résultats empiriques s'avèrent beaucoup plus raisonnables que les résultats précédemment publiés. En ce qui concerne le cas moins compliqué des minorités ethniques non-francophones, les données empiriques semblent étayer les deux hypothèses suivantes. H1 : *la propension à la migration inter-provinciale est moindre pour les ethnies minoritaires que pour l'ethnie majoritaire*. H2 : *L'emploi de la langue anglaise à la maison, qui représente une étape majeure d'assimilation de la culture dominante, est associé à une hausse de la propension à la migration inter-provinciale des minorités ethniques*. Ces deux hypothèses, clairement observées chez les Italiens alors que H2 ne s'observe pas du tout dans la minorité d'origine juive, sont soulignées et expliquées. En ce qui concerne le groupe ethnique le plus complexe, constitué par les francophones, nos résultats supportent les deux hypothèses suivantes. H3 : *Parmi les francophones vivant en dehors du Québec, la propension à la migration inter-provinciale est plus grande que pour l'ethnie majoritaire*. H4 : *Cette différence est plus grande parmi les francophones qui continuent d'utiliser le français à la maison que pour ceux qui ont adopté l'anglais*. Il est malheureux, que les preuves qui vont dans le sens de H4, qui risqueraient d'accentuer la polarisation spatiale des populations francophones et non-francophones entre le Québec et le reste du Canada, soient devenues graduellement plus importantes à la fin des années 1990. Heureusement, cette tendance a été contrebalancée par un petit resserrement du fossé extrêmement important qui existe entre la propension des Britanniques parlant anglais et des Français parlant français à quitter le Québec.

1. Introduction

Interprovincial migration is an important demographic process that allows the timely adjustment of labor supply to the changing demand for labor in the spatial economy of Canada so that the productivity of the whole economic system is sustained at a high level. It is also an important option chosen by many Canadians to improve their economic and career prospects. In light of these economic significances, it is not surprising that the most commonly used theories for studying interregional migration in Canada has been the neoclassical economic theories, especially the human capital investment theory (e.g. Courchene, 1970 and 1974; Grant and Vanderkemp, 1976; Liaw, 1990; Newbold and Liaw, 1994). Although early research findings by economists revealed some difficulties in explaining the interprovincial variations in the volumes and rates of out-migration by labor market variables such as wage level and unemployment rate, these difficulties have largely disappeared after it became possible to classify the at-risk population into natives, non-natives, and the foreign-born (Liaw, 1990) and to separate interprovincial migrants into primary, return and onward migrants (Newbold and Liaw, 1994).

Much less attention has been paid to the cultural and political significance of interprovincial migration in Canada. For example, the short-term and long-term impacts of the 1977 introduction of an anti-English law in Quebec on the out-migration rates of non-Francophones in Quebec were probably not well appreciated by the policy makers in the Quebec government. This law has helped sustain Quebec's net loss of interprovincial migrants every year, irrespective of the fluctuations in Quebec's economy. It turned out that Quebec's net loss of non-Francophone migrants has been so large that interprovincial migration has not resulted in greater mixing of Francophones and non-Francophones. Instead, it has aggravated their spatial polarization between Quebec and the rest of the country (Newbold, 1996; Liaw and Qi, 2004). This spatial polarization and Quebec's diminishing share of the Canadian population as a consequence of its persistent net loss of interprovincial migrants have probably served as fuel for the separatists' movement in Quebec.

Other than the French/non-French contrast, relatively little is known about ethnic selectivity in interprovincial migration in Canada and its underlying reasons. Trovato and Halli (1983, 1990) carried out multivariate analyses of the effects of ethnicity on the propensities of making interprovincial and other kinds of migrations as well as local moves, based on the micro data of the 1971 and 1981 population censuses. Unfortunately, due to their failure in interpreting the estimated parameters properly, part of their main inferences on interprovincial migration turned out to be misleading. In light of the fact that Canada is a multi-ethnic country, further research on the ethnic selectivity in interprovincial migration in Canada is undoubtedly worthwhile.

As different ethnic groups acculture into the mainstream of the Canadian societies at different speeds and in various ways, their propensities to make interprovincial migration may be differentially affected. For an ethnic group with well-established upper-class communities (e.g. Jewish people), acculturation may have little effect on their propensities to make long-distance migration. For an ethnic group rooted mostly in working-class communities (e.g. Italians), its effect may be substantial. It is thus

useful to study how the acculturations of different ethnic groups affect their migration behaviors.

The main purpose of this paper is to study, in a multivariate context, the effects of *ethnicity* and *language acculturation* on the propensities to make interprovincial migration in Canada. The importance of using a multivariate context has been clearly demonstrated by Otomo and Liaw (2003) with a simple example about the assessment of the effect of educational attainment on the propensities to make interprefectural migration at marriage in Japan. The example shows that the control for a highly collinear and more important factor, namely gender, turned out to be crucial. With the control, the estimated coefficient of educational attainment turned out to be positive and statistically highly significant, implying that the higher the educational attainment, the greater the migration propensities. Without the control, the coefficient became negative and also statistically significant (i.e. significantly nonsensical).

The data for this study are the micro data of the 1981, 1986, and 2001 population censuses, specifically the PUMFs (Public Use Microdata Files) of the 1981 and 1986 censuses and the full set of long-form records of the 2001 census via remote access from the Research Data Center at McMaster University. The migration information comes from the question on the place of residence five years before the census date. Thus, the time intervals used to observe interprovincial migration are 1976-1981, 1981-1986, and 1996-2000. Following the specification of Trovato and Halli (1983 and 1990), the Canadian population is divided into 7 ethnic groups: British, German, French, Jewish, Italian, Ukrainian, and Other. British, French, German, Italian, Ukrainian were the largest ethnic groups in 1981, whereas the Jewish group had the distinctive feature of high educational attainment combined with low interprovincial migration propensity. In this paper, the British is considered as the *mainstream* ethnic group, whereas the others are considered as *minority* ethnic groups.

The generality of the findings of this study is likely to be enhanced by the fact that the spatial economy of Canada was rather different among these three time intervals: an economic boom in Alberta and British Columbia accompanied by the weakening of manufacturing industry in Ontario during 1976-1981; a nationwide economic recession that was much more serious in Alberta and British Columbia than in Ontario during 1981-1986; and the strengthening of the economies of Alberta and Ontario accompanied by an economic downturn in British Columbia during 1996-2001.¹

The organization of the remaining part of the paper is as follows. Section 2 clarifies the misleading interpretations in Trovato and Halli's multivariate analyses. Section 3 presents the guiding hypotheses for the empirical investigation to be carried out in this paper. Section 4 describes the

¹ These contrasts are well reflected by the average annual employment growth rates in the three periods. In 1976-1981, the employment growth rates were 6.49% for Alberta, 4.36% for British Columbia, and 2.75% for Ontario, compared with 2.96% for Canada (including the 10 provinces only). In 1981-1986, the employment growth rates were 1.94% for Ontario, 0.11% for British Columbia, and -0.00% for Alberta, compared with 1.17% for Canada. In 1996-2001, the employment growth rates were 2.98% for Alberta, 2.74% for Ontario, and 1.13% for British Columbia, and compared with 2.15% for Canada.

specification of the binomial logit model, the selection of explanatory variables, and the methods for assessing the relative explanatory powers of different subsets of explanatory variables. Section 5 reports the empirical findings. Section 6 summarizes the main findings. For reference, the inter-provincial distributions of ethnic groups and the ethnic- and province-specific inter-provincial out-migration rates are shown in Appendix A, whereas the period- and province-specific employment growth rates are shown in Appendix B.

2. Misleading interpretations in Trovato and Halli's Multivariate Analyses

The main purpose of the two multivariate analyses of Trovato and Halli (1983 and 1990) is to study the effects of ethnicity on the propensities to make a choice among five kinds of mutually exclusive relocation alternatives: (1) remaining at the same address, (2) moving within the same census subdivision, (3) migrating between census subdivisions but within the same census division, (4) migrating between census divisions but within the same province, and (5) migrating between provinces. The variable representing these choices was called *type of move* or simply *migration*. The first study was based on a sample of persons (aged between 20 and 70) taken from the PUMF of the 1971 census, whereas the second study was based on a sample of people (aged 20 and over) taken from the PUMF of the 1981 census.

In the first study, the sample was divided into two sub-samples, corresponding to the 20-29 and 30-70 age groups, respectively. For each sub-sample, a log-linear model was used to study the relationships among migration, ethnicity, and education. The estimated parameters for each sub-sample were presented for three two-way interactions: (migration * ethnicity), (migration * education), and (ethnicity * education). Based on the estimated parameters involving the (migration * ethnicity interaction) for the 20-29 age group, it was stated that “Persons belonging to Ukrainian, Jewish, French and British ethnicity, in that order, tend to be more inclined towards migrating to a different province (MDP) during the time interval 1966-1971” (Trovato and Halli, 1983, p. 259). While ignoring the obvious misprinting of “German” as “French”, it is puzzling that this order of ethnic groups was inconsistent with the order based on the observed interprovincial migration rates: 6.5% for Germans, 6.1% for the British, 5.7% for Ukrainians, 3.5% for Jews, 2.7% for the French, and 1.8% for Italians. Although there was not enough information in the original paper to help explain this inconsistency, it is highly unlikely that after controlling for age and education, the Jewish ethnic group could indeed have the second highest propensity to make interprovincial migration.

In the second paper, more information was made available so that it is possible to find out the reason for their misinterpretations of their multivariate result. Although the authors stated that they used a logit model, it was actually a modified form of log-linear model in which migration can be considered as a dependent variable.² The purpose of the multivariate analysis was to study the migration effects of

² According to Paul D. Allison (2001, p. 233), conventional log-linear models “do not have an explicit dependent variable, at least not one that corresponds to any conceptual variable”.

ethnicity, home language, and their interaction, while controlling for the effects of education and age. With respect to interprovincial migration, their estimated parameters (called “logit parameters” in their paper) are reproduced in Table 1. Within each of the five blocks of parameters, the product of the parameters has been constrained to 1.0 so that a variable with a parameter larger than 1.0 is supposed to have an enhancing effect on the migration propensity, whereas a variable with a parameter less than 1.0 is supposed to have a reducing effect on the migration propensity.

