

Characterization of Primary, Return, and Onward Interprovincial Migration in Canada: Overall and Age-Specific Patterns

K. Bruce Newbold and Kao-Lee Liaw
Department of Geography
McMaster University
Hamilton, Ontario L8S 4K1

The increasing availability of microdata (the unit of observation being either a person or a household) over the last two decades is a promising development for obtaining better insight into the migration process. Such data typically contain information on personal attributes and are relatively flexible for defining theoretically more meaningful migration variables. Two types of such data are now used widely: longitudinal (for example, the well-known Income Dynamics Panel of the University of Michigan) and cross-sectional (for example, a sample taken from a population census). Longitudinal data are usually considered better than cross-sectional data because, with their temporal depth at the individual level, they are particularly helpful for studying the effects of previous migration and employment experiences on current migration propensity, as demonstrated by the research results in the United States since the early 1970s (for example, Morrison 1971; DaVanzo 1976b, 1978; Morrison and DaVanzo 1986) and in Canada since the mid-1970s (for example, Grant and Vanderkamp 1976, 1984). The usefulness of longitudinal data files, however, is often limited by their relatively small sample size and a sampling frame not representative of the individuals composing the whole system. A consequence of the small sample size is that the research results based on longitudinal data have so far revealed little about the spatial patterns of the migration process.

The authors would like to acknowledge the financial support received for this study in the form of an Ontario Graduate Scholarship from the Ontario Ministry of Colleges and Universities and a research grant from the Social Sciences and Humanities Research Council of Canada (Award No. 410-87-0704).

Although lacking temporal depth, the Public Use Sample (PUS) of the 1981 Canadian Census is much larger than typical longitudinal data files and is basically an unbiased representation of all segments of the Canadian population. It is one of the best cross-sectional microdata files for studying how personal factors affect the spatial patterns of interprovincial migration. Containing more than 400,000 individuals, the Public Use Sample allows one to evaluate how a given personal factor affects the spatial patterns of migration in the context of other important personal factors and ecological variables (Liaw and Ledent 1988; Liaw 1990). The usefulness of the sample, however, is limited by the fact that the information on most (but fortunately not all) personal attributes is known only at the end of the 1976-1981 observed period for migration.

Based on the application of the nested logit model to the 1981 Public Use Sample, Liaw and Ledent (1988) and Liaw (1990) showed that in the context of the other important personal factors (education and mother tongue) and a set of ecological variables, nativity (a personal factor reflecting where an individual lives—in comparison with his or her birth place—at the start of the observation period) had significant effects on the interprovincial migration patterns of both young adults and the elderly in Canada during the 1976-1981 period. Specifically, non-natives (those whose province of residence in 1976 was different from their province of birth) are much more migratory and more likely to migrate in the “wrong” directions than natives and foreign-borns. Among young adults, non-native migrants are less sensitive to the attractions of destination income and employment opportunities than native and foreign-born migrants. Similarly, among the elderly, non-native migrants are less sensitive to the attractions of housing opportunities at the potential destinations than the other two types of migrants.

A sharper contrast can be achieved by dividing non-native migrants into two behaviourally distinct groups: return migrants (those who migrate back to the province of birth) and onward migrants (those who migrate further to a province that is not the province of birth). Onward migrants include a high proportion of those searching for greener pastures and resemble primary migrants (that is, native migrants) in their response to the attractions of potential destinations. Return migrants, in contrast, include a high proportion of those moving in the “wrong” directions. The plausibility of this speculation is suggested strongly by the sharp contrasts between these three types of migrants revealed by Long and Hansen (1977), Long (1988: 100-136), and Rogers and Bélanger (1990), using data from several U.S. censuses.

The propensities for undertaking either of these three types of migration may vary systematically with other personal attributes

such as age and education. With respect to age, Long (1988) showed that young children (and by implication their middle-aged parents) are more likely to undertake return interstate migration. Moreover, contrary to the conventional wisdom, the age pattern of the propensity for return interstate migration does not display a “retirement peak”, whereas the propensities for primary and onward migration clearly do. With respect to education, Long showed further that the propensities for primary and onward interstate migration increase with education, whereas that for return migration does not.

Using the Public Use Sample of the 1981 Canadian Census, we will reveal in this paper some general properties of the primary, return, and onward migration flows among the provinces in Canada—not only for the total population but also for separate age groups. Because we adopted the measures of migration used by Long (1988) and Rogers and Bélanger (1990), our results are easily comparable with the American ones. Our main finding is that, for the three types of migration, interprovincial migration in Canada and interstate and interdivisional migration in the United States share the same set of properties. Our work is motivated by the belief that the separation of the three types of migration is an important step toward reconciling theory and reality.

Data and Method

The distinction among the three types of migration is based on information on province of birth and provinces of residence in 1976 and 1981 provided by the Public Use Sample. To avoid revealing confidential information through the sample, Statistics Canada retained the geographical coding at the provincial level and combined Prince Edward Island (the smallest of the 10 provinces) and the northern territories to make one fictitious geographical unit for the 1976 place of residence. Since the fictitious unit does not make much sense geographically, we deleted all individuals whose places of birth or residence were located in it. We also deleted all individuals (mostly immigrants) whose places of birth or residence in 1976 were located outside Canada. The remaining sample then consists of 363,297 persons.

An individual is defined as an interprovincial migrant if the province of residence in 1981 differed from that in 1976. It is well known, however, that this definition results in the undercounting of both migrants and migrations. Since the propensity to migrate again declines with the duration of stay (Morrison 1971), the undercounting problem tends to be more serious among return and onward migrants.

