

## **Intra-Generational Ethnic Flows: Ethnic Mobility in the Canadian Census**

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### ***Abstract***

*This article extends the study of ethnic mobility by examining intra-generational flows in ethnicity in Canadian census data. It expands on previous work on this topic that focused specifically on Aboriginal Peoples. This paper establishes, through an analysis of census data from 1991 to 2001, that population flows exist among selected ethnic groups in Canada that can only be explained by ethnic mobility (or transfer). It also raises concerns about deriving trends over time in analysing population groups defined by ethno-cultural characteristics.*

**Keywords:** *ethnic transfer, ethnic groups, birth cohorts*

### ***Résumé***

*Cet article approfondi l'étude de la mobilité ethnique en examinant les mouvements intergénérationnels des groupes ethniques en s'appuyant sur les données de recensement du Canada. L'article ajoute aux recherches qui existent déjà sur ce sujet et qui sont spécifiquement centrées sur les peuples autochtones. Cet article établit, par une analyse des données de recensement entre 1991 et 2001, que les mouvements de populations existent bel et bien parmi certains groupes ethniques au Canada et ne peuvent être expliqués que par la mobilité (ou transfert) ethnique. Il soulève aussi des préoccupations quant à la dérivation des tendances au fil du temps pour les analyses de groupes de populations qui sont définis par des caractéristiques ethnoculturelles.*

**Mots clés:** *transfert ethnique, groupes ethniques, cohortes de naissance*

## **Introduction**

It is broadly acknowledged that Canada is a country of immigrants (Fong 2005). Just over 18% of the population were first generation immigrations according to the published counts from the 2001 Census. That proportion increased to almost 20% in 2006. Given the changes in patterns of immigration over time, Canadian society has become a mosaic of people from many different ethnic origins. In fact, the number of ethnic groups listed in the census results has increased from 121 in 1991 to over 200 in both 2001 and 2006. In addition, the concept of ethnic origin as reported in the census has become more complex with an increase in the proportion of people declaring multiple origins. While just fewer than 30% reported multiple origins in 1991, that proportion increased to 38% in 2001 and just over 41% in 2006. One can view this increase in multiple responses as an indication that ethnic origin has lost its analytical value as a characteristic of Canadian society because it has become too subjective. However, this complexity might also be viewed as an indicator of particular demographic groupings (Deaux 2006). I prefer to adopt this latter view and to consider the incidence and structure of the multiple responses to the question on ethnic origin as important indicators of the ethnic diversity of Canadian society. As such, they form appropriate variables in the analysis of ethnic groups in Canada.

The observed growth in the number of ethnic groups in Canada and the apparent complexity of the ethnic composition of Canadian society suggest that ethnic diversity is a dynamic characteristic that is subject to change over time. This paper builds on that premise by addressing the following research questions:

- ▶ Is there evidence of ethnic mobility or ethnic transfer among groups in Canada?
- ▶ If so, what are the characteristics that contribute to the flow defined by ethnic mobility?

The answer to the first question will serve as the primary indicator of whether or not it is possible to perform analyses over time using ethnic origin as the primary defining characteristic of a population group. The second question assumes that ethnic mobility or transfer occurs and unpacks the factors that contribute to this form of demographic flow.

Various theories of assimilation postulated that the transfer of values and customs from a primary to a secondary group in society occurs over time. Most notably, Gordon's typology included the concept of cultural assimilation that was based on the premise that all secondary groups would, over time, adopt the values and customs of the primary group (Gordon 1964). Isajiw argued that the

concept of cultural assimilation as proposed by Gordon was too narrow in scope and that it was more appropriate to refer to a broader notion of social incorporation, of which structural, cultural and identity incorporation are part (Isajiw 1999). If we accept Isajiw's reformulation, it supports the notion that some transfer of values, customs and identity occurs when different groups are exposed to each other for extended periods of time. This would suggest that immigrants who have been in Canada longer are more likely to be exposed to Canadian society and its values and, as such, may adopt some element of Canadian identity. The way in which people declare their ethnic origins in the Census can be considered a partial indicator of the extent to which either Canadian or some other identity has been adopted by the subjects for this study<sup>1</sup>.

## **Data and Methods**

Two major features of many national censuses, the coverage of the population and their regularity with respect to time (generally decennial, occasionally quinquennial), render their data extremely valuable for many forms of analyses. The fact that a national census is the most complete source of data on the demographic structure of a population makes it possible to analyse major demographic flows in the population as well as assessing the stock of a population.

Analyses of population change over time using subjective characteristics such as self-reported ethnic origin as the primary identifier of a given population group are more problematic. Among the "devilish principles" proposed by Stanley Lieberson in his opening remarks to the 1992 Conference on the measurement of ethnicity he suggested that context may influence how ethnic groups may view the importance of questions dealing with ethnicity (Lieberson 1992). He also proposed that census questions dealing with ethnicity almost always include some subjective dimensions. Since the stability of the definition of the population in question is of paramount importance to ensure that such analyses are robust, herein lies one of the major conceptual challenges in conducting analyses of population change using census data. Subjective characteristics by their very nature are susceptible to changes in interpretation over time. This raises the question, "to what extent is it possible to conduct robust longitudinal analyses of population change using subjective characteristics such as ethnic origin?" Since this paper will focus on a longitudinal analysis of the growth and decline of ethnic groups, this secondary research question will be also be addressed.

This analysis represents the first stages of a larger research project<sup>2</sup>. Since the intent is to establish the validity of the concepts and to determine whether or not ethnic mobility is a measurable flow, this stage of the analysis focuses entirely on the public use micro data files for the 1991, 1996 and 2001 Censuses

of Population in Canada. These files contain information on a broad range of characteristics on individuals for a 3% sample of the total population. Population weights are provided so that the results presented in this analysis may be considered representative of the total population of Canada.

While Census data are essentially cross sectional, inter-censal comparisons are often conducted on either the total population or subgroups of the population over time (Beaujot and Kerr 2004; Boyd, Goldmann and White 2000; Kalbach and Kalbach 1997). In some instances the comparisons are made using repeated cross-sections of the population defined by specific characteristics such as geography, sex and income groups. It is also possible to perform quasi-longitudinal analysis with census data by constructing birth cohorts and examining transitions over time. In effect, this is the method used for part of the analysis presented in this paper. The construction of the cohorts is shown in Table 1. The definition of the age ranges controls for the major flows due to natural causes – it eliminates the impact of births and minimises the impact of deaths since the maximum age in 2001 is under the average life expectancy for both men (76.9 years) and women (82.0 years) in 2001 (Statistics Canada 2006)<sup>3</sup>.

**Table 1**  
**Structure of the Birth Cohorts**

Cohort	Age in 1991	Age in 1996	Age in 2001
1	15-24	20-29	25-34
2	25-34	30-39	35-44
3	35-44	40-49	45-54
4	45-54	50-59	55-64
5	55-64	60-69	65-74

Two additional population flows need to be accounted for in order for these birth cohorts to be considered truly robust – immigration and emigration. The first, immigration, has been taken into account by removing all cases for those who arrived in Canada in the intercensal period. However, it was not possible to control for emigration using census data since they do not include information on people who have left Canada.