Contrary to their reasonable presumption that Ukrainians, due to their relatively complete ethnic institutions, should have a lower propensity to make interprovincial migration than the British, they interpreted the finding that the parameter for Ukrainians (1.467) turned out to be greater than the parameter for the British (1.241) as an indication that Ukrainians were more prone to making interprovincial migration than the British. Although they did find that the observed interprovincial migration was lower for Ukrainians (6.5%) than for the British (7.1%), they thought that their multivariate finding was more meaningful and then made the following misleading statements.

The fact that the Ukrainians in 1976-81 are more inclined to change province in relation to the British may reflect a genuine change in this ethnic group’s orientation to long distance migration, as in the 1966-71 period they were significantly below the British in the propensity for long distance migration. The underlying mechanisms for this reversal is [sic] a question worth pursuing in subsequent research. (Trovato and Halli, 1990, p. 87)

With respect to their hypothesized effects of assimilating into the English language on increasing the odds of making interprovincial migration, they based their assessments on the parameters in the third block of Table 1 and made the following interpretation.

The evidence is not supportive of this notion. The only exception is the French who show that having English as the language of the home enhances propensities to change province. Beyond this ethnic group, the Jews come close to supporting the hypothesis in that the odds of changing province for Jews who speak English in the home are 1.21, while they are 1.25 for those who speak an “Other” language. It is interesting to note that for the “Other” and Ukrainian ethnic groups, the lowest odds of long distance moves is associated with English home language. Clearly, linguistic assimilation is not a major factor in the case of interprovincial migration propensities. (Trovato and Halli, 1990, p. 87).

Unfortunately, their interpretations shown in the above two paragraphs are wrong, because the estimated parameters can not be interpreted in such a straightforward way. In order to interpret the estimation result properly, these parameters should be used to generate a set of odds ratios that is based on a well defined reference group, say, the English-speaking British. This is demonstrated in Table 2. The estimated parameters in Table 1 are rearranged into a rectangular form in the first panel of Table 2. This rearrangement makes it clear that for any group that is defined by ethnic origin and home language simultaneously, the migration propensity of the group is affected by the product of three parameters. For

example, consider English-speaking Italians. The relevant indicator is the product of 0.593 (for Italian), 1.592 (for English), and 0.919 (for Italian*English). This product turns out to be 0.868. Such products for all combinations of ethnicities and home languages are shown in the middle panel of Table 2. They are called “combined” parameters. Using the English-speaking British as the reference group, the odds ratios in the bottom panel are computed by dividing the combined parameter of the reference group into those of all groups.

The odds ratios in the third panel clearly show that the Ukrainians who continued to speak the “Other” language (mostly their own traditional language) at home were less prone to making interprovincial migration than were the English-speaking British (the “mainstream” ethnic group), because the odds ratio is 0.737 for these Ukrainians. More generally, the odds ratios imply that all the ethnic minorities that had not changed to using English as the home language were less prone to making interprovincial migration than the English-speaking British.

How about the minority ethnic groups that had switched to English home language? The odds ratios imply that for every minority ethnic group, this switch was associated with an increase in interprovincial migration propensity.

Clearly, the above two main substantive interpretations of Trovato and Halli are contrary to what their multivariate output actually revealed. In addition to their interpretational errors, there is a concern about the control for only two other explanatory factors (educational attainment and age) in their multivariate analysis. Shouldn’t other powerful factors such as nativity status and geographical variations (e.g. Quebec as the homeland of Francophones, and the contrast between the “have” and “have not” provinces) also be controlled? Their reason for controlling for only educational attainment and age was to avoid having many zero cells (p. 80). But, with the use of the real logit model and the maximum likelihood method, zero cells are no longer a technical problem.

3. Guiding Hypotheses

Although a recent study has shown that newly-arrived immigrants are more prone to making interprovincial migration soon after landing than both the Canadian-born and the immigrants with longer residency in Canada (Liaw and Xu, 2005), there are several reasons for expecting that the propensities to make interprovincial migration are lower for minority ethnic groups than for the mainstream ethnic group. At the time of landing in Canada, many immigrants of a minority ethnic group have a strong tendency to live close to their co-ethnics so that ethnic communities are formed and expanded. The socioeconomic benefits conferred by one’s own ethnic community (e.g. various services provided by co-ethnic institutions and economic benefits from ethnic economic enclaves) may reduce the incentive and necessity to move away (Breton, 1964; Darlington, 1998; Waldinger, 2000). Language and other cultural barriers as well as the potential of being discriminated by the mainstream ethnic group tend to weaken the confidence in adjusting successfully to the socioeconomic context of a different province. Thus, it is

hypothesized that *the propensities to make interprovincial migration are lower for minority ethnic groups than for the mainstream ethnic group.*

Acculturation, especially with respect to language, has the potential of reducing the barriers between minority ethnic groups and the mainstream ethnic group. It may also help reduce discrimination and open up more job opportunities outside one’s own ethnic economic enclaves. In light of these effects, it is hypothesized that *the use of English as home language, which represents an important cultural shift towards the mainstream, increases the interprovincial migration propensities of minority ethnic groups.*

In light of the fact that Quebec has been the French homeland in Canada and the fact that the rest of Canada has been dominated by the British ethnic group and the English language, the first hypothesis is undoubtedly true for the French ethnic group residing in Quebec. But, the members of the French ethnic group residing in the rest of Canada, especially those who were born in Quebec, may have difficulty in developing careers in their resident province and be subject to the drawing power of the French milieu of Quebec. This may be especially true for those who continue to use the French language in their daily life. Therefore, it is hypothesized that *among those residing outside Quebec, the propensities to make interprovincial migration are greater for the French ethnic group than for the mainstream ethnic group, and that this difference is greater for the French ethnic group that continues to use French as the home language than for the French ethnic group that has shifted the home language to English.*

4. Model Specification and Methods of Assessment

The model for the multivariate analysis to be performed here is the following binomial logit model:

$$P[i] = \frac{\exp(d + c' x[i])}{1 + \exp(d + c' x[i])} \quad (1)$$

where $P[i]$ is the probability that person i will make interprovincial migration; $x[i]$ is a column-vector of observable explanatory variables; c' is a row-vector of unknown coefficients; and d is an unknown constant.

This model is applied separately to the micro data of the 1981, 1986, and 2001 censuses to explain the propensities of making interprovincial migration in 1976-81, 1981-86, and 1996-2001, respectively. For each of these time intervals, the sample includes all the individuals who resided in Canada at the beginning of the time interval and were aged at 20 or older at the census date. The geographical system used to define interprovincial migration consists of ten distinct provinces, with Yukon and Northwest

Territories being merged into the province of Prince Edward Island for the 1976-81 and 1981-86 periods. This geographically nonsensical merger is due to the fact that the 1981 PUMF uses the same code to represent these political units of very small populations. For this technical reason, this merged unit is considered as a province for the 1976-81 and 1981-86 periods. Since it is possible for this research to access the full long-form records of the 2001 census, 13 distinct geographic units (the 10 provinces plus the three territories) are used to defined interprovincial migration for the 1996-2001 period. Note that for simplicity, the three territories are considered as three provinces.

The unknown coefficients are estimated by the maximum likelihood method, using the Newton-Raphson algorithm. Based on the likelihood criterion, the relative importance between two explanatory variables can be judged by the magnitudes of their associated t-ratios. Since our sample size is very large, the t-ratios can be considered as having the standard normal distribution under the null hypothesis, so that a value of at least 2.0 in magnitude can be taken as evidence of a statistically significant relationship.

With respect to the explanatory factors, the specifications of Ethnicity, Home Language, and Educational Attainment are the same as those used by Trovato and Halli (1990). Note that in order to avoid ambiguity, the individuals belonging to the “Other” ethnic group have been removed from the sample for the 1996-2001 migration period. Instead of using only two age groups, age is broken down into 11 five-year age groups and an open-ended age group (20-24, 25-29, . . . , 70-74, and 75+), with the 20-24 age group serving as the reference category.

Three additional explanatory factors are introduced. First, in recognition of the possibility that the changing spatial economy and some persistent attributes of the provinces (e.g. Alberta’s sharp economic fluctuations and the continuing French domination of Quebec) may have systematic effects on the migration propensities of different ethnic groups who are distributed differently among the provinces, we use a dummy variable to represent each of the provinces, with Ontario serving as the reference category.³ Second, to accommodate the possibility that relatively recent immigrants may be more footloose, a dummy variable is used to represent immigrants whose time of immigration was between 5 and 10 years before the census date. Third, based on the extensive research findings about the effects of previous migration experience and place of birth on current migration propensities (e.g. Morrison and Da Vanzo, 1986; Liaw, 1990; Newbold and Liaw, 1994; Kawabe and Liaw, 1994; Lin, Liaw, and Tsay, 1999), a factor representing Previous Migration Experience is also introduced. Using “native” (i.e. the province of birth was the same as the province of residence 5 years before the census date) as the reference category, this factor is represented by two dummy variables: (1) “non-native” (i.e. the province of birth was different from the province of residence 5 years before the census date), and (2) “foreign-born” (i.e. the place of birth was not in Canada).

³ For 1976-81 and 1981-86, one dummy variable “Atlantic” is used to represent to four Atlantic provinces, because the sample size of PUMF is much smaller than the number of the full “long-form” records. In each of the 1981, 1986, and 2001 censuses, about 20% of the households received the “long-form” questionnaire.