To measure the propensities for leaving and entering a province, we define out- and immigration rates by dividing the numbers of out- and immigrants of each province by the corresponding at-risk populations (Long 1988: 116).¹ The at-risk population for computing the three types of outmigration rate from province X is:

- for primary outmigration, the number of people born in province X and residing in province X in 1976
- for return and onward outmigration, the number of people residing in province X in 1976 and born in one of the remaining eight provinces.

The at-risk population for each of the corresponding types of immigration rate is:

- for primary immigration, all people born in the remaining eight provinces and residing in their province of birth in 1976
- for return immigration, the number of people born in province X and residing in the remaining eight provinces in 1976
- for onward immigration, the number of people born in the remaining eight provinces and residing in neither province X nor their province of birth in 1976.

Note that the immigration rates of province X are really the destination-specific outmigration rates of the rest of the system, with the destination being province X.

Although the immigration rates defined here do not lead easily to the computation of net migration rates for evaluating the net effects of migration on population redistribution, they are the proper measures of the propensity to immigrate, whereas the conventional immigration rate obtained by dividing the number of immigrants by the destination population size is not. According to DaVanzo (1976a), the latter should be more properly termed "the population growth rate due to immigration". An important advantage of the immigration rates defined here is that they allow the researcher to reveal whether a large return immigration flow into an economically depressed region (for example, West Virginia) stems from the high propensity of the previous outmigrants from the region to return (suggesting the inability to adjust to the new milieu of the destination) or simply from the large stock of them residing in the rest of the system (Long 1988: 121).

To assess the effects of the three types of migration on population redistribution, we also follow Long's approach by computing the net flows (that is, the inflow minus the outflow) for each type of migration.

1. Since both the stayers and migrants in the data are survivors at the end of the migration period, the rates computed from the data are, strictly speaking, conditional on survival.

Interprovincial Primary, Return, and Onward Migration Rates: Overall Patterns

Of the at-risk population in 1976, 85.5 percent were natives and 14.5 percent were non-natives. Although the non-natives represented a small proportion of the at-risk population, they contributed 44 percent of the total number of migrants. For the whole system, the overall outmigration rate was 5.1 percent, which was a weighted average of (1) a low primary outmigration rate of only 3.4 percent, (2) a high return outmigration rate of 8.3 percent, and (3) a high onward outmigration rate of 7.2 percent. Thus, with the outmigration rate of 15.5 percent (8.3 + 7.2), non-natives were more than four times as migratory as the natives. For a non-native migrant, the probability of making a return migration was somewhat greater than that of making an onward one.

According to the origin-specific outmigration rates in Table 1, the return and onward outmigration rates are substantially higher than the corresponding primary outmigration rate in each province. Thus, the mobility differential between non-natives and natives is a very general phenomenon. But non-natives' stronger propensity for return migration than for onward migration is observed only in the four provinces with larger populations.

Both the return/primary and onward/primary ratios in Table 1 are relatively large in the French-speaking province of Quebec and the economically depressed provinces of the Atlantic Region (Newfoundland, Nova Scotia, and New Brunswick). Thus, the dominance of the French language and the lack of economic opportunities apparently have had particularly strong push effects on non-natives.

TABLE 1 Provincial Outmigration Rates Based on Nativity, 1976-1981 (percent)

Province	Primary (1)	Return (2)	Return/ Primary (3)	Onward (4)	Onward/ Primary (5)
Nfld.	5.0	19.0	3.8	19.7	3.9
N.S.	5.0	11.6	2.3	13.3	2.6
N.B.	4.4	12.5	2.9	13.1	3.0
Quebec	2.0	13.0	6.4	8.3	4.1
Ontario	3.4	7.0	2.1	5.6	1.7
Manitoba	6.7	11.0	1.6	14.1	2.1
Sask.	6.1	10.5	1.7	10.9	1.8
Alberta	4.1	9.0	2.2	8.0	1.9
B.C.	3.3	5.4	1.7	4.2	1.3
Canada	3.4	8.3	2.4	7.2	2.1

Note: (3) = (2)/(1); (5) = (4)/(1).

We also see in Table 1 that British Columbia, where as high as 39 percent of the at-risk population was non-native, has the lowest onward/primary ratio (1.3). Thus, like California (Long 1988: 117-119) and the Pacific division (Rogers and Bélanger 1990) in the United States, British Columbia supports the view that the Pacific coast is the "end of the line" in the migration system.

To the extent that primary and onward migrants are positively selective, whereas return migrants are negatively selective, we may suspect that in terms of the variation among the provinces, the primary outmigration rate is more highly correlated with the onward outmigration rate than with the return outmigration rate. This is indeed the case; the simple correlation coefficients are 0.61 and 0.23, respectively. For the outmigration rates of the states of the United States, the corresponding values are 0.28 and 0.06 (Long 1988: 120).

From the immigration rates in Table 2, we see that the attraction of every province is (1) strongest for its native sons and daughters residing in the rest of Canada and (2) weakest for people residing in their own province of birth. The return/primary ratio is particularly large in the three Atlantic provinces where high unemployment has been a chronic problem. These high values are the result of a combination of the region's very weak ability to attract primary migrants from the rest of the country and the moderately high propensity of its native sons and daughters to return. Thus, for this economically depressed region, the shortage of immigrants stems almost totally from its inability to appeal to the natives of other regions.