It is not possible to state with absolute certainty that the cohorts contain the same individuals across time since there is no longitudinal linking of respondents in these data. In fact, the robustness and stability of the cohorts over

time are subject to two sources of error – unexplained variability due to the sample design of the respective public use micro data files and the impact of unexplained population flows (which is limited to emigration in this particular analysis). The impact of the sample design in constructing the public use micro data files is considered to be minimal since substantial measures were taken to ensure that the samples are representative of the population living in Canada at the time that the census was taken<sup>4</sup>. Nevertheless, there may still exist a slight error due to emigration in the counts for each of the population groups, especially for the two younger cohorts. Emigrants will result in a decline over time in the population counts for each cohort. While not specifically measurable, it is assumed that this error will not significantly affect the results in the analysis presented in this paper.

The selection of the particular ethnic groups that are the focus of the analysis presented in this paper is based on three criteria. First, it is important that sufficient population is included in the public use micro data files for each of the ethnic groups selected for this study so that sufficient sample remains once the specific characteristics (the independent variables in the models) are controlled for. Second, the group must exist and be separately identified in the public use micro data files for each of the three censuses that support this analysis. Third, there must exist a non-official language that is usually associated with each of the groups. The following groups were selected: Chinese, Dutch, German, Greek, Italian, Portuguese, Polish, South Asian and Ukrainian.

Two caveats apply to the criteria described in the previous paragraph. It must be noted that the South Asian ethnic group is, in reality, an aggregate of a number of individual ethnicities such as Indian, Pakistani, Sri Lankan and Bangladeshi to name a few. It will be seen in the analysis that follows that this aspect of the definition of the South Asian group does not appear to have a dramatic impact on the results. The second caveat deals with German as a heritage language. While it is almost certain that German is the usual heritage language associated with German ethnicity, it is also true that this language can also be associated with Austrian and Swiss ethnicity.

Ethnic mobility (or ethnic transfer) is defined as a change over time in how an individual defines the ethnic group with which he or she identifies or to which he or she belongs. Since census data are based on the respondents' self-declarations, it is reasonable to assume that they are subject to external influences such as the socio-political climate at the time the census is conducted. This is not to suggest that responses are independent of factors such as questionnaire design and collection methodology. The variations in the response patterns over time reflect a "real" mobility of a population group based on influences that they feel are important to them at that point in time. If we consider the population of Canada to be a mosaic of ethnic groups, the point that is being made here is that the alignment and size of the tiles in the mosaic are

subject to change over time, controlling for the overall growth of the population. For example, a respondent may declare himself or herself to be German by ethnic origin in 1991. That same respondent may declare himself or herself to be German and Canadian in 1996 and possibly only Canadian in 2001. This change in declaration of ethnic origin over time reflects a transition or mobility of that individual with respect to his or her ethnic identification<sup>5</sup>.

A birth cohort analysis is performed to address the first research question. The size of the cohorts and selected characteristics that are considered to be impervious to change over time (sex and mother tongue<sup>6</sup>) are compared for each ethnic group for the three censuses included in this study by calculating indexes of dissimilarity.

It is possible for respondents to declare their ethnic origins in one of three ways: single responses, multiple responses that do not include Canadian as one of the categories and multiple responses that include Canadian. The number of multiple responses is not considered in this analysis. However, whether or not the responses include Canadian as one of the components is considered important since that signals a possible form of acculturation on the part of the individual (Goldmann 1998a). Separate calculations are performed for each of the possibilities described above, thereby making it possible to see the relative growth and decline in the size of the cohorts for each ethnic group for each type of response to the question on ethnic origin.

Multinomial logistic models were constructed to analyse the factors that may contribute to ethnic mobility or transfer. The dependent variable is defined as the type of ethnic response (described above). Previous research on the acculturation patterns for these ethnic groups has shown that factors such as sex, where people live, immigrant status, period of immigration and mother tongue are important to consider when examining how people belonging to these groups declare their identity or origins (Goldmann 1998b). Each of these characteristics has the potential to be an explanatory variable in a model that attempts to determine whether or not ethnic transfer occurs. These characteristics are explored for each ethnic group included in this analysis using data from the 2001 Census.

Census data do not include any measures of either social networks or social cohesion. However where people live may provide a basis for inferring whether or not there is a possibility that social networks exist. Breton (1964) defined communities as being institutionally complete if they included formal structures such as religious, educational, political and recreational. The likelihood of ethnic communities to develop such structures increases with the size of the population group in a given geographic location and the means that the group has to develop these structures (these are not independent of one another). Furthermore, it is more likely that sufficient concentrations can develop if the members of a group live in a census metropolitan area (CMA)<sup>7</sup>.

Therefore, whether or not the individuals live in a CMA was included in the models.

Two series of models were constructed for each ethnic group. The first series includes mother tongue as an independent variable and the second includes home language. The reason for this is explained later in the paper. Separate models were estimated for each ethnic group. The general form of the equations is:

$$\text{ethtype} = a + b_1(\text{immstat}) + b_2(\text{sex}) + b_3(\text{cohort}) + b_4(\text{mt}) + b_5(\text{cma}) \quad (1)$$

where ethtype = 1 if the origin is a single response, 2 if the origin is a multiple response that does not include Canadian and 3 if the origin is a multiple response that includes Canadian; immstat = 1 if the respondent is an immigrant and 0 otherwise; mt = 1 if the mother tongue is a heritage language that corresponds to the ethnic origin and 0 otherwise; and cma = 1 if the individual lives in a census metropolitan area and 0 otherwise.

$$\text{ethtype} = a + b_1(\text{immstat}) + b_2(\text{sex}) + b_3(\text{cohort}) + b_4(\text{hl}) + b_5(\text{cma}) \quad (2)$$

where hl = 1 if the language spoken in the home corresponds to the ethnic origin and 0 otherwise; and all other variables are as defined in equation 1.

The cohorts are described earlier in this paper.

### **What do We Know about our Sample Population?**

The nine groups selected as subjects for this analysis represent a broad spectrum of the ethnic mosaic in Canadian society both in terms of size and of immigrant status. We see in Table 2 that the relative size of the groups ranges from less than 1% (the Greeks) to more than 9% (the Germans) of the total population of Canada.

If we examine the proportion of immigrants in each of these ethnic groups we can see that they divide into three broad categories – those with relatively few immigrants (Dutch, German and Ukrainian), those in which well over 50% are immigrants (Chinese and South Asian) and the remainder.

**Table 2**  
**Population by Total Ethnic Origin for Canada: 2001**

<b>Ethnic Origin</b>	<b>Population</b>	<b>%</b>	<b>Population</b>	<b>%</b>
Chinese	1,094,700	3.7	797,470	72.9
Dutch	923,310	3.1	145,610	16.9
German	2,742,765	9.3	301,790	11.5
Greek	215,105	0.7	85,920	40.4
Italian	1,270,370	4.3	357,620	28.7
Polish	817,085	2.8	192,910	24.2
Portuguese	357,690	1.2	186,570	52.8
South Asian	963,190	3.2	648,530	68.4
Ukrainian	1,071,060	3.6	69,050	6.5

Source: 2001 Census Public Use Microdata Files. Calculations by author.