Interaction terms are used not only for studying the effects of the acculturation towards the English language but also for reflecting three sets of well known features of interprovincial migration in Canada. First, the French/non-French contrast between Quebec and the rest of Canada makes the French residents in Quebec less prone to out-migrating and the French residents in the rest of Canada more prone to making interprovincial migration (mainly towards Quebec) (Newbold, 1996; Liaw and Qi, 2004). This contrast also tends to make non-French ethnic groups in Quebec more prone to moving to the rest of Canada. Second, the existence of large immigrant communities in Ontario and British Columbia tends to make these two provinces particularly attractive to the foreign-born so that the foreign-born residents in these two provinces tend to have relatively low propensity to move out (Liaw and Xu, 2005). Third, with a large pool of non-natives and a highly volatile provincial economy, Alberta's ability in retaining non-natives tends to vacillate with the ups and downs of its economy (Newbold and Liaw, 1994).

The goodness of fit of a given specification of the model is to be measured by:

$$\text{Rho-square} = 1 - L_g/L_o \quad (2)$$

where L_g is the maximum log of likelihood of the given specification, and L_o is the maximum log of likelihood of the corresponding null model (i.e. the model with c' set at zero). It is important to note that the ceiling of Rho-square is much less than 1.0 so that a value of 0.2 may indicate a very good fit (McFadden, 1974).

The *best specification* of the model is defined as the specification that contains all explanatory variables whose estimated coefficients are theoretically sensible and are statistically significant in at least one of the three migration periods. To help evaluate the relative importance of various subsets of explanatory variables (say, the dummy variables representing age) against another subset (say, the dummy variables representing educational attainment), the subsets of variables are deleted in turn from the best specification and then the resulting decreases in Rho-square are compared: the greater the decrease, the more important the deleted subset of variables. For each deleted subset of variables, the magnitude of the corresponding decrease in Rho-square is called the *marginal contribution in Rho-square* (MCR for short).

The conventional method used to find the marginal contribution in Rho-square of a subset of explanatory variables deleted from the best specification of the model allows the estimated values of the coefficients of the remaining explanatory variables to change so that the likelihood of the reduced specification of the model is maximized (Liaw, 1996). When the explanatory power of the deleted subset of variables overlaps to a large extent with the explanatory power of some remaining variables, this method will yield a relative small marginal contribution in Rho-square and hence seriously understate its importance. Since serious overlap in explanatory power between theoretically meaningful subsets of explanatory variables occurs frequently in empirical research, Ishikawa and Liaw (2006) introduced an alternative method that can prevent such understatement of the marginal contribution in Rho-square from occurring. In this alternative method, to compute the log likelihood of the reduced specification of the model, the estimated values of the coefficients of the remaining explanatory variables are forced to

remain the same as those in the best specification, while allowing the constant term d in the model to change its value so that the predicted overall interprovincial migration rate is always guaranteed to be equal to the observed overall interprovincial migration rate by the Newton-Raphson algorithm. In other words, this alternative method does not allow part of the explanatory power of the deleted subset of variables to be taken over by any of the remaining explanatory variables. This alternative method is called the *fixed-coefficient method*, whereas the conventional method is called the *maximizing method*.

5. Multivariate Findings

To apply the logit model, a sample of persons aged 20 and over is taken from the PUMF of the 1981 census, the PUMF of the 1986 census, and the full set of long-form records of the 2001 census, respectively. The age restriction is the same as the one used in Trovato and Halli's second study. The sizes of the three samples are: 316,255 persons, 345,172 persons, and 2,233,309 persons, respectively. Somehow the size of our sample from the 1981 census is substantially larger than that of Trovato and Halli (277,682 persons). Perhaps they imposed an additional restriction that was not explicitly stated in their paper.

The best specification of the logit model for each of the 1976-81, 1981-81, and 1996-2001 periods explains quite well the variations in the propensities to make interprovincial migration. The Rho-square values are 0.1678, 0.1818, and 0.2372, respectively. The explanatory power appears to increase through time (Tables 3, 4, and 5).

For the non-French minority ethnic groups that did not use English as home language, the estimated coefficients of the best specifications for the three periods are mostly supportive of the first hypothesis that *the propensities to make interprovincral migration are lower for minority ethnic groups than for the mainstream ethnic group*. In 1976-81, the support for the hypothesis is unanimous, because the estimated coefficients of the dummy variables representing minority ethnic groups are all negative: -1.67 for Italians, -0.60 for Jews, -0.56 for Ukrainians, -0.32 for Germans, and -0.30 for the "Other" ethnic group, with all associated t-ratios being greater than 2.0. In 1981-86, the support for the hypothesis is also unanimous, because the estimated coefficients are -1.46 for Italians, -0.45 for Jews, -0.26 for Ukrainians, -0.70 for Germans, and -0.40 for the "Other" ethnic group, although the coefficient for Ukrainians was not statistically significant. In 1996-2001, the support for the hypothesis still remains unanimous, because the estimated coefficients are -1.43 for Italians, -0.28 for Jews, -0.41 for Ukrainians, and -1.03 for Germans, although the coefficient for Jews was not statistically significant. It is worth noting that in the best specifications of all three periods, there is not a single statistically significant evidence against this hypothesis.

Of particular interest is that among the non-French minority ethnic groups, the Italians have had by far the lowest propensity to make interprovincial migration. The underlying reasons for this finding may be that the Italians have not only relatively complete institutions (Breton, 1964) but also strong ethnic economic enclaves, especially in the provinces where they are highly concentrated (i.e. Ontario

and Quebec).

With respect to the effects of language acculturation for the non-French minority ethnic groups, the estimated coefficients of the best specifications for the three migration periods are also mostly supportive of the second hypothesis that *the use of English as home language increases the interprovincial migration propensities of minority ethnic groups*. In 1976-81, the estimated coefficient of the interaction between English language and an ethnic group is 0.74 for Italians, 0.46 for Ukrainians, 0.25 for Germans, 0.31 for the “Other” ethnic group, and near zero and non-significant for Jews. In 1981-86, it is 0.49 for Italians, 0.54 for Germans, 0.27 for the “Other” ethnic group, and near zero and non-significant for both Ukrainians and Jews. In 1996-2001, it is 0.42 for Italians, 0.26 for Ukrainians, 0.86 for Germans, and -0.25 for Jews. Although the coefficient for the interaction of English language and the Jewish ethnic group turns out to have a “wrong” sign, the very small magnitude of its associated t-ratio (-1.2) indicates that the effect is statistically non-significant. It is worth noting again that for the non-French minority ethnic groups, there is no statistically significant evidence against the hypothesis about the migration-enhancing effects of the acculturation into the English language.

Of particular interest is the finding that the Jewish ethnic group does not provide any statistically significant support for this hypothesis. In general, the Jews with both English and “Other” home languages tend to maintain relatively low propensities to make interprovincial migration, especially in 1976-81 and 1981-86. This finding may be considered as a reflection of the fact that the Jewish people in Canada have succeeded in building what Logan, Alba, and Zhang (2002) call “ethnic communities”, in contrast to “minority ghettos”. The former consist of “ethnic neighborhoods that are selected as living environments by those who have wider options based on their market resources” (page 300), whereas the latter result mainly from the exclusion by the mainstream society and tend to ensnare the members of an ethnic group with little human capital and resources. Such ethnic communities are most likely to be built through “selective acculturation”, which means that the younger generation’s shift towards the mainstream culture is accompanied by substantial retention of the ethnic group’s cherished cultural norms (Portes and Rumbaut, 2001, p. 54). The selective acculturation helps not only the second generation’s high academic achievement but also the establishment and maintenance of strong ethnic economic enclaves. To the extent that there are many good economic and career opportunities in the Jewish communities, the Jews with both English and their native home languages have the luxury of forsaking interprovincial migration as a means to improve their circumstances.

Next, let’s consider the more complicated case of the French ethnic group. Since there are as many as six estimated coefficients in the best specification of the logit model that are relevant to the hypotheses about this ethnic group, these estimated coefficients are summed up properly for each of the following six groups of individuals:

- (1) English-speaking British residing in Quebec,
- (2) French-speaking French residing in Quebec,
- (3) English-speaking French residing in Quebec,
- (4) English-speaking British residing in the rest of Canada,

- (5) French-speaking French residing in the rest of Canada,
- (6) English-speaking French residing in the rest of Canada.

The six sums of the estimated coefficients are then used to compute two sets of odds ratios. The first set uses the English-speaking British residing in Quebec as the reference group, whereas the second set uses the English-speaking British residing in the rest of Canada as the reference group (see Table 6). It turns out that these odds ratios are mostly supportive of the hypothesis that *among those residing outside Quebec, the propensities to make interprovincial migration are greater for the French ethnic group than for the mainstream ethnic group*, and the hypothesis that *this difference is greater for the French ethnic group that continues to us French as the home language than for the French ethnic group that has shifted home language to English*. Among those residing outside Quebec, the second set of odds ratios for the French-speaking French are all greater than 1.0 in all three migration periods (1.09 in 1976-81, 1.60 in 1981-86, and 1.86 in 1996-2001). Among the French people residing outside Quebec, the transition of home language from French to English clearly results in a decrease in odds ratio: from 1.09 to 1.06 in 1976-81, from 1.60 to 1.02 in 1981-86, and from 1.86 to 0.97 in 1996-2001.

For the researchers who are concerned with the spatial polarization between the French and British ethnic groups, the sharp upward trend in the odds ratio of the French-speaking French outside Quebec is an ominous sign, because it suggests that the previous French out-migrants from Quebec who have not switched their home language to English are increasingly likely to return to Quebec. Fortunately, in Quebec, this ominous trend is countered by the decrease in the huge gap between the extremely high out-migration rate of the English-speaking British and the extremely low out-migration rate of the French-speaking French. In Quebec, relative to the English-speaking British, the odds ratio for the French-speaking French increases from 0.05 in 1976-81 to 0.08 in 1981-86 and 0.10 in 1996-2006 (Table 6).