The relatively low immigration rates displayed by the Atlantic provinces in Table 2 also suggest that it is not true that a very high proportion of the Atlantic Region's previous outmigrants failed to

TABLE 2 Provincial Immigration Rates Based on Nativity, 1976-1981 (percent)

Province	Primary (1)	Return (2)	Return/ Primary (3)	Onward (4)	Onward/ Primary (5)
Nfld.	0.03	8.9	296.0	0.09	3.0
N.S.	0.11	8.1	73.8	0.45	4.1
N.B.	0.11	7.6	68.6	0.32	2.9
Quebec	0.20	7.2	36.1	0.30	1.5
Ontario	1.04	13.1	12.6	2.34	2.3
Manitoba	0.15	4.3	28.4	0.52	3.5
Sask.	0.18	4.4	24.5	0.50	2.8
Alberta	1.34	10.6	7.9	3.02	2.3
B.C.	0.80	16.6	20.7	2.86	3.6
Canada	0.42	8.5	20.2	1.00	2.4

Note: (3) = (2)/(1); (5) = (4)/(1)

adjust to the new life at their destination and then became return migrants, although its immigration flow consists of a high proportion of return migrants.² With respect to these aspects of return immigration, the Atlantic Region in Canada is similar to the economically depressed state of West Virginia in the United States (Long 1988: 121).

In addition to being the "end of line" in the migration system, British Columbia, with the highest return immigration rate among all provinces (16.6 percent), displays the strongest ability to "recapture" its natives. This is another property similar to that of California in the United States (Long 1988: 121).

In terms of variation among provinces, the primary immigration rate correlates more strongly with the onward immigration rate ($r = 0.96$) than with the return immigration rate ($r = 0.68$). For the interstate system in the United States, however, the opposite is observed: the corresponding simple correlations are 0.62 and 0.69 (Long 1988: 120).

In general, our result confirms that "the three rates of immigration tend to be more highly correlated than the three rates of outmigration" (Long 1988: 120). This difference suggests that "growing areas rather uniformly attract—and declining areas repel—migrants with a variety of migratory backgrounds, but areas seem less consistently to send their natives and previous immigrants to other locations" (Long 1988: 121).

Interprovincial Primary, Return, and Onward Migration Rates: Age Patterns

This section deals with two main questions. First, are the three types of out- and immigration schedules (that is, the age patterns of migration rates) similar to or systematically different from such typical migration schedules as those shown in Liaw and Nagnur (1985)? The typical form consists of (1) a decline from a moderately high level in early childhood to a low level in the early teens, (2) a very sharp increase in the late teens leading to a maximum in the early twenties ("labour force peak"), (3) a persistent decline at a decreasing rate toward a long stretch of low-level migration between the late forties and the late fifties, and finally (4) a minor "retirement" peak around age 60 (for females) or 65 (for males) if the migration is from expensive and congested metropolitan areas toward

2. The percentage shares of return migrants in the immigration flow of the three Atlantic provinces were 58, Newfoundland; 39, Nova Scotia; and 36, New Brunswick. The corresponding shares for Alberta and British Columbia were 10 and 12.

areas with low living costs and high amenity. Beyond age 75, there may be another slight increase in migration levels associated with the increased need for assistance (Rogers 1988).

Second, do the spatial patterns of the three types of out- and immigration rates vary with age in some regular manner? An analysis of the age-specific annual migration matrices of an eight-region population system of Sweden revealed that (1) the spatial patterns of migration tend to be similar for successive age groups, (2) a relatively large change in the spatial patterns occurs between the early and late teens, (3) the spatial pattern of the late teens diverges the most widely from that of most other age groups, and (4) the spatial pattern of the elderly diverges the most widely from those of both the late teens and early twenties (Liaw 1985).

To avoid irregularities due to the small at-risk population and to capture the underlying major changes in age pattern, we used the following 10 age groups: five-year age groups from 5-9 to 30-34, 10-year age groups from 35-44 to 55-64, and the 65+ age group. Although such age groups are not helpful in detecting the retirement peak and the rise of migration level associated with old dependency, they do help reveal the basic shape of a migration schedule. Note that since age refers here to the end of the observation period (1981), the average age of migrants in the 15-19 age group at the time of migration was only about 15—too young to be a high school graduate. Thus, both the sharp migration rise of the late teens as well as the labour force peak may be found in the 20-24 age group.

In studying the shapes of migration schedules, we focused on the four most populous provinces because their rates tend to be more reliable. From the migration point of view, these four provinces differ. Quebec has been a chronic net loser, mainly because of its persistent inability to attract non-French-speaking migrants from the rest of the country. Ontario, the country's economic heartland, shifted from being a major net gainer for many decades to being a net loser in 1976-1981 because its economic base was severely affected by the 1973 oil crisis and the general decline of the North American automobile industry. Alberta, frequently a beneficiary in the general westward net drift of migrants in Canada, experienced a substantial increase in its net gain in 1976-1981 as the rapid expansion of the energy industry created many new jobs for young adults. British Columbia, with its rich natural resources, mild climate, and scenic environment, has experienced substantial net migration for many decades.

The out- and immigration schedules of the four most populous provinces (shown in Figures 1 and 2) reveal three main features. First, the primary migration schedules tend to be relatively similar to the typical schedule described above. Among the eight primary migration

schedules, the outmigration schedule of British Columbia and the immigration schedule of Alberta appear to be most similar to the typical schedule.

Second, the return migration schedules tend to have a sharply elevated migration level for young children (surpassing the labour force peak in most cases) and a shift of the labour force peak from the early twenties to the late twenties or even the early thirties (for example, the immigration schedule of Quebec). These properties also were clearly displayed by interstate and interdivisional return migration in the United States (Long 1988: 131; Rogers and Bélanger 1990). They suggest that middle-aged individuals with dependent children have a relatively strong propensity for return migration.

Third, the shapes of the onward migration schedules vary greatly among the provinces; the onward immigration schedule of Ontario even loses the labour force peak completely! Since the at-risk populations for the onward rates are either identical to or much larger than those for the corresponding return rates, the large interprovincial variation in onward rates cannot be easily dismissed as a fluke. At this stage we do not have a plausible explanation.