We are able to refine this picture by exploring when the immigrants in each of the ethnic groups included in the study arrived in Canada. The calculations in Table 3 show that a substantial proportion (more than 40%) of the Dutch, German, Italian and Ukrainian immigrants arrived before 1961. The Chinese and South Asian immigrants are relatively recent arrivals, with over 50% arriving since 1991.

The results in Table 4 show the percent change in the respective populations between 1996 and 2001 for each of the 9 ethnic groups under study. The population change in this table includes all components of growth and decline (natural, those due to migration and those due to ethnic transfer).

We can see that the total population increased for all ethnic groups except the Germans. We also see some interesting patterns with respect to changes in the composition of the ethnic responses over this period of time. There are dramatic increases in the proportion of people of Chinese, Greek, Portuguese and South Asian who declared multiple origins in which Canadian was a component. The data also show modest increases in multiple responses in which Canadian is not a component for the same ethnic groups. This suggests that some movement occurred, although it is not possible at this stage in the analysis to determine the factors that contribute to that transfer.



**Table 3. Proportion of Immigrants by Period of Immigration for Selected Ethnic Groups for Canada: Before 1961, 1961-1970, 1971-1980, 1981-1990 and 1991-2001**

<b>Year of Immigration</b>	<b>Chinese</b>	<b>Dutch</b>	<b>German</b>	<b>Greek</b>	<b>Italian</b>	<b>Polish</b>	<b>Portuguese</b>	<b>South Asian</b>	<b>Ukrainian</b>
<b>Before 1961</b>	2.2	57.1	45.2	24.6	42.6	21.3	6.8	0.4	41.2
<b>1961-1970</b>	4.9	14	18.2	39.7	36	9.2	26.9	5.2	6.9
<b>1971-1980</b>	16.0	11.6	12.6	21.9	11.4	8.3	34.7	19.7	6.1
<b>1981-1990</b>	24.5	7.9	11.1	7.5	4.8	36.1	20.5	22.1	10.1
<b>1991-2001</b>	52.4	9.4	12.9	6.4	5.2	25.1	11.1	52.6	35.8

Source: 2001 Census Public Use Microdata Files. Calculations by author.

**Table 4.**  
**Percent Change in Population between 1996 and 2001**  
**by Ethnic Group for Canada<sup>14</sup>**

<b>Ethnic Origin</b>	<b>Single Origin</b>	<b>Multiple without Canadian</b>	<b>Multiple with Canadian</b>	<b>Total</b>
<b>Chinese</b>	17.2	15.8	105.6	18.8
<b>Dutch</b>	0.7	-2.6	15.6	1.4
<b>German</b>	-5.9	-7.7	5.6	-5.0
<b>Greek</b>	0.7	17.3	60.3	7.6
<b>Italian</b>	0.7	3.9	35.3	5.1
<b>Polish</b>	-3.6	2.5	23.9	3.0
<b>Portuguese</b>	3.4	21.3	71.4	9.8
<b>South Asian</b>	38.7	7.5	106.4	34.6
<b>Ukrainian</b>	-0.1	5.4	17.8	5.2

Source: 1996 and 2001 Census Public Use Microdata Files. Calculations by author.

### **How Do the Nine Population Groups Compare over Time?**

Census data are cross-sectional by design. However, it is possible to perform pseudo-longitudinal analysis if we are able to define a population group whose definition remains relatively constant over time. As indicated in the introduction to this paper, birth cohort analysis will be conducted on the nine ethnic groups referred to above. The cohorts are designed to exclude the impact of births and to minimize the impact of deaths. Furthermore, the number of immigrants in the intercensal periods is removed from the population counts in each cohort. The net result should be population groups that are comparable over time.

The results in Table A-1 (see Appendix A) show the counts by type of response to ethnic origin (single, multiple without Canadian, multiple with Canadian and total response) for each of the nine ethnic groups for each time period covered in the analysis. The number of immigrants arriving in the intercensal period has been removed from the actual population counts in each cohort. Substantial variations can be seen for given birth cohorts over the three census cycles. For example the number of people in Cohort 1 declaring single Chinese origins declines from 90,400 in 1991 to 78,336 in 1996 to 64,651 in 2001. It is possible that some of the decline can be attributed to emigration from Canada. It is also possible that some of the variation may be due to the sample design for each of the three public use micro data files<sup>8</sup>. However, it will be assumed for the purpose of this analysis that neither of these factors account for

the entire variation in counts for the respective census cycles since we see substantial changes in the response patterns.

The variation in counts between 1996 and 2001 for each of the nine ethnic groups by cohort is shown in Table 5. The comparison is limited to that period in order to mitigate the impact of changes in the questions on ethnic origin (discussed earlier). The variation is expressed as the percent difference between the counts in 1996 and 2001 for each cohort.

Three general observations may be made. First, it is clear from these results that changes in population size occur for most cohorts for all ethnic groups in the study population. There are some minor exceptions, such as the very minor variation for those who report single Greek ethnic origins and total Greek ethnic origins. It is important to note that it is not possible to determine either the source or the destination for any of the ethnic transfers with birth cohort analysis. Nevertheless, it is clear from these results that cross-census comparisons of the size of respective ethnic groups are problematic.

The second point to note is that growth and decline (ethnic transfer) in the population of the birth cohorts can be attributed to the following three factors: exogamy, which can result in either gain or loss; ethnic mobility, which generally results in loss; and emigration, which always results in loss<sup>9</sup>. The third point to consider is that some common patterns of ethnic transfer are evident in these results. For example, the Dutch and German ethnic groups experience a loss for all modes of reporting. The Chinese, Italian and South Asian groups display marked increases in the proportion reporting multiple ethnicities including Canadian. The factors that influence particular reporting ethnic patterns will be examined in the multivariate analysis that is presented later in this paper.

While we know that the populations may not be comparable in terms of their respective counts, it still remains to be seen whether they are comparable with respect to some of their characteristics. We will now compare the ethnic group distributions by age, sex and mother tongue using the index of dissimilarity to determine the extent to which the populations differ by these characteristics. The index of dissimilarity varies from 0 (showing no significant differences) to 1 (indicating that the populations are totally different from one another). It appears that the nine ethnic groups are similar with respect to their age distributions (Figure 2), the male/female ratio (Figure 1) and the proportion who declared a mother tongue that is consistent with their ethnic origin (Figure 3).

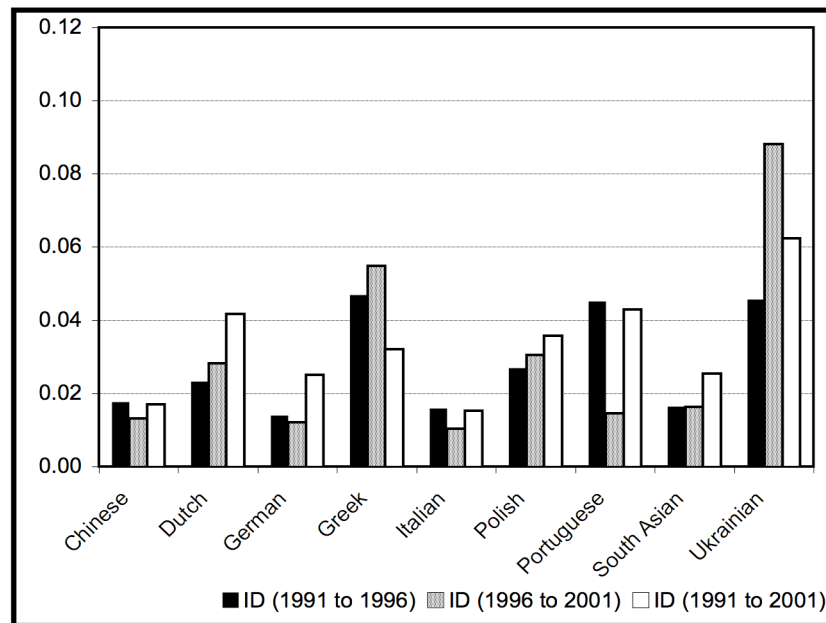
Having established that it is possible to conduct a birth cohort analysis of the ethnic groups by selected characteristics, I will now perform simple multivariate analyses of two additional characteristics that may contribute to ethnic transfer or retention – language and whether or not the people live in a Census Metropolitan Area (CMA).