With respect to the effects of the contextual explanatory factors, the estimated coefficients of the best specification of the logit model for all three migration periods (Tables 3 to 5) turn out to be theoretically sensible and mostly consistent with the main findings in the literature. First, there has been a clear age pattern: the propensity to make interprovincial migration is very high in the early 20s and reaches a maximum in the late 20s. It then decreases monotonically towards older ages with no sign of a retirement peak in the 60s. Second, the higher the educational attainment, the greater the propensity to make interprovincial migration. Third, the recency of immigration has positive effect on the interprovincial migration propensity in 1976-81 and 1981-86 but does not have a statistically significant effect in 1996-2001. Fourth, with respect to spatial pattern, the coefficients of the provincial dummy variables show that Quebec has had the lowest out-migration rate among all provinces, that other provinces with relatively weak economies have had relatively high out-migration rates, and that the out-migration rates of Alberta and British Columbia have fluctuated substantially. Finally, with respect to the effects of previous migration experience and place of birth, the estimated coefficients reveal that the propensities to make interprovincial migration are by far the highest for non-natives and the lowest for natives, and that Ontario indeed has a strong retention power on the foreign-born. British Columbia's

retention power on the foreign-born is found for 1976-81 and 1981-86 but was reversed into a repulsive power in 1996-2001 when its economy suffered a serious set back (see the temporal pattern of provincial employment growth rates in Appendix B). Another evidence of the effects of economic fluctuations is that the retention power of Alberta on non-natives was turned into a repulsive power in 1981-86 when its employment growth rate was reduced to zero.

The coefficients estimated by the maximizing method after the deletions of different subsets of explanatory variables are also shown in Tables 3 to 5. They provide detailed views about the overlaps in explanatory powers among different subsets explanatory variables. For example, the coefficient of the dummy variable Ukrainian becomes much more negative as a consequence of the deletion of the age factor from the best specification. This change reflects the fact that the Ukrainian population is relatively old, and that older adults are in general less migratory than younger adults. It implies that the control for the effects of age is important for a proper assessment of the effect of ethnicity. If age is not controlled, the negative effect of being Ukrainians will be seriously overstated. It is clearly scientifically unsound to avoid including substantively meaningful explanatory variables that have overlapping explanatory powers. It is more reasonable to keep in mind that when such overlaps occur, the fixed-coefficient method is better for assessing the relative importance of different subsets of explanatory variables.

Based on the fixed-coefficient method, the marginal contributions in Rho-square show that ethnic selectivity has been more important than educational selectivity, and that the importance of language acculturation became substantially more important in 1996-2001. A closer examination of the estimation results reveals that the increasing importance of language acculturation was mainly due to the increasing gap between the coefficients of “French * Non-Quebec” and “(French * English) * Non-Quebec”. It is 0.09 versus -0.03 in 1976-81, 0.47 versus -0.45 in 1981-86, and 0.62 versus -0.65 in 1996-2001. In other words, the increase is mainly due to increasing difference in interprovincial migration propensity between the French-speaking and English-speaking French residents outside Quebec.

The marginal contributions in Rho-square generated by the fixed-coefficient method also show that the explanatory power of nativity status has always been very great and become by far the greatest in 1996-2001. This finding indicates that migration is a highly path-dependent process, and that the information on the place of birth is of crucial importance in migration studies.

6. Concluding Discussion

The main purpose of this paper has been to study the roles of ethnicity and language acculturation in determining the propensities to make interprovincial migration in Canada in 1976-81, 1981-86, and 1996-2001, based on the micro data of the 1981, 1986 and 2001 censuses. Since these propensities are also subject to the strong effects of other explanatory factors, a multivariate analysis using a binomial logit model is conducted.

An important methodological contribution of this paper is the clarification of the interpretational

mistakes in the previous multivariate analyses of Trovato and Halli (1983 and 1990) that depended on the widely used log linear models. Despite the fact that their papers have been widely read and cited, no one has raised any questions about their mistakes until now. It seems that their method of interpretation is commonly used by other researchers who use the same kind of models. If this is true, there may be many misleading findings in the literature that must be reexamined.

Using a proper methodology, our empirical findings turn out to be substantively more sensible than the earlier findings in the literature. With respect to the less complicated case of non-French minority ethnic groups, the empirical data are found to be mostly supportive of the following two hypotheses.

H1: The propensities to make interprovincial migration are lower for minority ethnic groups than for the mainstream ethnic group.

H2: The use of English as home language, which represents an important cultural shift towards the mainstream, increases the interprovincial migration propensities of minority ethnic groups.

Thus, to the extent that interprovincial migration is a beneficial societal process that helps adjust labor supply to the changing labor demand in the Canadian spatial economy, minority ethnic groups make smaller contributions than the mainstream ethnic group. However, this difference is in general reduced by language acculturation.

It is worth noting that H1 and H2 are very strongly supported by the Italian ethnic group. This is the ethnic group that has succeeded in developing and maintaining a strong economic niche in construction industry. It has built strong and cohesive working-class communities that help make available to its members many relatively well-paying jobs that do not require advanced formal education. Among all non-French ethnic groups, the Italians have by far the lowest propensity to make interprovincial migration. Although switching the home language to English clearly enhances their interprovincial migration propensity, English-speaking Italians are still characterized by having relatively low propensity to do so.

The Jewish ethnic group's lack of support for H2 is particularly interesting. This is the ethnic group that has succeeded in shifting towards the mainstream of the Canadian society while maintaining the vitality of its ethnic culture and identity. With plenty of opportunities for economic betterment and upward social mobility within their ethnic communities, many of the members of this ethnic group have the luxury of forsaking interprovincial migration as a useful means. The paradoxical combination of low geographical mobility and high socioeconomic achievement of the Jewish ethnic group is a worthy empirical case to keep in mind, especially when selective acculturation and multiculturalism are threatened by the rise of "intransigent nativism" and "forceful assimilationism" in North America (Portes and Rumbaut, 2001, p. 271). The mode of assimilation and integration adopted by this ethnic group is what should be encouraged and emulated in a globalized world.

With respect to the more complicated case of the French ethnic group, our findings are supportive of the following two hypotheses:

H3: Among those residing outside Quebec, the propensities to make interprovincial migration are greater for the French ethnic group than for the mainstream ethnic group.

H4: This difference is greater for the French ethnic group that continues to use French as the home language than for the French ethnic group that has shifted the home language to English.

Since a high proportion of the French out-migrants from the rest of Canada tend to select Quebec as their destination, this finding has confirmed the concern raised by Newbold (1996) and Liaw and Qi (2004) that the interprovincial migration process has the tendency to aggravate the spatial polarization of between the French and non-French populations in Canada. It is unfortunate that the support for H4 became successively stronger towards the late 1990s. Fortunately, this trend was countered by a mild narrowing of the extremely wide gap in the propensities to leave Quebec between the English-speaking British and the French-speaking French.

References

- Allison, P. D. 2001. *Logistic Regression, Using the SAS System: Theory and Application*. Cary, North Carolina: SAS Institute, Inc.
- Barcus, H. R. 2004. "Urban-Rural Migration in the USA: An Analysis of Residential Satisfaction," *Regional Studies*, 38(6): 646-57
- Borjas, G. J. 2003. "The Labor Demand Curve Is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market," *The Quarterly Journal of Economics*, November: 1335-1375
- Breton, R. 1964. "Institutional Completeness of Ethnic Communities and the Personal Relations of Immigration," *The American Journal of Sociology*, 70(2): 193-205.
- Courchene, T. J. 1970. "Interprovincial migration and economic adjustment," *Canadian Journal of Economics*, 3: 550-576.
- Courchene, T. J. 1974. *Migration, Income, and Employment: Canada, 1965-68*. Ottawa: C. D. Howe Research Institute.
- Darlington, J. W. 1998. "The Ukrainian Impress on the Canadian West," in F. Iacovetta (ed) *A Nation of Immigrants: Women, Workers, and Communities in Canadian History, 1840s-1960s*. Toronto: University of Toronto Press.
- Grant, E. K. and Vanderkemp, J. 1976. *The Economic Causes and Effects of Migration: Canada, 1965-71*. Ottawa: Supply and Services Canada.
- Ishikawa, Y. and Liaw, K.L. 2006. "The 1995-2000 Interprefectural Migration of Foreign Residents of Japan: Salient Features and Multivariate Explanation," Department of Geography, Graduate School of Letters, Kyoto University, Kyoto, Japan.
- Kawabe, H. and Liaw, K.L. 1994. "Selective Effects of Marriage Migrations on the Population Redistribution in A Hierarchical Regional System of Japan", *Geographical Review of Japan*, Vol. 67 (Ser.B), No. 1, pp. 1-14.
- Liaw, K. L. 1990. "Joint Effects of Personal Factors and Ecological Variables on the Interprovincial Migration Pattern of Young Adults in Canada: A Nested Logit Analysis," *Geographical Analysis*, 22(3): 189-208
- Liaw, K.L. and Frey, W.H. 1996. "Interstate Migration of American Young Adults in 1985-90: An Explanation Using Nested Logit Model", *Geographical systems*, 3: 301-334.

Liaw, K. L. and Qi, M. 2004. "Lifetime Interprovincial Migration in Canada: Looking beyond Short-Run Fluctuations," *The Canadian Geographer*, 48(2): 168-190

Liaw, K. L. and Xu, L. 2005. "Problematic Post-landing Migration of the Immigrants in Canada: from 1980-82 through 1992-95," *Journal of Population Studies*, 31: 105-152.

Lin, J.P., Liaw, K.L. and Tsay, C.L. 1999. "Determinants on Fast Repeat Migrations of the Labor Force: Evidence from the Linked National Survey Data of Taiwan", *Environment and Planning A*, Vol. 31, pp. 925-945.

Logan, J. R., Alba, R. D., and Zhang, W. 2002. "Immigrant Enclaves and Ethnic Communities in New York and Los Angeles," *American Sociological Review*, 67: 299-322.