To study the similarity between age groups of the spatial patterns of each type of out- and immigration rate, we computed the weighted correlation coefficients for each pair of age groups, the weights being the at-risk populations. These weights were used because some of the age-specific rates of the smaller provinces may have unreliably large values which, if unweighted, would yield a misleading index of similarity.

From the correlation coefficients in Tables 3 and 4, we can make the following general observations. First, the spatial variations in each type of migration rate tend to be similar for successive age groups. This tendency is particularly strong for primary and onward immigration rates but relatively weak for return and onward outmigration rates as well as the return immigration rate.

Second, for both the primary and onward migration rates, one of the elderly age groups (either 55-64 or 65+) tends to display the least similarity to most of the other age groups. This tendency is particularly strong for the onward outmigration rates.

Third, for the return migration rates, the youngest dependent age group tends to display the least similarity to most of the other age groups. Paradoxically, this tendency holds true even for the 30-34 and 35-44 age groups containing most of the parents. This result suggests that within the child-bearing age groups, individuals without children tend to migrate rather differently than those with children.

Finally, from the column showing the correlation coefficient with the least similar age group, we see that, for each of the three types of

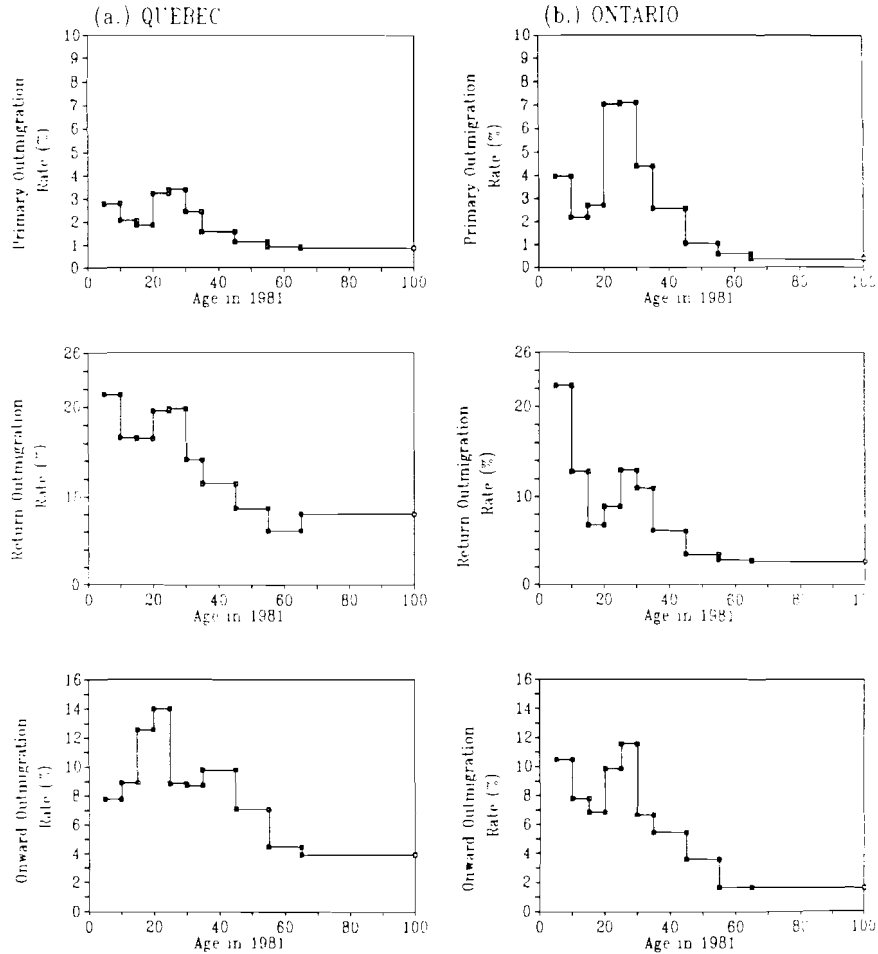


FIGURE 1 Age patterns of primary, return, and onward outmigration rates in the four most populous provinces in Canada, 1976-1981

migration rates, the spatial patterns of the age-specific outmigration rates tend to vary with age in a more drastic way than those of the age-specific immigration rates. For return and onward outmigration rates, some coefficients are even negative.

Differential Effects of Primary, Return, and Onward Migration

The differential effects of the three types of migration on population redistribution are measured by the volumes of net migration shown in