**Table 5**  
**Percent Change in Population between 1996 and 2001 by Ethnic Group and by Cohort**

Cohort	Single	Multiple without Canadian	Multiple with Canadian	Total	Single	Multiple without Canadian	Multiple with Canadian	Total
<b>Chinese</b>					<b>Polish</b>			
1	-17.47	-9.03	-12.48	-16.11	-2.39	-4.92	18.02	-0.93
2	-8.63	-9.58	118.6	-6.9	-5.92	-9.25	17.96	-4.87
3	-7.31	-2.26	118.28	-5.6	-6.75	-6.13	9.22	-4.96
4	-5.77	-7	38.33	-5.31	-4.44	2.26	-6.83	-1.1
5	-7.93	4.49	122.22	-6.8	-6.4	-6.42	-18.17	-6.95
<b>Dutch</b>					<b>Portuguese</b>			
1	-1.8	-13.4	2.73	-6.88	3.68	-2.17	7.09	2.84
2	0.4	-15.03	-6.43	-6.99	-2.91	-3.67	58.89	-2.16
3	-1.97	-6.63	-5.13	-4.41	-2.47	10.93	10.47	-0.68
4	-9.81	-21.93	-4.49	-14.43	3.71	-1.51	2.47	3.05
5	-8.59	-19.17	-15.46	-12.7	3.24	-3.42	-17.78	2.48
<b>German</b>					<b>South Asian</b>			
1	-3.86	-16.82	-0.69	-11.28	2.23	-24.34	66.82	-1.96
2	-4.94	-11.75	-5.32	-8.81	2.09	-12.98	68.18	0.3
3	-5.87	-17.4	-9.55	-12.95	0.91	-15.08	72.92	-1.1
4	-6.33	-12.7	-7.84	-9.39	8.69	-11.45	105.09	5.96
5	-14.69	-22.39	-0.3	-16.24	-2.64	-9.83	105.56	-3.37
<b>Greek</b>					<b>Ukrainian</b>			
1	-10.22	22.01	62.01	-1.82	7.25	-2.47	14.2	1.93
2	-4.83	7.46	39.6	-0.36	1.9	-6.71	7.73	-2.25
3	3.19	13.01	2.56	4.85	1.45	-6.53	-5.56	-3.25
4	-1.57	31.67	-20.22	0.81	7.54	-4.37	8.46	3.28
5	-1.4	0.4	156.25	0.02	-7.94	-7.03	26.14	-6.55
<b>Italian</b>								
1	-3.33	-9.95	15.55	-3.26				
2	-0.8	-11.04	22.43	-1.39				
3	1.4	-6.45	28.13	1.4				
4	-5.51	-11.55	39.85	-4.7				
5	-5.51	-7.42	-0.88	-5.54				

Source: 1996 and 2001 Census Public Use Microdata Files. Calculations by author.

**Figure 1**  
**Index of Dissimilarity, Male/Female Ratio, Canada**



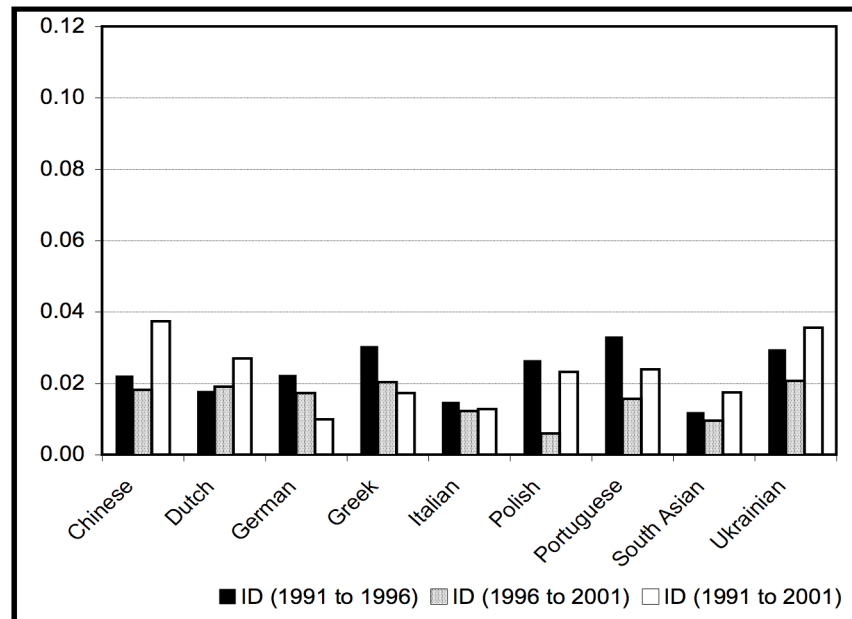
Source: 1991, 1996 and 2001 Census Public Use Microdata Files.  
Calculations by author.

The relationship between knowledge of a heritage language and the ethnic origin with which the language is usually associated was established in previous studies on the topic (DeVries 1990). The census includes two language variables that are of interest in this analysis – the declared mother tongue and the language spoken most often in the home. Two points must be noted with respect to the analysis of census language variables. First, of the nine ethnic groups included in this study, the language spoken most often in the home was coded separately only for Chinese, German, Italian, Polish, Portuguese and South Asian in the public use micro data file. Second, it is likely that a correlation exists between mother tongue and home language. If that is the case, only one or the other variable may be used in the multivariate models that are estimated in the following section<sup>10</sup>.

Numerous references have been made above to the importance of ties to the respective ethnic communities as a contributing factor to ethnic retention (or transfer). The organisation of ethnic groups is often seen as a contributing factor to maintaining ties to traditional heritage (Olson and Kobayashi 1993). While

census data do not include information on the institutions and organisation of ethnic groups, they provide two measures that may be used as proxies for institutional completeness as defined by Raymond Breton (Breton 1964). It is more likely that someone living in an urban area (defined as a Census Metropolitan Area in this study) has the potential to enter into contact with institutions that are linked to his or her ethnic community. It is also more likely

**Figure 2**  
**Index of Dissimilarity, Age Distributions, Canada**



Source: 1991, 1996 and 2001 Census Public Use Microdata Files.  
Calculations by author.

that such institutions will exist if the concentration of people of a given ethnic origin is sufficiently high to sustain them. The first of these two indicators, whether or not the individual lives in a Census Metropolitan Area (CMA), is used in the analysis presented in this paper. The second indicator will be incorporated in subsequent work on this topic.