Massey, D. S., Arango, J., Hugo, G., Kouaouci, K., Pellegrino, A., and Taylor, J. E. 1993. "Theories of International Migration: A Review and Appraisal," *Population and Development Review*, 19(3): 431-466

McFadden, D. 1974, "Conditional logit analysis of qualitative choice behavior" in *Frontiers in Economics* Ed. P Zarembka (Academic Press, New York), pp105-142.

Morrison, P. A. and Da Vanzo, J. 1986. "The prism of migration: dissimilarities between return and onward moves," *Social Sciences Quarterly*, 67(3): 504-516.

Newbold, K. B. and Liaw, K. L. 1994. "Return and Onward Interprovincial Migration through Economic Boom and Bust in Canada, from 1976-81 to 1981-86," *Geographical Analysis*, 26(3): 228-245

Newbold, K. B. 1996. "The ghettoization of Quebec: interprovincial migration and its demographic effects," *Canadian Studies in Population*, 23: 1-21.

Otomo, A. and Liaw, K.L. 2003. "An Invitation to Multivariate Analysis: An Example About the Effect of Educational Attainment on Migration Propensities in Japan," *SEDAP Research Paper*, No. 113, SEDAP Research Program, McMaster University, Hamilton, Ontario, L8S 4M4, Canada, 21 pages.

Portes, A. and Rumbaut, R. 2001. *Legacies: The Story of the Immigrant Second Generation*. Berkeley: University of California Press.

Trovato, F. and Halli, S. S. 1983. "Ethnicity and Migration in Canada", *International Migration Review*, 17(2):245-267

Trovato, F. and Halli, S. S. (ed). 1990. *Ethnic Demography: Canadian Immigrant, Racial and Cultural Variations*. Ottawa, Ontario: Carleton University Press

Waldinger, R. 2000. *Still the Promised City? African-Americans and New Immigrants in Postindustrial New York*. Cambridge, Massachusetts: Harvard University Press.

Table 1. "Logit Parameters" of the Model for Explaining the Propensities to Make Interprovincial Migration in 1976-1981, Obtained by Trovato and Halli, Using the Public Use Sample File of the 1981 Population Census of Canada.

EFFECTS	Estimated "Logit Parameters"
ETHNICITY	
British	1.241
French	0.779
German	1.103
Italian	0.593
Jewish	0.892
Ukrainian	1.467
Other	1.209
LANGUAGE	
English	1.592
French	0.660
Other	0.949
LANGUAGE * ETHNICITY	
ENGLISH *	
British	0.857
French	1.674
German	0.943
Italian	0.919
Jewish	1.214
Ukrainian	0.769
Other	0.862
FRENCH *	
British	0.909
French	0.929
German	0.828
Italian	1.400
Jewish	0.659
Ukrainian	1.451
Other	1.068
OTHER *	
British	1.283
French	0.643
German	1.280
Italian	0.777
Jewish	1.251
Ukrainian	0.896
Other	1.086

Source: Trovato and Halli (1990), pp. 85-85.

Note: EDUCATION and AGE were used as control factors in the model. For EDUCATION, the estimated parameters are: 0.742 (primary), 1.182 (secondary), and 1.141 (post-secondary). For AGE, the estimated parameters are: 1.210 (20-29), and 0.827 (30+).

Table 2. The Odds Ratios of the Interprovincial Migration Propensities, Implied by the Estimated Parameters of Trovato and Halli (1990).

Ethnicity	Home Language		
	English	French	Other Language
A. Reported Parameters:			
<i>Marginal</i>	<i>Marginal</i>		
<i>Marginal</i>		1.592	0.660
British	1.241	0.857	0.909
French	0.779	1.674	0.929
German	1.103	0.943	0.828
Italian	0.593	0.919	1.400
Jewish	0.892	1.214	0.659
Ukrainian	1.467	0.769	1.451
Other	1.209	0.862	1.068
B. Combined Parameters:			
British	1.693	0.745	1.511
French	2.076	0.478	0.475
German	1.656	0.603	1.340
Italian	0.868	0.548	0.437
Jewish	1.724	0.388	1.059
Ukrainian	1.796	1.405	1.247
Other	1.659	0.852	1.246
C. The Implied Odds Ratios, relative to English-speaking British			
British	1.000	0.440	0.892
French	1.226	0.282	0.281
German	0.978	0.356	0.791
Italian	0.512	0.324	0.258
Jewish	1.018	0.229	0.625
Ukrainian	1.061	0.830	0.737
Other	0.980	0.503	0.736

Source: from Table 1.

Table 3. Estimation Results of the Logit Model for Explaining the 1976-1981 Interprovincial Migration Probabilities.

Explanatory Variable	Best Spec.		-Ethnicity Related		-Eth*Lan Effect		-Age		-Education		-Experience Effect	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Constant	-2.91	-105.1	-2.95	-110.9	-2.91	-105.0	-3.74	-164.4	-2.74	-111.8	-2.71	-103.7
1.Age (Ref: Aged 20-24)												
Ref: Aged 20-24	----	----	----	----	----	----	----	----	----	----	----	----
Aged 25-29	0.03	1.3	0.04	1.4	0.03	1.3	----	----	0.08	3.1	0.11	4.7
Aged 30-34	-0.38	-13.8	-0.37	-13.6	-0.38	-13.8	----	----	-0.32	-11.9	-0.22	-8.2
Aged 35-39	-0.68	-21.7	-0.67	-21.3	-0.68	-21.7	----	----	-0.63	-20.4	-0.46	-15.2
Aged 40-44	-0.96	-26.3	-0.95	-26.1	-0.96	-26.4	----	----	-0.94	-26.0	-0.72	-20.4
Aged 45-49	-1.27	-30.5	-1.27	-30.4	-1.28	-30.6	----	----	-1.27	-30.7	-1.04	-25.4
Aged 50-54	-1.47	-32.6	-1.46	-32.4	-1.47	-32.7	----	----	-1.48	-33.1	-1.22	-27.6
Aged 55-59	-1.72	-34.1	-1.71	-34.0	-1.73	-34.2	----	----	-1.76	-35.0	-1.46	-29.4
Aged 60-64	-1.72	-31.6	-1.70	-31.5	-1.72	-31.8	----	----	-1.76	-32.7	-1.46	-27.4
Aged 65-69	-1.74	-29.2	-1.73	-29.2	-1.74	-29.4	----	----	-1.80	-30.6	-1.49	-25.5
Aged 70-74	-1.85	-25.6	-1.84	-25.4	-1.87	-25.8	----	----	-1.94	-27.0	-1.61	-22.5
Aged 75_	-2.06	-28.8	-2.04	-28.6	-2.08	-29.0	----	----	-2.17	-30.5	-1.79	-25.4
2.Education (Ref: Primary)												
Ref: Primary	----	----	----	----	----	----	----	----	----	----	----	----
Secondary	0.12	5.1	0.13	5.6	0.13	5.5	0.55	23.6	----	----	0.14	5.9
Post-Secondary	0.43	22.0	0.44	22.7	0.43	22.5	0.71	38.1	----	----	0.47	25.0
Ethnic Effect												
3.Ethnicity (Ref: British)												
Ref: British	----	----	----	----	----	----	----	----	----	----	----	----
French * Quebec	-0.60	-4.3	----	----	-0.30	-4.4	-0.66	-4.8	-0.63	-4.6	-0.87	-6.3
French * Non Quebec	0.09	1.9	----	----	0.07	2.3	0.11	2.4	0.06	1.2	0.19	4.2
German	-0.32	-2.4	----	----	-0.08	-2.3	-0.46	-3.5	-0.36	-2.8	-0.40	-3.1
Italian	-1.67	-10.6	----	----	-1.12	-14.0	-1.45	-9.2	-1.78	-11.3	-1.79	-11.5
Jewish	-0.60	-7.5	----	----	-0.60	-7.4	-0.61	-7.7	-0.54	-6.7	-0.77	-9.6
Ukrainian	-0.56	-3.1	----	----	-0.14	-2.8	-0.97	-5.5	-0.59	-3.3	-0.65	-3.7
Other	-0.30	-5.4	----	----	-0.02	-1.0	-0.24	-4.3	-0.35	-6.3	-0.42	-7.8
Assimilation Effect												
4.Ethnicity * Language (*Quebec)												
(French * English) * Quebec	0.36	2.3	----	----	----	----	0.51	3.2	0.37	2.3	0.41	2.6
(French * English) * Non Quebec	-0.03	-0.5	----	----	----	----	0.07	1.3	-0.03	-0.5	0.02	0.4
German * English	0.25	1.8	----	----	----	----	0.48	3.6	0.30	2.2	0.31	2.3
Italian * English	0.74	4.1	----	----	----	----	0.92	5.1	0.84	4.7	0.75	4.2
Jewish * English (Insignificant)	----	----	----	----	----	----	----	----	----	----	----	----
Ukrainian * English	0.46	2.5	----	----	----	----	0.91	4.9	0.48	2.6	0.53	2.9
Other * English	0.31	5.3	----	----	----	----	0.42	7.4	0.37	6.4	0.41	7.4
5.Language * Quebec												
English * Quebec	2.47	18.2	2.94	59.4	2.77	38.7	2.27	16.8	2.44	18.0	2.68	19.8
Other * Quebec	1.20	7.7	1.19	11.9	1.21	10.4	1.19	7.6	1.15	7.4	1.66	10.6
6.Time of assimilation												
Ref: immigrated before 1971	----	----	----	----	----	----	----	----	----	----	----	----
immigrated during 1971-1975	0.13	2.5	0.18	3.7	0.09	1.8	0.61	12.7	0.14	2.8	0.17	3.8
Geographic Effect												
7.Province (Ref: Ontario)												
Ref: Ontario	----	----	----	----	----	----	----	----	----	----	----	----
Atlantic	0.67	24.3	0.70	25.4	0.67	24.3	0.72	26.8	0.67	24.3	0.66	25.1
Quebec	-1.03	-7.7	-1.57	-34.7	-1.31	-17.1	-0.91	-6.8	-0.99	-7.4	-1.01	-7.5
Manitoba	0.80	22.9	0.78	22.6	0.79	22.6	0.80	23.3	0.78	22.4	0.94	28.5
Saskatchewan	0.72	18.9	0.72	19.0	0.72	18.9	0.68	18.2	0.70	18.4	0.75	20.4
Alberta	0.21	5.2	0.20	5.0	0.21	5.0	0.26	6.3	0.21	5.2	0.62	22.2
British Columbia	-0.24	-7.3	-0.24	-7.5	-0.24	-7.2	-0.25	-7.7	-0.25	-7.8	0.22	7.9
8.Experience Effect												
Non-Native	1.54	72.9	1.56	73.9	1.54	72.9	1.34	65.3	1.56	73.9	----	----
Foreign-Born	0.85	23.0	0.79	21.8	0.84	22.7	0.34	9.7	0.89	24.1	----	----
Foreign-Born * Ontario	-0.64	-12.5	-0.77	-15.1	-0.68	-13.3	-0.56	-11.1	-0.65	-12.7	----	----
Foreign-Born * B.C.	-0.24	-3.3	-0.27	-3.7	-0.27	-3.7	-0.20	-2.8	-0.23	-3.1	----	----
Non-Native * Alberta	-0.02	-0.3	-0.01	-0.2	-0.01	-0.1	0.06	1.2	-0.02	-0.5	----	----
Maximizing Method:												
Rho-square	0.1678		0.1648		0.1674		0.1251		0.1639		0.1227	
Marginal Contribution in Rho-square	-----		0.0030		0.0004		0.0427		0.0039		0.0452	
Fixed Coefficient Method:												
Rho-square	0.1678		0.1628		0.1652		0.1179		0.1637		0.1172	
Marginal Contribution in Rho-square	-----		0.0050		0.0026		0.0499		0.0041		0.0506	