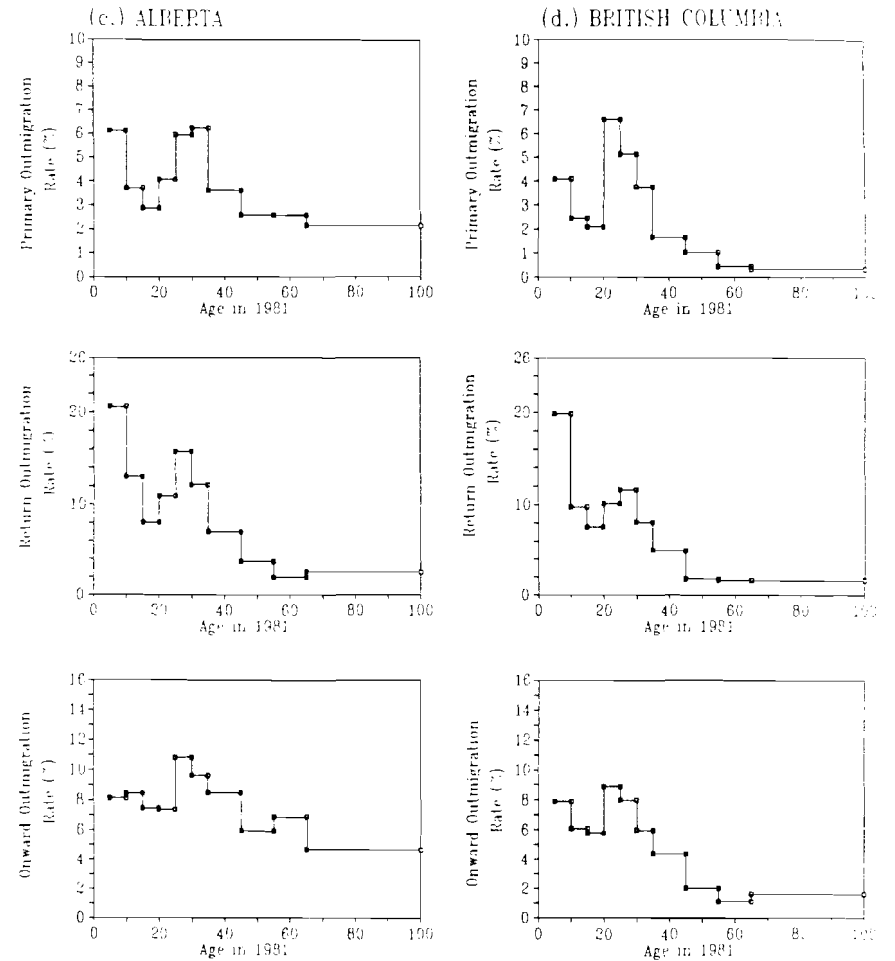


FIGURE 1 Continued

Table 5 for all ages pooled and for separate age groups. Because the Public Use Sample is a 2 percent sample of the 1981 Census, the values in the table should be multiplied by a factor of about 50 to reflect the actual magnitude.

The first panel of Table 5 reveals a number of properties of the three types of migration. First, for the interprovincial variation in total net migration—determined mainly by the variation in primary net migration—Alberta and British Columbia are the clear gainers, and all other provinces are clear losers. Second, return net migration tends to have a sign opposite to that of primary net migration and thus cancels out part of the primary effect; Alberta and British Columbia

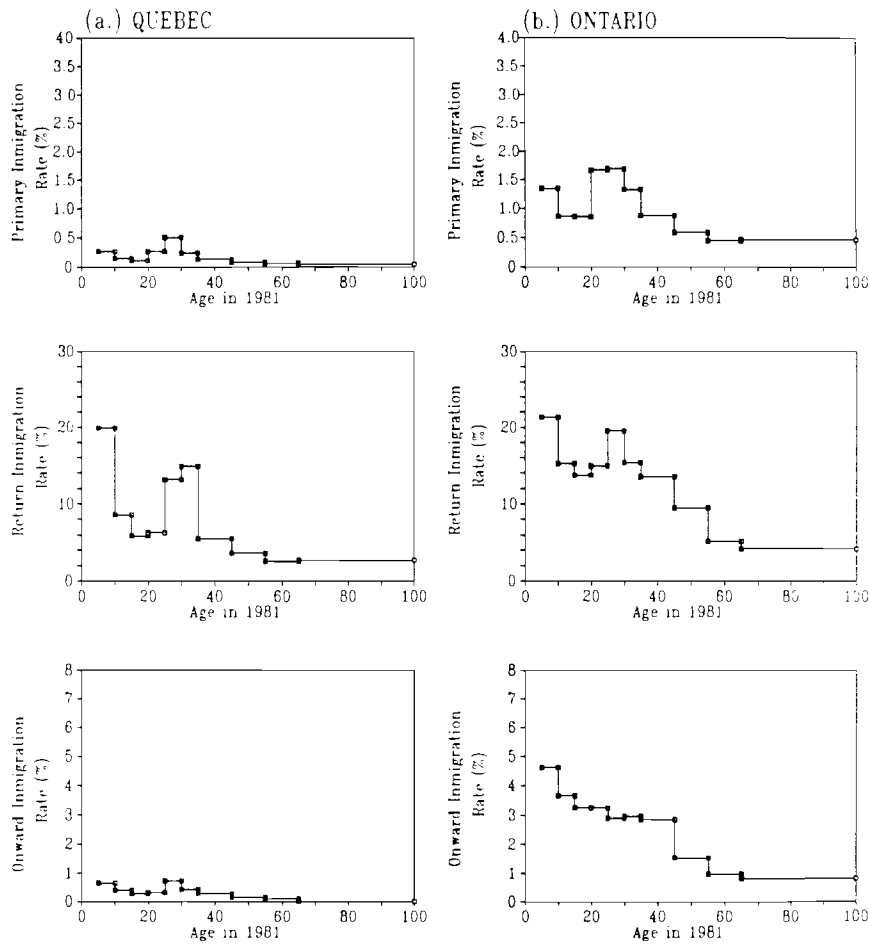


FIGURE 2 Age patterns of primary, return, and onward immigration rates in the four most populous provinces in Canada, 1976-1981

are clear losers in return migration. Third, onward net migration tends to be similar to primary net migration and thus reinforces the primary effect. Alberta and British Columbia again are the clear gainers at the expense of all other provinces. These three properties are identical to those revealed from the interdivisional migration data of all the American censuses since 1940 by Rogers and Bélanger (1990), who expanded on the earlier findings by Long and Hansen (1977) and Long (1988: 127-129).

Two exceptions to the second property are Quebec and Manitoba, both of which experience net losses from all three types of migration.