The results in Table 6 are presented in descending order of the proportion of a given ethnic group living in a CMA based on the total count. It is clear that

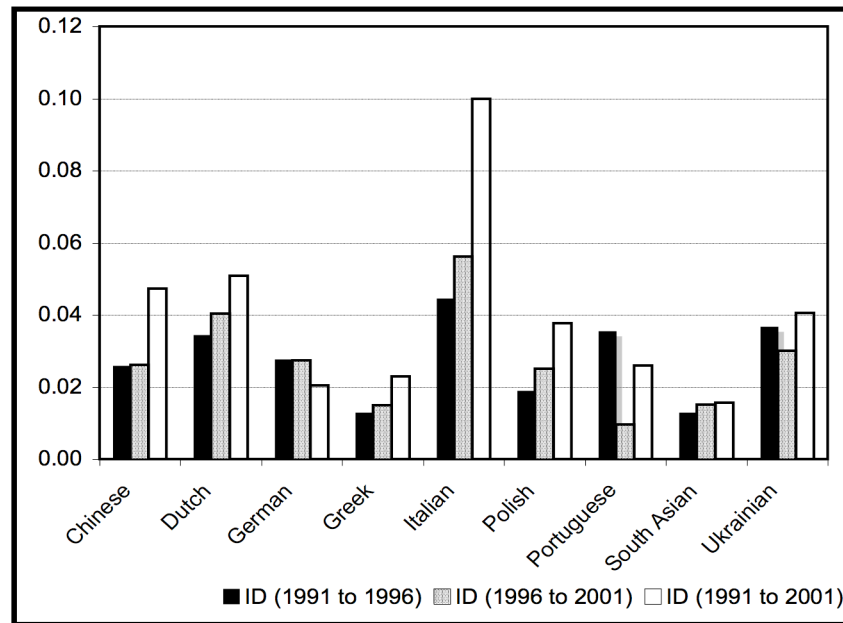
**Table 6. Proportion of Population Living in a CMA for Canada: 2001 Census**

<b>Ethnic Origin</b>	<b>Single origin</b>		<b>Multiple without Canadian</b>		<b>Multiple with Canadian</b>		<b>Total</b>	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Chinese</b>	914,892	97.2	105,248	91.1	34,149	90.6	1,054,289	96.3
<b>Greek</b>	135,705	94.3	44,781	86.7	13,973	81.3	194,460	91.4
<b>Portuguese</b>	231,258	91.4	66,219	85.9	19,278	82.7	316,756	89.6
<b>Italian</b>	660,586	90.9	271,891	75.7	122,657	76.9	1,055,134	84.7
<b>Polish</b>	206,423	82	286,798	66.4	77,297	67.3	570,519	71.4
<b>Ukrainian</b>	215,217	65.6	376,556	64.1	99,375	64.6	691,148	64.6
<b>German</b>	342,085	50.2	828,177	57.2	268,117	54.9	1,438,379	55
<b>Dutch</b>	152,918	50.3	224,278	55.4	81,915	53.6	459,111	53.3

Source: 2001 Census Public Use Microdata Files. Calculations by author

the vast majority of individuals of Chinese, Greek, Portuguese and Italian origins live in CMAs. We also see that a substantial proportion of those of Polish origin live in CMAs. There appears to be a relationship between living in a CMA and the nature of the ethnic origin declared by the individuals belonging to these groups. The proportion declines as the nature of the ethnic origin moves from single to multiple without Canadian as a component to multiple with Canadian as a component. This pattern supports the notion that ethnic institutions are more likely to be found in CMAs and that they contribute to a sense of ethnic identity.

**Figure 3**  
**Index of Dissimilarity, Mother Tongue, Canada**



Source: 1991, 1996 and 2001 Census Public Use Microdata Files.  
Calculations by author.

### Multivariate analysis

We have seen evidence of ethnic transfer. We have also seen that characteristics such as the language spoken in the home and the mother tongue, whether or not the individual is an immigrant and where he or she lives can potentially have



some bearing on the way in which he or she declares their ethnic origin. It now remains to conduct multivariate analyses to determine how these factors combine to explain the type of ethnic responses that are given – from which we will be able to infer the factors that contribute to ethnic retention or loss.

The nature of the analysis shifts from the quasi-longitudinal approach that examined birth cohorts over three census cycles to a cross-sectional approach that focuses entirely on the 2001 Census. The multivariate results<sup>11</sup> described earlier in this paper are presented in two tables: Table A3 for the model in which mother tongue is included and Table A4 for the models that include home language (see Appendix A). The models were estimated separately with mother tongue and home language because of the strong correlation between these two language concepts (as discussed earlier in this paper).

Multinomial logistic regression models calculate coefficients that are presented as relative risk ratios (RRR) in tables A3 and A4. The dependent variable in all models is the type of ethnic response, which can assume three possible values: single response, a multiple response without Canadian as a component and a multiple response with Canadian as a component. The reference category for the dependent variable is a single response for ethnic origin. Each table consists of two panels – one for each of the comparison categories of the dependent variable. The upper panel presents the relative risk ratios when comparing the outcomes for those who provided multiple responses that did not include Canadian as a component to those who declared a single origin, for the given ethnic group. The lower panel presents equivalent statistics for those who provided multiple responses that included Canadian as a component. The reference categories for each of the independent variables are shown in parentheses following the variable name.

A few general observations will be made before discussing the detailed results of the models. As discussed earlier in this paper, the language spoken most often in the home was not coded separately for all ethnic groups in the public use microdata file. Therefore, the results in Table A-4 only include six of the nine ethnic groups that form the target population for this analysis. Also, it appears that mother tongue has a stronger influence on the type of ethnic response declared by the respondents since the variance explained for all models that include this variable is higher than for those in which the language spoken in the home is included. Hence, most of the discussion that follows will focus on the outcomes that include mother tongue. Finally, the sex of the individual does not appear to have a significant impact on the outcome. Consequently it will not be included in the detailed discussion that follows.

As expected all of the coefficients for immigrant status in the lower panel of Table A-3 are significant and below 0.4 indicating that immigrants are far less likely than non-immigrants to report multiple ethnic origins that include Canadian (when compared to single ethnic origin). However, the results for those who report multiple origins that do not include Canadian are not as

predictable. For instance, Italian and Portuguese immigrants are more likely than non-immigrants to report multiple origins that do not include Canadian whereas Dutch, Polish, South Asian and Ukrainian immigrants are less likely than non-immigrants to report such origins. This outcome may be due to unmeasured factors such as intermarriage and when the immigrants arrived in Canada. Henripin (2003, 252) suggests that intermarriage is more likely among ethnic groups that have a longer history in Canada. It is not possible with the current data to examine the effect of intermarriage<sup>12</sup>. However, we have seen the distribution of these population groups by period of immigration earlier in this paper (see Table 4). Almost  $\frac{3}{4}$  of the immigrants of Italian origin arrived before 1970. They may have arrived at a relatively young age and through contact with other groups (possibly including intermarriage) they may have adopted multiple origins. Similar arguments may be made for the immigrants of Portuguese origins. The coefficients for the other groups (those that are statistically significant) are consistent with expected patterns of response.