Sample Size: 316,255 persons.

Table 4. Estimation Results of the Logit Model for Explaining the 1981-1986 Interprovincial Migration Probabilities.

Explanatory Variable	Best Specification		-Ethnicity Related		-Eth*Lan Effect		-Age		-Education		-Experience Effect	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
Constant	-3.74	-111.6	-3.76	-115.0	-3.73	-111.7	-4.45	-160.4	-3.54	-118.2	-3.44	-111.1
1.Age (Ref: Aged 20-24)												
Ref: Aged 20-24	----	----	----	----	----	----	----	----	----	----	----	----
Aged 25-29	0.08	2.7	0.08	2.8	0.08	2.7	----	----	0.11	3.9	0.18	6.5
Aged 30-34	-0.26	-8.4	-0.25	-8.3	-0.25	-8.4	----	----	-0.21	-6.9	-0.08	-2.7
Aged 35-39	-0.57	-17.2	-0.56	-17.0	-0.57	-17.2	----	----	-0.52	-15.8	-0.35	-10.8
Aged 40-44	-0.85	-22.1	-0.83	-21.7	-0.84	-22.0	----	----	-0.81	-21.3	-0.58	-15.6
Aged 45-49	-1.12	-24.7	-1.13	-24.8	-1.13	-24.8	----	----	-1.11	-24.6	-0.85	-19.2
Aged 50-54	-1.40	-26.7	-1.40	-26.8	-1.40	-26.7	----	----	-1.41	-27.2	-1.11	-21.7
Aged 55-59	-1.45	-26.6	-1.45	-26.6	-1.45	-26.6	----	----	-1.49	-27.5	-1.15	-21.5
Aged 60-64	-1.54	-26.7	-1.53	-26.6	-1.54	-26.7	----	----	-1.59	-27.8	-1.24	-21.9
Aged 65-69	-1.58	-25.0	-1.57	-24.9	-1.58	-25.0	----	----	-1.65	-26.3	-1.29	-20.6
Aged 70-74	-1.62	-22.3	-1.62	-22.2	-1.62	-22.3	----	----	-1.71	-23.5	-1.35	-18.8
Aged 75_	-1.96	-25.6	-1.93	-25.2	-1.95	-25.5	----	----	-2.07	-27.2	-1.65	-21.9
2.Education (Ref: Primary)												
Ref: Primary	----	----	----	----	----	----	----	----	----	----	----	----
Secondary	0.13	5.0	0.14	5.3	0.14	5.2	0.49	19.6	----	----	0.15	5.9
Post-Secondary	0.43	20.4	0.44	20.7	0.44	20.7	0.68	33.5	----	----	0.49	23.5
Ethnic Effect												
3.Ethnicity (Ref: British)												
Ref: British	----	----	----	----	----	----	----	----	----	----	----	----
French * Quebec	-0.58	-5.1	----	----	-0.22	-2.8	-0.65	-5.6	-0.60	-5.2	-0.93	-8.2
French * Non Quebec	0.47	10.7	----	----	0.23	7.1	0.45	10.5	0.44	10.0	0.58	13.5
German	-0.70	-4.5	----	----	-0.19	-4.3	-0.91	-5.9	-0.75	-4.8	-0.83	-5.4
Italian	-1.46	-8.2	----	----	-1.10	-11.4	-1.39	-7.9	-1.56	-8.8	-1.69	-9.7
Jewish	-0.45	-4.7	----	----	-0.45	-4.7	-0.55	-5.9	-0.39	-4.1	-0.59	-6.2
Ukrainian	-0.26	-1.4	----	----	-0.29	-4.4	-0.76	-4.0	-0.28	-1.5	-0.45	-2.4
Other	-0.40	-7.1	----	----	-0.17	-6.0	-0.34	-6.1	-0.45	-8.1	-0.55	-10.5
Assimilation Effect												
	0.0											
4.Ethnicity * Language (*Quebec)												
(French * English) * Quebec	0.57	3.8	----	----	----	----	0.71	4.8	0.57	3.8	0.61	4.2
(French * English) * Non Quebec	-0.45	-7.5	----	----	----	----	-0.35	-5.9	-0.45	-7.4	-0.43	-7.4
German * English	0.54	3.4	----	----	----	----	0.71	4.5	0.60	3.7	0.59	3.7
Italian * English	0.49	2.3	----	----	----	----	0.73	3.5	0.60	2.9	0.51	2.5
Jewish * English (Insignificant)	----	----	----	----	----	----	----	----	----	----	----	----
Ukrainian * English	-0.04	-0.2	----	----	----	----	0.34	1.7	-0.02	-0.1	0.00	0.0
Other * English	0.27	4.6	----	----	----	----	0.29	5.0	0.63	4.4	0.32	5.7
5.Language * Quebec												
English * Quebec	1.95	17.3	2.41	46.5	2.32	29.2	1.83	16.3	1.95	17.3	2.18	19.7
Other * Quebec	0.65	4.6	0.69	6.8	0.78	6.4	0.64	4.5	0.85	6.1	1.20	8.6
6.Time of assimilation												
Ref: immigrated before 1976	----	----	----	----	----	----	----	----	----	----	----	----
immigrated during 1976-1981	0.31	5.3	0.30	5.2	0.26	4.5	0.71	12.0	0.31	5.2	0.39	7.0
Geographic Effect												
7.Province (Ref: Ontario)												
Ref: Ontario	----	----	----	----	----	----	----	----	----	----	----	----
Atlantic	0.99	31.2	1.04	32.9	1.00	31.5	1.04	33.3	0.98	31.0	0.98	32.6
Quebec	-0.33	-3.0	-0.85	-18.6	-0.67	-8.0	-0.26	-2.4	-0.31	-2.9	-0.34	-3.2
Manitoba	0.89	21.1	0.84	19.9	0.87	20.6	0.93	22.3	0.88	20.7	1.08	27.1
Saskatchewan	1.03	24.0	0.98	23.2	1.02	23.7	1.07	25.2	1.02	23.7	1.11	27.2
Alberta	0.84	19.9	0.79	18.8	0.82	19.4	0.92	21.8	0.84	19.9	1.47	54.4
British Columbia	0.36	10.8	0.33	9.8	0.35	10.5	0.35	10.4	0.35	10.5	0.87	29.6
8.Experience Effect												
Non-Native	1.78	75.8	1.81	77.2	1.78	75.8	1.61	69.6	1.80	76.8	----	----
Foreign-Born	1.06	26.5	0.96	24.8	1.04	26.1	0.64	16.5	1.10	27.7	----	----
Foreign-Born * Ontario	-0.77	-12.2	-0.89	-14.3	-0.80	-12.8	-0.70	-11.3	-0.78	-12.4	----	----
Foreign-Born * B.C.	-0.35	-4.8	-0.37	-5.1	-0.37	-5.1	-0.30	-4.2	-0.34	-4.7	----	----
Non-Native * Alberta	0.10	2.1	0.12	2.4	0.11	2.3	0.20	4.3	0.09	1.8	----	----
Maximizing Method:												
Rho-square	0.1818		0.1784		0.1810		0.1468		0.1780		0.1196	
Marginal Contribution in Rho-square	-----		0.0034		0.0009		0.0350		0.0038		0.0622	
Fixed Coefficient Method:												
Rho-square	0.1818		0.1762		0.1785		0.1422		0.1778		0.1095	
Marginal Contribution in Rho-square	-----		0.0056		0.0033		0.0396		0.0040		0.0723	

Sample Size: 345,172 persons.

Table 5. Estimation Results of the Logit Model for Explaining the 1996-2001 Interprovincial Migration Probabilities.