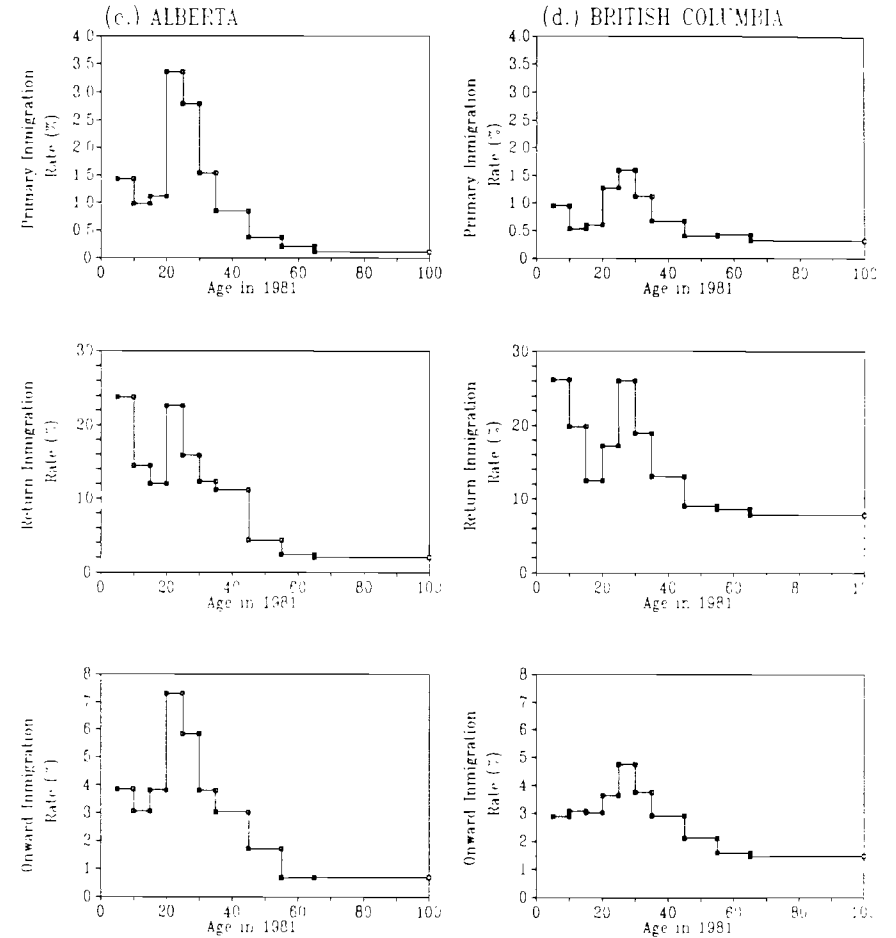


FIGURE 2 Continued

Quebec's tendency to lose all three types of migrants is particularly worrisome because its political leaders find its declining share of the Canadian population a serious threat to its political strength.

Also in Table 5, the net migration of every age group displays the above three general properties, but there are several interesting minor variations from the overall pattern. First, the return net migration in the 20-24 age group for Alberta has assumed large positive values, possibly implying that the new jobs created by the oil boom were particularly attractive to those in their early twenties. Second, the overall net losses in Nova Scotia and New Brunswick are limited to the below-45 age groups. This shift to net gains for these two Atlantic

TABLE 3 Weighted Correlation Coefficients of Age-Specific Outmigration Rates: Canada, 1976-1981

Given Age Group	Correlation of Given Age Group with				
	Next Younger Age Group	Next Older Age Group	Most Similar Age Group	Least Similar Age Group	All Ages Pooled
Primary Outmigration					
05-09	—	0.94	0.97 (30-34)	0.54 (65+)	0.91
10-14	0.94	0.73	0.94 (05-09)	0.60 (20-24)	0.85
15-19	0.73	0.91	0.95 (25-29)	0.34 (65+)	0.93
20-24	0.91	0.92	0.92 (25-29)	0.15 (65+)	0.90
25-29	0.92	0.90	0.95 (15-19)	0.26 (65+)	0.95
30-34	0.90	0.98	0.98 (35-44)	0.51 (65+)	0.97
35-44	0.98	0.81	0.98 (30-34)	0.56 (65+)	0.95
45-54	0.81	0.90	0.90 (55-64)	0.36 (20-24)	0.70
55-64	0.90	0.94	0.94 (65+)	0.34 (20-24)	0.58
65+	0.94	—	0.94 (55-64)	0.15 (20-24)	0.43
Return Outmigration					
05-09	—	0.46	0.46 (10-14)	-0.33 (25-29)	-0.10
10-14	0.46	0.63	0.76 (30-34)	0.46 (05-09)	0.82
15-19	0.63	0.88	0.90 (65+)	-0.09 (05-09)	0.78
20-24	0.88	0.76	0.88 (15-19)	-0.32 (05-09)	0.79
25-29	0.76	0.92	0.92 (30-34)	-0.33 (05-09)	0.93
30-34	0.92	0.88	0.92 (25-29)	-0.05 (05-09)	0.92
35-44	0.88	0.92	0.92 (45-54)	-0.17 (05-09)	0.94
45-54	0.92	0.84	0.92 (35-44)	-0.06 (05-09)	0.96
55-64	0.84	0.89	0.89 (65+)	0.13 (05-09)	0.73
65+	0.89	—	0.90 (15-19)	0.28 (05-09)	0.72
Onward Outmigration					
05-09	—	0.72	0.92 (25-29)	-0.19 (55-64)	0.78
10-14	0.72	0.86	0.91 (35-44)	0.23 (65+)	0.84
15-19	0.86	0.78	0.95 (35-44)	0.29 (55-64)	0.89
20-24	0.78	0.84	0.85 (30-34)	-0.13 (55-64)	0.84
25-29	0.84	0.90	0.92 (05-09)	0.05 (55-64)	0.89
30-34	0.90	0.89	0.90 (25-29)	0.24 (55-64)	0.97
35-44	0.89	0.77	0.95 (15-19)	0.46 (55-64)	0.95
45-54	0.77	0.40	0.81 (30-34)	0.40 (55-64)	0.87
55-64	0.40	0.89	0.89 (65+)	-0.19 (05-09)	0.37
65+	0.89	—	0.89 (55-64)	-0.09 (05-09)	0.49

provinces for the over-45 age groups stems mainly from a decrease in the net loss through both primary and onward migration. Finally, it is encouraging to see that for the 25-29 and 30-34 age groups, Quebec actually experiences positive net return migration, although the losses from the other two types of migration are too large to balance overall net migration.