No clear pattern emerges for the effect of age (as measured by the birth cohorts) on the outcomes. If we accept the basic premise of social incorporation we would expect that the older members of an ethnic group (specifically the non-immigrants) would be at greater risk of exposure to a culture other than their own. Hence they should be more likely to adopt some elements of this culture (Canadian culture in the context of this study) and it would be expected that the likelihood of any type of multiple response would increase. The results do not support this hypothesis. In fact, we see that the older cohorts are less inclined than the youngest cohort (those aged 25 to 34) to report multiple origins as opposed to a single origin. Other factors, such as the social networks and social cohesion may be stronger influences on ethnic retention or transfer.

For most ethnic groups included in this study, other than the Dutch and the Germans, living outside a CMA increases the likelihood of declaring multiple origins. These outcomes certainly support the notion that living in a major metropolitan area increases the chances for social contact with others members of the ethnic community and that formal and informal networks may promote ethnic retention.

The impact of language on ethnic retention strongly supports the hypothesis that those who declare a mother tongue that is the heritage language that corresponds to their ethnic origin are much more likely to retain their ethnic origins. In all cases, the coefficients in Table A-3 show that when the individual declares a heritage mother tongue he or she is far less likely to declare multiple origins. This may be due to factors such as continued social interaction and contact with co-ethnics and with strong family ties within their ethnic communities.

## **Concluding Remarks**

Two series of research questions motivated this analysis. The first, which is essentially methodological, focussed on whether or not it is possible to conduct longitudinal analyses of population groups using census data. The second set of questions focussed on the concept of ethnic mobility and the factors that may contribute to this demographic flow.

It has been demonstrated that one should not conduct longitudinal analyses of the growth and decline of subgroups of the population defined by ethnic origin, regardless of which definition one uses for ethnic origin. The counts of ethnic groups by either single or multiple origins vary significantly from one census to the next, rendering such comparisons problematic. However, it is possible to conduct birth cohort analyses of selected characteristics of population groups defined by ethnic origin. We have seen that population distributions by birth cohort, by male-female ratio and by mother tongue are very similar for the three time points covered in this study.

Having shown that the size of the ethnic groups changed over time, after controlling for the conventional demographic flows, it is possible to conclude that some form of transfer occurs. Stated otherwise, ethnic mobility should be considered along with the standard demographic flows when comparing the size of ethnic groups over time. Factors such as immigrant status, the length of time over which there has been contact with other groups in the host society, the possibility of social networks and structures and the language characteristics of the individuals have an influence on this form of mobility. Please note that this list of characteristics is not exhaustive. Other factors such as intermarriage (exogamy) and the context in which the measurement is made (i.e. socio-political conditions and debates at the time of the census) are likely to have some bearing on the way in which people perceive the importance of ethnic origin (Henripin 2003; Lieberman 1992).

Canadian society is multicultural no matter what criteria are used to assess this fact. We see an increasing complexity in the ethnic composition of our society. Multiculturalism is enshrined in the Charter of Rights and Freedoms. It is part of the public debate<sup>13</sup>. As a society we need to understand the dynamic nature of the how people relate to and identify with ethnic groups. We also need to understand the factors that contribute to the shifting of identities and the impact that they may have on how multiculturalism is perceived and achieved. The analysis presented in this paper is a small first step in achieving these goals.

### **Disclaimer**

While the research and analysis presented in this paper are based on data from Statistics Canada, the opinions expressed are those of the author and they do not represent the views of the University of Ottawa or Statistics Canada.

### **End Notes**

1. Although the census question on ethnic origin refers to the ethnic or cultural groups to which the respondent's ancestors belong, shifts in response patterns over time suggest that some element of identity also influences how people report their origins.
2. The next stage of this project incorporates additional factors that may have an impact on ethnic retention or transfer into the analysis. It is planned to expand the analysis to include data from the Ethnic Diversity Survey so that factors such as social networks may be included. It is also planned to add characteristics such as human capital and exogamy into the analysis.
3. While the structure of the birth cohorts used in this analysis minimises the impact of deaths, it is acknowledged by the author that the impact of mortality is not entirely eliminated from the population since the mortality rates are 0.5 deaths per 1,000 for the youngest cohort and 24.71 deaths per thousand for the oldest cohort in 2001.
4. Please see the documentation for the 2001 Public Use Micro Data File (Statistics Canada – 2001 PUMF, Individuals File / 95M0016XCB – User Documentation) for more detailed information on the sample design.
5. It is not possible to link individuals over time using census data. Therefore, other methods need to be employed in order to perform quasi-longitudinal analyses. Birth cohort analysis is applied in this study.
6. Mother tongue is defined as the language first learned in childhood and still understood by the respondent.
7. Census metropolitan areas are urban centres in which the core has a population of at least 100,000 (Statistics Canada, 2008).
8. The impact of the sample design for the public use micro data files can be mitigated by conducting the analysis on the full census analytical files – which will be done during the next phase of this project.

9. There is no way to assess the impact of emigration with Census data.
10. The strength of the association between the two language variables is expressed through the Pearson correlations presented in table A2. The correlations are consistent over time in both their magnitude and direction. They are also all significant and relatively strong, confirming the suspicion raised earlier about the wisdom of not including both in the same multivariate model. We also see that age appears to have an impact on the association between the two language concepts. There is a general increase in the correlation from the youngest to the oldest cohorts for people of Chinese, Italian, Portuguese and South Asian origins. This may be due to a number of factors such as immigrant status and the age at which the individual migrated to Canada, the exposure that the individual has to Canadian labour market and the degree to which the individual may function in his or her mother tongue within the ethnic community (and family). The opposite pattern exists for those of German and Polish origins. The association between the mother tongue and home language is stronger for the younger cohorts. It is very difficult to develop a reasonable explanation for this outcome. Certainly, it is possible that the younger cohorts have stronger and more direct ties to family either within or outside of Canada, thereby providing them with the opportunity (and necessity) to use the language. It is also possible that the older cohorts are in exogamous relationships, thereby reducing the opportunity to use their respective languages in the home. The limitations in the public use files for the censuses make it possible to explore only some of these factors.
11. No hierarchy is assumed in the different categories of ethnic response. Therefore, a multinomial logistic model (as opposed to an ordered probit model) will be constructed given that the dependent variable has three possible non-ordinal response categories.
12. The next stage of this project will focus on the full analytical files for the respective censuses. It will be possible at that time to study the effect of intermarriage on a number of different aspects of this analysis.
13. The Bouchard-Taylor Commission was struck in Quebec to analyse issues related to tolerance towards and accommodation of ethnic minorities in the Province. They will be tabling their report within weeks of the date on which this paper will be presented.
14. The format and content of the question on ethnic origin in the 1991 Census was substantially different from that used in both 1996 and 2001. Therefore, the comparisons in this section of the paper are limited to the time period from 1996 to 2001. Furthermore, the calculations presented in this table are based on the respective public use micro data files.