Explanatory Variable	Best Specification		-Ethnicity Related		-Eth* Lan Effect		-Age		-Education		-Experience Effect	
	Coef.	T-Value	Coef.	t-ratio	Coef.	T-Value	Coef.	T-Value	Coef.	T-Value	Coef.	T-Value
Constant	-4.02	-250.6	-4.08	-257.8	-4.02	-250.8	-5.12	-397.3	-3.84	-284.8	-3.35	-233.8
1.Age (Ref: Aged 20-24)												
Ref: Aged 20-24	----	----	----	----	----	----	----	----	----	----	----	----
Aged 25-29	0.16	11.9	0.16	11.4	0.16	11.8	----	----	0.23	16.7	0.27	21.4
Aged 30-34	-0.27	-18.9	-0.28	-19.7	-0.27	-19.0	----	----	-0.20	-14.2	-0.08	-6.0
Aged 35-39	-0.69	-47.6	-0.69	-48.1	-0.69	-47.6	----	----	-0.63	-43.9	-0.45	-33.5
Aged 40-44	-1.01	-66.6	-1.01	-67.0	-1.00	-66.5	----	----	-0.95	-63.7	-0.75	-52.6
Aged 45-49	-1.29	-79.3	-1.29	-79.5	-1.29	-79.1	----	----	-1.23	-76.7	-1.00	-65.1
Aged 50-54	-1.46	-84.3	-1.46	-84.3	-1.46	-84.1	----	----	-1.41	-82.3	-1.15	-69.7
Aged 55-59	-1.58	-80.4	-1.57	-80.2	-1.57	-80.2	----	----	-1.54	-79.5	-1.22	-65.3
Aged 60-64	-1.70	-75.1	-1.71	-75.4	-1.70	-74.9	----	----	-1.70	-75.5	-1.34	-61.3
Aged 65-69	-1.77	-71.7	-1.78	-72.0	-1.77	-71.4	----	----	-1.79	-73.1	-1.40	-58.5
Aged 70-74	-2.03	-70.8	-2.03	-71.0	-2.02	-70.6	----	----	-2.07	-72.7	-1.65	-59.1
Aged 75_	-2.07	-87.7	-2.06	-87.5	-2.06	-87.4	----	----	-2.13	-91.4	-1.67	-72.9
2.Education (Ref: Primary)												
Ref: Primary	----	----	----	----	----	----	----	----	----	----	----	----
Secondary	0.10	8.4	0.12	9.9	0.10	8.6	0.51	44.7	----	----	0.16	14.1
Post-Secondary	0.36	35.0	0.37	36.9	0.36	35.4	0.68	69.7	----	----	0.49	50.6
Ethnic Effect												
3.Ethnicity (Ref: British)												
Ref: British	----	----	----	----	----	----	----	----	----	----	----	----
French * Quebec	0.21	3.0	----	----	0.03	1.1	0.05	0.8	0.20	2.8	0.14	2.0
French * Non Quebec	0.62	21.9	----	----	0.06	5.1	0.49	17.8	0.59	21.1	0.46	17.0
German	-1.03	-8.9	----	----	-0.19	-11.2	-0.91	-7.9	-1.21	-10.5	-1.21	-10.6
Italian	-1.43	-10.5	----	----	-1.03	-32.5	-1.69	-12.2	-1.55	-11.5	-1.49	-11.1
Jewish	-0.28	-1.4	----	----	-0.51	-12.2	-0.46	-2.4	-0.28	-1.5	-0.19	-1.0
Ukrainian	-0.41	-2.2	----	----	-0.15	-5.9	-0.73	-4.1	-0.42	-2.3	-0.44	-2.4
Assimilation Effect												
4.Ethnicity * Language (*Quebec)												
(French * English) * Quebec	-0.22	-2.9	----	----	----	0.05	0.6	-0.20	-2.7	-0.25	-3.4	
(French * English) * Non Quebec	-0.65	-21.3	----	----	----	-0.45	-15.4	-0.64	-21.2	-0.39	-13.6	
German * English	0.86	7.4	----	----	----	0.66	5.7	1.00	8.6	0.93	8.1	
Italian * English	0.42	3.1	----	----	----	0.87	6.2	0.53	3.8	0.01	0.1	
Jewish * English	-0.25	-1.2	----	----	----	-0.12	-0.6	-0.20	-1.0	-0.40	-2.0	
Ukrainian * English	0.26	1.4	----	----	----	0.33	1.8	0.27	1.5	0.24	1.3	
5.Language * Quebec												
English * Quebec	2.47	36.6	2.18	77.8	2.31	73.6	2.30	34.3	2.45	36.4	3.23	48.8
Other * Quebec	1.32	7.9	0.34	2.4	1.00	6.9	1.40	8.3	1.24	7.5	2.04	12.4
6.Time of assimilation												
Ref: immigrated before 1991	----	----	----	----	----	----	----	----	----	----	----	----
immigrated during 1991-1995	-0.02	-0.6	0.04	0.9	-0.02	-0.5	0.55	12.5	-0.02	-0.4	0.10	2.5
Geographic Effect												
7.Province (Ref: Ontario)												
Ref: Ontario	----	----	----	----	----	----	----	----	----	----	----	----
Newfl	1.67	84.6	1.70	86.4	1.66	84.3	1.84	98.9	1.66	84.8	1.54	89.9
PEI	0.80	21.0	0.82	21.7	0.79	20.8	0.93	25.3	0.80	21.1	1.08	31.1
Novasc	0.92	55.4	0.94	56.9	0.91	55.0	1.01	62.8	0.93	56.0	1.18	77.7
Newbr	0.82	42.5	0.92	48.6	0.88	46.2	0.94	50.8	0.81	42.2	0.99	54.4
Quebec	-1.11	-16.8	-0.91	-34.4	-0.97	-28.4	-0.94	-14.3	-1.09	-16.6	-1.67	-25.7
Manitoba	0.82	48.9	0.81	48.8	0.81	48.2	0.90	55.1	0.80	47.9	1.00	64.5
Saskatchwen	1.05	63.6	1.04	63.6	1.04	62.9	1.17	73.2	1.03	62.7	1.24	82.2
Alberta	1.04	58.1	1.05	59.4	1.02	57.2	1.21	67.9	1.03	57.4	0.80	66.9
British Columbia	0.30	25.2	0.30	25.1	0.29	24.4	0.25	20.9	0.29	24.4	0.97	89.7
Yukon	0.77	17.7	0.78	18.0	0.76	17.6	0.74	17.5	0.77	17.8	1.95	46.5
NWT	0.27	7.3	0.28	7.4	0.26	7.0	0.38	10.3	0.27	7.3	1.52	41.8
Nunavut	0.87	13.9	----	----	0.87	13.8	1.08	17.6	0.87	13.8	1.98	33.3
8.Experience Effect												
Non-Native	2.59	279.4	2.62	282.9	2.58	279.1	2.47	271.1	2.60	281.7	----	----
Foreign-Born	1.36	69.4	1.27	65.4	1.36	69.3	0.84	43.8	1.39	71.1	----	----
Foreign-Born * Ontario	-0.40	-13.1	-0.46	-15.0	-0.42	-13.6	-0.33	-10.8	-0.42	-13.6	----	----
Foreign-Born * B.C.	0.08	2.3	0.14	4.2	0.08	2.3	0.16	5.0	0.08	2.6	----	----
Non-Native * Alberta	-1.31	-61.1	-1.33	-62.3	-1.30	-60.8	-1.39	-65.6	-1.31	-61.37	----	----
Maximizing Method:												
Rho-square	0.2372	----	0.2343	----	0.2366	----	0.1912	----	0.2351	----	0.1138	----
Marginal Contribution in Rho-square	-----	-----	0.0029	-----	0.0007	-----	0.0461	-----	0.0021	-----	0.1234	-----
Fixed Coefficient Method:												
Rho-square	0.2372	----	0.2298	----	0.2339	----	0.1863	----	0.2350	----	0.0991	----
Marginal Contribution in Rho-square	-----	-----	0.0075	-----	0.0033	-----	0.0509	-----	0.0023	-----	0.1381	-----

Sample Size: 2,233,309 persons.

**Table 6. The Effects of Ethnicity and Language Acculturation on Interprovincial Migration Propensities
The Case of French Ethnic Group.**

Explanatory Variable	In Quebec			Not In Quebec		
	Anglophone British	Francophone French	Anglophone French	Anglophone British	Francophone French	Anglophone French
A. Estimated Coefficients:						
Migration Period: 1976-1981						
French * Quebec	0.00	-0.60	-0.60	0.00	0.00	0.00
French * Non-Quebec	0.00	0.00	0.00	0.00	0.09	0.09
English * Quebec	2.47	0.00	2.47	0.00	0.00	0.00
Quebec	-1.03	-1.03	-1.03	0.00	0.00	0.00
(French * English) * Quebec	0.00	0.00	0.36	0.00	0.00	0.00
(French * English) * Non-Quebec	0.00	0.00	0.00	0.00	0.00	-0.03
Total	1.44	-1.63	1.20	0.00	0.09	0.06
Odds Ratio:						
___Ref.: Anglo British in Quebec	1.00	0.05	0.79	0.24	0.26	0.25
___Ref.: Anglo British in Non-Quebec	4.22	0.20	3.32	1.00	1.09	1.06
Migration Period: 1981-1986						
French * Quebec	0.00	-0.58	-0.58	0.00	0.00	0.00
French * Non-Quebec	0.00	0.00	0.00	0.00	0.47	0.47
English * Quebec	1.95	0.00	1.95	0.00	0.00	0.00
Quebec	-0.33	-0.33	-0.33	0.00	0.00	0.00
(French * English) * Quebec	0.00	0.00	0.57	0.00	0.00	0.00
(French * English) * Non-Quebec	0.00	0.00	0.00	0.00	0.00	-0.45
Total	1.62	-0.91	1.61	0.00	0.47	0.02
Odds Ratio:						
___Ref.: Anglo British in Quebec	1.00	0.08	0.99	0.20	0.32	0.20
___Ref.: Anglo British in Non-Quebec	5.05	0.40	5.00	1.00	1.60	1.02
Migration Period: 1996-2001						
French * Quebec	0.00	0.21	0.21	0.00	0.00	0.00
French * Non-Quebec	0.00	0.00	0.00	0.00	0.62	0.62
English * Quebec	2.47	0.00	2.47	0.00	0.00	0.00
Quebec	-1.11	-1.11	-1.11	0.00	0.00	0.00
(French * English) * Quebec	0.00	0.00	-0.22	0.00	0.00	0.00
(French * English) * Non-Quebec	0.00	0.00	0.00	0.00	0.00	-0.65
Total	1.36	-0.90	1.35	0.00	0.62	-0.03
Odds Ratio:						
___Ref.: Anglo British in Quebec	1.00	0.10	0.99	0.26	0.48	0.25
___Ref.: Anglo British in Non-Quebec	3.90	0.41	3.86	1.00	1.86	0.97

Appendix A

Inter-provincial Distributions and Migration Rates of the Ethnic Groups

Distribution of Ethnicities in 1976.