TABLE 4 Weighted Correlation Coefficients of Age-Specific Immigration Rates: Canada, 1976-1981

Given Age Group	Correlation of Given Age Group with				
	Next Younger Age Group	Next Older Age Group	Most Similar Age Group	Least Similar Age Group	All Ages Pooled
Primary Immigration					
05-09	—	0.99	0.99 (10-14)	0.75 (65+)	0.99
10-14	0.99	0.99	0.99 (15-19)	0.70 (65+)	0.99
15-19	0.99	0.97	0.99 (10-14)	0.67 (65+)	1.00
20-24	0.97	0.98	0.98 (25-29)	0.49 (65+)	0.97
25-29	0.98	0.98	0.99 (15-19)	0.61 (65+)	0.99
30-34	0.98	1.00	1.00 (35-44)	0.76 (65+)	0.99
35-44	1.00	0.97	1.00 (30-34)	0.82 (65+)	0.98
45-54	0.97	0.96	0.97 (35-44)	0.77 (20-24)	0.91
55-64	0.96	0.97	0.97 (65+)	0.62 (20-24)	0.79
65+	0.97	—	0.97 (55-64)	0.49 (20-24)	0.69
Return Immigration					
05-09	—	0.36	0.60 (25-29)	0.27 (33-34)	0.51
10-14	0.36	0.83	0.89 (25-29)	0.36 (05-09)	0.89
15-19	0.83	0.85	0.96 (35-44)	0.53 (05-09)	0.91
20-24	0.85	0.64	0.85 (15-19)	0.29 (65+)	0.74
25-29	0.64	0.78	0.93 (55-64)	0.60 (05-09)	0.95
30-34	0.78	0.77	0.82 (45-54)	0.27 (05-09)	0.86
35-44	0.77	0.93	0.96 (15-19)	0.43 (05-09)	0.96
45-54	0.93	0.86	0.93 (35-44)	0.32 (05-09)	0.94
55-64	0.86	0.91	0.93 (25-29)	0.43 (20-24)	0.88
65+	0.91	—	0.91 (55-64)	0.29 (20-24)	0.75
Onward Immigration					
05-09	—	0.97	0.97 (10-14)	0.78 (55-64)	0.93
10-14	0.97	0.97	0.98 (35-44)	0.85 (20-24)	0.96
15-19	0.97	0.94	0.99 (35-44)	0.84 (55-64)	0.99
20-24	0.94	0.96	0.96 (25-29)	0.67 (55-64)	0.93
25-29	0.96	0.98	0.98 (30-34)	0.82 (55-64)	0.98
30-34	0.98	0.99	0.99 (35-44)	0.90 (55-64)	1.00
35-44	0.99	0.98	0.99 (30-34)	0.89 (55-64)	0.99
45-54	0.98	0.95	0.99 (30-34)	0.86 (20-24)	0.99
55-64	0.95	0.99	0.99 (65+)	0.67 (20-24)	0.89
65+	0.99	—	0.99 (55-64)	0.70 (20-24)	0.91

Conclusion

By focusing on the Canadian-born population, we have shown that, although non-natives represented only 14.5 percent of the at-risk population, they contributed 44 percent of the 1976-1981 interprovin-

TABLE 5 Net Primary (PR), Return (RE), and Onward (ON) Migration by Province and Age: Canada, 1976-1981

	Total	PR	RE	ON	Total	PR	RE	ON	Total	PR	RE	ON
	All Ages				Ages 20-24				Ages 45-54			
Nfld.	-338	-399	107	-46	-124	-129	13	-8	-4	-9	7	-2
N.S.	-247	-304	114	-57	-110	-84	-8	-18	6	-6	14	-2
N.B.	-115	-127	72	-60	-106	-80	1	-27	11	0	10	1
Que.	-2144	-1714	-127	-303	-436	-325	-54	-57	-178	-115	-24	-39
Ont.	-1418	-1311	151	-258	-464	-469	55	-50	-1	24	6	-31
Man.	-656	-479	-25	-152	-112	-80	-6	-26	-48	-24	-4	-20
Sask.	-115	-304	216	-27	-111	-120	8	1	-4	-26	19	3
Alta.	3287	3033	-204	458	1246	1050	33	163	72	56	-11	27
B.C.	1746	1605	-304	445	217	237	-42	22	146	100	-17	63
	Ages 05-09				Ages 25-29				Ages 55-64			
Nfld.	-31	-25	6	-12	-59	-82	35	-12	-5	-10	5	0
N.S.	-37	-32	1	-6	-66	-80	15	-1	17	-1	13	5
N.B.	16	16	1	-1	-56	-52	14	-18	19	1	17	1
Que.	-200	-173	-15	-12	-249	-251	13	-11	-115	-71	-20	-24
Ont.	-141	-170	33	-4	-445	-381	28	-92	6	30	-23	-1
Man.	-64	-55	-3	-6	-141	-111	-8	-22	-19	-19	2	-2
Sask.	41	44	-3	0	9	-58	68	-1	-25	-43	21	-3
Alta.	251	250	-22	23	642	674	-109	77	-4	14	3	-21
B.C.	165	145	2	18	365	341	-56	80	126	99	-18	45
	Ages 10-14				Ages 30-34				Ages 65+			
Nfld.	-21	-19	-2	0	-25	-43	26	-8	-6	-4	-1	-1
N.S.	-9	-13	7	-3	-29	-32	23	-20	7	-12	19	0
N.B.	5	6	-9	8	-1	-4	10	-7	8	-2	11	-1
Que.	-192	-152	-19	-21	-148	-186	60	-22	-104	-65	-19	-20
Ont.	-30	-65	36	-1	-61	9	-36	-34	43	43	1	-1
Man.	-44	-32	-3	-9	-84	-58	-1	-25	-9	-18	6	3
Sask.	-7	-2	9	-14	15	-22	36	1	-7	-18	14	-3
Alta.	193	196	-16	13	262	275	-64	51	-2	5	-8	1
B.C.	105	81	-3	27	208	198	-54	64	70	71	-23	22
	Ages 15-19				Ages 35-44							
Nfld.	-57	-47	-7	-3	-6	-31	25	0				
N.S.	-15	-14	-1	0	-11	-30	31	-12				
N.B.	-14	-6	3	-11	3	-6	14	-5				
Que.	-245	-187	-22	-36	-277	-189	-27	-61				
Ont.	-95	-139	52	-8	-93	-56	-1	-36				
Man.	-41	-28	-3	-10	-94	-54	-5	-35				
Sask.	-28	-27	11	-12	2	-32	33	1				
Alta.	365	304	7	54	262	209	-17	70				
B.C.	130	144	-40	26	214	189	-53	78				