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## APPENDIX TABLES

Table A1. Population Counts by Cohort and by Type of Ethnic Origin for Canada: 1991, 1996 and 2001

Origins by Cohort	1991				1996				2001			
	Single	Multiple without Canadian	Multiple with Canadian	Total	Single	Multiple without Canadian	Multiple with Canadian	Total	Single	Multiple without Canadian	Multiple with Canadian	Total
<b>Chinese origins</b>												
Cohort 1	90,400	11,600	700	102,700	78,336	13,752	2,628	94,716	64,651	12,510	2,300	79,461
Cohort 2	116,167	9,500	900	126,567	100,800	12,708	1,656	115,164	92,104	11,490	3,620	107,214
Cohort 3	108,400	6,933	533	115,867	100,188	10,080	1,116	111,384	92,864	9,852	2,436	105,152
Cohort 4	51,267	3,767	367	55,400	49,608	5,040	720	55,368	46,745	4,687	996	52,428
Cohort 5	43,867	2,100	300	46,267	43,164	1,872	216	45,252	39,741	1,956	480	42,177
<b>Dutch origins</b>												
Cohort 1	44,167	93,600	3,300	141,067	36,972	59,256	20,664	116,892	36,308	51,318	21,229	108,855
Cohort 2	68,633	83,867	3,133	155,633	62,640	58,896	19,908	141,444	62,888	50,042	18,627	131,557
Cohort 3	53,633	62,100	2,000	117,733	46,584	47,052	12,816	106,452	45,664	43,934	12,159	101,758
Cohort 4	39,733	32,167	1,200	73,100	35,928	29,628	5,616	71,172	32,404	23,131	5,364	60,899
Cohort 5	42,933	22,667	967	66,567	35,460	20,628	4,464	60,552	32,414	16,673	3,774	52,861
<b>German origins</b>												
Cohort 1	99,167	324,866	7,433	431,466	76,428	235,656	69,804	381,888	73,481	196,019	69,320	338,821
Cohort 2	166,367	329,700	7,233	503,299	123,156	258,552	81,180	462,888	117,068	228,168	76,859	422,096
Cohort 3	133,333	245,133	5,100	383,566	104,148	210,600	58,788	373,536	98,033	173,934	53,171	325,159
Cohort 4	130,767	126,400	3,400	260,566	104,904	109,908	27,432	242,244	98,268	95,948	23,280	219,497
Cohort 5	131,467	78,300	1,767	211,533	114,264	67,464	14,940	196,668	97,476	52,361	14,895	164,732
<b>Greek origins</b>												
Cohort 1	29,767	8,300	467	38,533	28,512	6,192	1,440	36,144	25,598	7,555	2,333	35,486
Cohort 2	23,200	6,200	200	29,600	22,032	5,400	1,404	28,836	20,968	5,803	1,960	28,731
Cohort 3	21,933	4,233	100	26,267	17,856	3,888	936	22,680	18,426	4,394	960	23,780
Cohort 4	24,167	1,700	133	26,000	22,284	2,160	648	25,092	21,935	2,844	517	25,296
Cohort 5	19,667	1,467	133	21,267	16,380	1,764	144	18,288	16,151	1,771	369	18,291
<b>Italian origins</b>												
Cohort 1	112,600	67,000	2,033	181,633	113,004	52,344	19,080	184,428	109,238	47,135	22,046	178,419
Cohort 2	139,267	62,433	2,800	204,500	133,380	49,428	16,740	199,548	132,314	43,973	20,495	196,782
Cohort 3	110,033	40,733	1,467	152,233	101,016	31,140	9,108	141,264	102,432	29,132	11,670	143,235
Cohort 4	96,933	16,100	967	114,000	95,508	15,156	4,068	114,732	90,250	13,405	5,689	109,344
Cohort 5	102,533	8,167	733	111,433	94,428	6,660	2,160	103,248	89,222	6,166	2,141	97,529



Table A1. (Continued)

Origins by Cohort	1991				1996				2001			
	Single	Multiple without Canadian	Multiple with Canadian	Total	Single	Multiple without Canadian	Multiple with Canadian	Total	Single	Multiple without Canadian	Multiple with Canadian	Total
<b>Polish origins</b>												
Cohort 1	23,533	77,533	1,833	102,900	18,540	61,308	14,364	94,212	18,097	58,291	16,952	93,340
Cohort 2	47,533	81,667	2,533	131,733	38,052	72,108	15,552	125,712	35,801	65,441	18,345	119,587
Cohort 3	53,433	65,167	1,800	120,400	47,700	61,524	11,124	120,348	44,479	57,750	12,150	114,379
Cohort 4	25,267	27,633	900	53,800	22,284	29,376	4,248	55,908	21,294	30,040	3,958	55,292
Cohort 5	29,233	16,200	400	45,833	26,172	17,532	2,124	45,828	24,498	16,407	1,738	42,643
<b>Portuguese origins</b>												
Cohort 1	44,233	6,233	67	50,533	39,672	8,028	1,692	49,392	41,131	7,854	1,812	50,797
Cohort 2	43,433	5,933	200	49,567	45,144	6,984	720	52,848	43,832	6,728	1,144	51,705
Cohort 3	37,333	3,667	133	41,133	34,560	4,860	468	39,888	33,707	5,391	517	39,615
Cohort 4	30,367	2,000	100	32,467	25,200	3,636	324	29,160	26,134	3,581	332	30,048
Cohort 5	23,033	1,100		24,133	19,440	1,872	180	21,492	20,069	1,808	148	22,024
<b>South Asian origins</b>												
Cohort 1	65,367	11,100	367	76,833	59,724	15,264	1,332	76,320	61,053	11,549	2,222	74,824
Cohort 2	83,433	11,500	167	95,100	73,368	13,968	792	88,128	74,902	12,155	1,332	88,390
Cohort 3	70,900	8,033	167	79,100	64,980	12,384	576	77,940	65,571	10,517	996	77,084
Cohort 4	45,733	4,600	67	50,400	41,112	7,668	216	48,996	44,684	6,790	443	51,917
Cohort 5	28,700	2,833		31,533	23,652	3,888	72	27,612	23,028	3,506	148	26,682
<b>Ukrainian origins</b>												
Cohort 1	36,600	116,200	2,567	155,367	25,992	91,476	21,564	139,032	27,876	89,216	24,627	141,719
Cohort 2	63,600	120,933	2,767	187,300	48,744	97,632	23,364	169,740	49,672	91,079	25,169	165,921
Cohort 3	62,800	78,800	2,300	143,900	54,936	68,040	15,084	138,060	55,731	63,596	14,246	133,574
Cohort 4	53,433	30,033	1,233	84,700	44,712	28,656	5,580	78,948	48,082	27,403	6,052	81,536
Cohort 5	60,767	14,933	867	76,567	50,868	14,436	2,376	67,680	46,828	13,421	2,997	63,245

Source: 1991, 1996 and 2001 Census Public Use Microdata Files. Calculations by author.