	Nfld	P. E. I.	N. S.	N. B.	Quebec	Ontario	Mani.	Sask.	Alberta	B. C.	Canada
British	4.87	1.11	6.19	3.76	6.24	47.58	4.08	3.72	8.42	14.04	100.00
French	0.25	0.30	1.24	3.61	79.25	10.61	1.18	0.68	1.44	1.43	99.99
German	0.09	0.29	3.00	0.62	3.76	34.88	9.33	13.90	18.47	15.67	100.01
Italian	0.08	0.06	0.40	0.27	22.51	64.66	1.31	0.34	3.30	7.07	100.00
Jewish	0.16	0.08	0.93	0.29	37.95	46.90	6.26	0.64	2.42	4.37	100.00
Ukrainian	0.01	0.32	0.39	0.21	3.26	26.69	19.71	14.07	23.74	11.60	100.00
Other	0.47	0.90	2.29	1.08	9.64	43.76	6.63	5.82	12.24	17.17	100.00
All	2.18	0.73	3.52	2.8	27.71	36.04	4.37	3.92	7.9	10.83	100.00

Note: P.E.I. includes Prince Edward Island, Yukon and NWT.

Data Source: 1981 PUMF.

Distribution of Ethnicities in 1981.

	Nfld	P. E. I.	N. S.	N. B.	Quebec	Ontario	Mani.	Sask.	Alberta	B. C.	Canada
British	4.27	1.07	5.86	3.53	5.82	46.01	4.05	3.96	10.61	14.83	100.01
French	0.17	0.24	0.98	3.57	79.10	10.16	1.21	0.88	1.96	1.74	100.01
German	0.17	0.27	2.28	0.42	3.24	32.35	9.65	14.33	19.87	17.42	100.00
Italian	0.01	0.01	0.05	0.01	23.56	64.60	1.16	0.24	3.33	7.04	100.01
Jewish	0.00	0.03	0.08	0.06	35.00	50.11	5.89	0.50	3.67	4.66	100.00
Ukrainian	0.01	0.04	0.06	0.01	3.12	26.82	18.91	14.03	25.17	11.83	100.00
Other	0.23	1.02	1.53	0.55	10.35	43.59	6.72	5.43	13.26	17.33	100.01
All	2.14	0.74	3.41	2.75	26.68	35.75	4.16	3.85	9.09	11.41	99.98

Note: P.E.I. includes Prince Edward Island, Yukon and NWT.

Data Source: 1986 PUMF.

Distribution of Ethnicities in 1996.

	Nfld	P. E. I.	N. S.	N. B.	Quebec	ON	Mani.	Sask.	AB	B. C.	Yukon	NWT	Nunav	Canada
British	3.01	0.83	5.08	3.14	5.67	44.84	4.03	3.82	11.48	17.79	0.14	0.12	0.03	100.00
French	0.33	0.38	1.94	4.30	62.54	17.90	2.41	1.74	4.30	4.03	0.06	0.06	0.01	100.00
German	0.15	0.07	2.39	0.50	3.21	32.52	9.83	12.18	20.50	18.40	0.13	0.10	0.01	100.00
Italian	0.04	0.02	0.30	0.15	22.45	65.75	1.09	0.24	3.21	6.73	0.01	0.01	0.00	100.00
Jewish	0.05	0.01	0.65	0.29	28.81	55.72	5.15	0.29	3.11	5.89	0.01	0.00	0.00	100.00
Ukrainian	0.06	0.02	0.36	0.11	2.65	26.34	17.64	13.09	26.70	12.82	0.11	0.09	0.01	100.00
All	2.02	0.62	3.84	2.97	18.68	39.29	4.19	3.82	10.28	14.04	0.11	0.10	0.03	100.00

Note: The row "All" here refers to the combined population of the six ethnic groups.

Data Source: Long-form records of the 2001 census.

Interprovincial Out-migration Rate of Each Ethnicity in Each Province during 1976-81.

	Nfld	P. E. I.	N. S.	N. B.	Quebec	Ontario	Mani.	Sask.	Alberta	B. C.	Canada
British	6.52	14.43	8.07	8.58	15.78	4.27	11.36	9.28	9.39	5.16	6.64
French	----	14.39	9.70	5.57	1.15	7.20	9.79	9.55	11.77	9.27	2.56
German	----	45.83	4.19	16.50	13.24	4.20	9.25	6.34	6.59	5.93	6.26
Italian	----	----	7.32	----	1.84	1.19	5.26	8.57	4.48	2.79	1.76
Jewish	----	----	11.43	----	7.65	1.70	5.11	----	12.09	4.88	4.95
Ukrainian	----	----	9.38	----	13.81	4.38	6.36	6.92	4.56	7.14	6.04
Other	20.86	18.56	11.80	14.29	10.70	4.69	10.55	8.93	8.26	5.48	6.94
All	7.40	16.57	8.52	8.13	3.38	4.38	10.03	8.46	8.40	5.47	5.36

Note: The unit of out-migration rate is "% / 5 years". The value for an at-risk population of less than 30 persons in the sample is suppressed.

Data Source: 1981 PUMF.

Interprovincial Out-migration Rate of Each Ethnicity in Each Province during 1981-86.

	Nfld	P. E. I.	N. S.	N. B.	Quebec	Ontario	Mani.	Sask.	Alberta	B. C.	Canada
British	6.66	14.01	5.81	6.69	9.80	2.42	7.78	7.50	11.86	5.46	5.37
French	13.29	15.11	6.64	4.09	0.97	5.11	7.13	8.96	15.80	11.61	2.23
German	----	40.00	3.90	19.67	5.91	1.69	3.47	4.53	6.43	5.38	4.25
Italian	----	----	----	----	1.27	0.53	4.84	----	6.18	1.72	1.11
Jewish	----	----	----	----	4.97	1.12	2.86	----	13.74	7.23	3.62
Ukrainian	----	----	----	----	5.38	1.56	3.99	4.19	4.67	4.37	3.75
Other	20.51	9.81	8.09	11.15	5.40	1.99	5.34	5.74	7.59	4.49	4.20
All	7.08	13.83	6.07	6.04	2.25	2.38	6.27	6.53	10.19	5.40	4.13

Note: The unit of out-migration rate is “% / 5 years”. The value for an at-risk population of less than 30 persons in the sample is suppressed.

Data Source: 1986 PUMF.

Interprovincial Out-migration Rate of Each Ethnicity in Each Province during 1996-2001.

	Nfld	P. E. I.	N. S.	N. B.	Quebec	ON	Mani.	Sask.	AB	B. C.	Yukon	NWT	Nunav	CND
British	9.52	6.35	6.94	7.03	6.62	2.25	6.96	8.70	5.62	5.36	24.67	36.68	41.80	4.60
French	14.08	7.05	6.55	5.08	1.23	3.31	5.56	8.34	6.05	8.62	31.16	32.33	43.08	2.71
German	27.12	21.18	4.69	10.02	5.74	1.70	3.98	4.66	2.97	4.31	21.12	44.07	46.15	3.39
Italian	31.91	19.05	8.42	10.22	1.40	0.39	3.75	9.66	2.67	2.14	42.86	12.50	----	0.93
Jewish	30.77	----	13.14	10.13	3.75	0.99	3.99	21.52	4.19	7.15	----	----	----	2.59
Ukrainian	66.67	25.00	10.73	27.87	6.19	1.76	3.14	4.32	2.40	5.22	33.85	38.00	71.43	3.25
All	9.82	6.56	6.85	6.49	2.40	2.13	5.92	7.62	5.11	5.41	25.40	36.29	42.43	3.88

Note: The unit of out-migration rate is “% / 5 years”. The value for an at-risk population of less than 30 persons in the sample is suppressed. The row “All” here refers to the combined population of the six ethnic groups.

Appendix B

Employment Growth Rates of Provinces and Canada: 1976-2005.

Period	Canada	Nfld	P. E. I.	N. S.	N. B.	Quebec	Ontario	Mani.	Sask.	Alberta	B. C.
	(percent per year)										
1976-1981	2.96	3.17	1.82	1.94	2.18	1.86	2.75	1.52	2.39	6.49	4.36
1981-1986	1.17	0.06	2.02	1.29	0.98	0.96	1.94	1.24	1.31	0.00	0.11
1986-1991	1.40	1.84	0.53	1.66	1.74	1.03	1.18	0.31	-0.29	1.65	3.46
1991-1996	0.86	-1.76	1.89	-0.20	0.69	0.29	0.59	0.41	0.15	1.80	2.82
1996-2001	2.15	1.67	1.57	1.94	1.55	1.89	2.74	1.38	0.16	2.98	1.13
2001-2005	1.97	1.23	1.75	1.63	1.50	1.94	1.91	1.15	1.22	2.25	2.58
1976-2005	1.75	1.03	1.59	1.37	1.44	1.31	1.85	1.00	0.81	2.54	2.40

Data Source: CANSIM.

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