Note: Values should be multiplied by a factor of about 50 to reflect the actual magnitude.

cial migration, with about one-half being return migrants and the other half being onward migrants. The more than fourfold difference between non-natives and natives in the propensity to migrate and the large interprovincial variation in population composition by nativity imply that place-of-birth information in the population census is crucial for understanding the observed migration phenomenon. For example, it is now evident why British Columbia has a moderately high overall outmigration rate, despite its very low primary, return, and onward outmigration rates.

Our analysis has revealed that several general properties of primary, return, and onward migration identified for the interstate and interdivisional systems in the United States also exist in the Canadian interprovincial migration system:

- The Pacific coast is the “end of line” in the sense that its previous immigrants have a very low propensity to outmigrate.
- With respect to spatial variation, the primary outmigration rate resembles more the onward outmigration rate than the return outmigration rate.
- Previous outmigrants from economically depressed regions do not have a very high propensity for return immigration, although they tend to represent a large part of the inflow.
- The Pacific coast, in addition to being the “end of line”, has the strongest ability to “recapture” its previous outmigrants.
- The three rates of immigration tend to correlate more highly than the three rates of outmigration, suggesting that regions tend to function more consistently as attractors than as senders of migrants.
- Among the three types of out- and immigration schedules, those of primary migration are most likely to have the “typical” shape, whereas those of return migration tend to have an elevated level in the young dependent age groups and a shift of the labour force peak toward the late twenties and early thirties.
- With respect to the effects on population redistribution, primary net migration dominates the overall redistributive potential, whereas return (onward) net migration weakens (reinforces) the effect of the primary net migration.

Two additional findings might be highlighted as well. First, the onward out- and immigration schedules display rather different shapes in different regions. The differences cannot be easily dismissed as resulting from random errors, but at this stage we do not have a plausible explanation for them. Second, the spatial patterns of the age-specific outmigration rates vary with age more drastically than those of the immigration rates. Thus, for migrants at different stages of the life cycle, the provinces tend to function less consistently as senders than as attractors.

References

- DaVanzo, J. S. 1976a. "Comment on M. J. Greenwood's 'Simultaneity Bias in Migration Models: An Empirical Examination'", *Demography*, 13(3):411-415.
- . 1976b. "Differences between Return and Nonreturn Migration: An Econometric Analysis", *International Migration Review*, 10(1):13-27.
- . 1978. "Does Unemployment Affect Migration? Evidence from Micro Data", *Review of Economics and Statistics*, 60(4):504-514.
- Grant, K., and J. Vanderkamp. 1976. *The Economic Causes and Effects of Migration: Canada, 1965-71*. Ottawa: Economic Council of Canada.
- . 1984. "Descriptive Analysis of the Incidence and Nature of Onward Migration within Canada, 1968-71", *Canadian Studies in Population*, 11(1):61-78.
- Liaw, K-L. 1985. "Applications of Conformable Migration Matrices", *Geographical Analysis*, 17(2):178-183.
- . 1990. "Joint Effects of Personal Factors and Ecological Variables on the Interprovincial Migration Pattern of Young Adults in Canada", *Geographical Analysis*, 22(3):189-208.
- Liaw, K-L, and J. Ledent. 1988. "Joint Effects of Ecological and Personal Factors on Elderly Interprovincial Migration in Canada", *Canadian Journal of Regional Science*, 11(1):77-100.
- Liaw, K-L, and D. N. Nagnur. 1985. "Characterization of Metropolitan and Nonmetropolitan Outmigration Schedules of the Canadian Population System", *Canadian Studies in Population*, 12(1):81-102.
- Long, L. 1988. *Migration and Residential Mobility in the United States*. New York: Russell Sage Foundation.
- Long, L., and K. A. Hansen. 1977. "Interdivisional Primary, Return, and Repeat Migration", *Public Data Use*, 5(2):3-10.
- Morrison, P. A. 1971. "Chronic Movers and the Future Redistribution of Population", *Demography*, 8(2):171-184.
- Morrison, P. A., and J. DaVanzo. 1986. "The Prism of Migration: Dissimilarities between Return and Onward Movers", *Social Science Quarterly*, 67(3):504-516.
- Rogers, A. 1988. "Age Patterns of Elderly Migration: An International Comparison," *Demography*, 25(3):355-370.
- Rogers, A., and A. Bélanger. 1990. "The Importance of Place of Birth in Migration and Population Redistribution Analysis", *Environment and Planning A*, 22(2):193-210.