Table A2. Pearson Correlations between Mother Tongue and Home Language by Ethnic Origin for Canada: 1991, 1996 and 2001

1991	Chinese	German	Italian	Polish	Portuguese	South Asian
<b>Cohort 1</b>	0.8155	0.6247	0.5938	0.7636	0.6921	0.7985
<b>Cohort 2</b>	0.8555	0.4252	0.4453	0.822	0.6873	0.8374
<b>Cohort 3</b>	0.8791	0.4019	0.5745	0.7276	0.803	0.8318
<b>Cohort 4</b>	0.8896	0.4059	0.7729	0.6624	0.8863	0.8104
<b>Cohort 5</b>	0.946	0.4403	0.8494	0.6314	0.9011	0.8818
<b>1996</b>	<b>Chinese</b>	<b>German</b>	<b>Italian</b>	<b>Polish</b>	<b>Portuguese</b>	<b>South Asian</b>
<b>Cohort 1</b>	0.76	0.5863	0.4184	0.6717	0.5481	0.7228
<b>Cohort 2</b>	0.8137	0.4197	0.3369	0.7549	0.5815	0.7582
<b>Cohort 3</b>	0.8538	0.3655	0.4902	0.6882	0.776	0.7515
<b>Cohort 4</b>	0.8814	0.3623	0.746	0.6301	0.8618	0.7581
<b>Cohort 5</b>	0.9389	0.3786	0.8355	0.5861	0.8851	0.8543
<b>2001</b>	<b>Chinese</b>	<b>German</b>	<b>Italian</b>	<b>Polish</b>	<b>Portuguese</b>	<b>South Asian</b>
<b>Cohort 1</b>	0.7315	0.5619	0.3746	0.64	0.5023	0.7358
<b>Cohort 2</b>	0.8016	0.4073	0.3093	0.7289	0.5752	0.8049
<b>Cohort 3</b>	0.847	0.3616	0.5383	0.7064	0.7738	0.778
<b>Cohort 4</b>	0.8899	0.3833	0.7774	0.6569	0.8836	0.8138
<b>Cohort 5</b>	0.9329	0.4084	0.8456	0.6095	0.9237	0.869

Source: 1991, 1996 and 2001 Census Public Use Microdata Files. Calculations by author.

**Table A3. Multinomial Logistic Regression Results, Full Specification with Mother Tongue, 2001 Census: Canada**

With Mother tongue	Chinese	Dutch	German	Greek	Italian	Polish	Portuguese	South Asian	Ukrainian
<b>Multiple w/o Canadian</b>									
<b>Immigrant status</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>
(non-immigrant)	1.056	0.781 ***	1.04	0.961	1.194 ***	0.579 ***	1.371 ***	0.696 ***	0.562 ***
<b>Sex (Female)</b>	0.995	0.798 ***	0.855 ***	1.02	0.919 ***	0.957 ***	0.902 *	0.977	0.878 ***
<b>Birth Cohort (25 to 34)</b>									
35 to 44	0.889	0.375 ***	0.553 ***	0.772 **	0.554 ***	0.689 ***	0.61 ***	1.219 ***	0.471 ***
45 to 54	1.126	0.819 ***	0.591 ***	0.946 ***	0.683 ***	0.727 ***	0.868 ***	1.251 ***	0.358 ***
55 to 64	0.908	1.047 ***	0.426 ***	0.743 *	0.576 ***	0.537 ***	0.743 **	1.205 **	0.225 ***
65 to 74	0.61 ***	0.848 **	0.308 ***	0.677 *	0.286 ***	0.267 ***	0.475 ***	1.265 **	0.164 ***
<b>Mother tongue</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>
(not heritage)	0.037 ***	0.044 ***	0.058 ***	0.028 ***	0.019 ***	0.024 ***	0.033 ***	0.277 ***	0.071 ***
<b>CMA (CMA)</b>	1.852 ***	0.759 ***	0.755 ***	1.624 ***	2.42 ***	1.199 ***	1.381 ***	1.246 ***	1.027 ***
<b>Multiple with Canadian</b>									
<b>Immigrant status</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>
(non-immigrant)	0.386 ***	0.156 ***	0.186 ***	0.301 ***	0.262 ***	0.279 ***	0.181 ***	0.221 ***	0.195 ***
<b>Sex (Female)</b>	1.022	0.834 ***	0.836 ***	0.856	0.894 ***	0.952	0.936	1.046	0.871 ***
<b>Birth Cohort (25 to 34)</b>									
35 to 44	1.002	0.337 ***	0.525 ***	0.761	0.59 ***	0.657 ***	0.511 ***	0.889	0.476 ***
45 to 54	0.943	0.61 ***	0.542 ***	0.837 ***	0.728 ***	0.531 ***	0.654 ***	0.904	0.296 ***
55 to 64	0.717	0.694 ***	0.345 ***	0.565 *	0.698 ***	0.251 ***	0.585 ***	0.601 *	0.183 ***
65 to 74	0.448 ***	0.551 ***	0.28 ***	0.581	0.272 ***	0.099 ***	0.362 *	0.395 *	0.134 ***
<b>Mother tongue</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>
(not heritage)	0.264 ***	0.055 ***	0.06 ***	0.062 ***	0.07 ***	0.091 ***	0.087 ***	0.414 ***	0.088 ***
<b>CMA (CMA)</b>	2.227 ***	0.8 ***	0.808 ***	2.45 ***	2.239 ***	1.192 ***	1.503 ***	2.404 ***	0.983 ***
<b>Pseudo r-square</b>	0.235	0.136	0.134	0.299	0.249	0.263	0.288	0.069	0.138

Source: 2001 Census Public Use Microdata Files. Calculations by author.  
 Notes: (1) Reference group for multivariate models denoted in parentheses  
 (2) \*\*\* p<0.01; \*\* p<0.05; \* p<0.1

Table A4. Multinomial Logistic rRegression, Full Model with Home Language, 2001 Census: Canada

With home language	Chinese	German	Italian	Polish	Portuguese	South Asian
<b>Multiple w/o Canadian Immigrant status (non-immigrant)</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>	<b>RRR</b>
Sex (Female)	0.835 0.998	0.331 0.871	0.433 0.916	0.174 0.994	0.573 0.93	0.674 0.971
<b>Birth Cohort (25 to 34)</b>						
35 to 44	0.731	0.509	0.365	0.714	0.419	1.148
45 to 54	0.837	0.53	0.499	0.702	0.732	1.148
55 to 64	0.886	0.333	0.46	0.602	0.971	1.129
65 to 74	0.579	0.203	0.237	0.261	0.722	1.237
<b>Home language (not heritage)</b>						
CMA (CMA)	0.073	0.053	0.044	0.046	0.095	0.339
	2.045	0.766	2.838	1.26	1.348	1.158
<b>Multiple with Canadian Immigrant status (non-immigrant)</b>						
Sex (Female)	0.324 1.026	0.06 0.851	0.104 0.902	0.108 0.983	0.09 0.979	0.207 1.04
<b>Birth Cohort (25 to 34)</b>						
35 to 44	0.935	0.481	0.404	0.691	0.375	0.871
45 to 54	0.87	0.484	0.611	0.523	0.634	0.872
55 to 64	0.72	0.277	0.643	0.28	0.768	0.587
65 to 74	0.44	0.189	0.242	0.098	0.518	0.385
<b>Home language (not heritage)</b>						
CMA (CMA)	0.479	0.062	0.216	0.249	0.186	0.615
Pseudo r-square	2.431	0.819	2.629	1.269	1.59	2.238
	0.162	0.089	0.157	0.201	0.167	0.053

Source: 2001 Census Public Use Microdata Files. Calculations by author.

Notes: (1) Reference group for multivariate models denoted in parentheses

(2) \*\*\* p&lt;0.01; \*\* p&lt;0.05; \* p&lt;0.1