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The Differentiation of Determinants Among Return, Onward and Primary Migrants in Canada

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Abstract

This study examines the differences in the determinants that distinguish interprovincial primary, return and onward migrants in Canada. Using the individual file of the 1986 Census Public Use Sample, analyses are conducted both at macro or aggregate level in comparing migration across provinces, and at micro level in terms of individual propensity to undertake various types of migration. Compared to primary migrants, return migrants tend to be less educated and less economically motivated. However, it is difficult to distinguish returns due to disappointment from those involving a planned life cycle strategy. Onward migrants are more educated than primary migrants and they appear to be responding to a broader set of factors which would imply a more careful consideration of alternatives.

Key Words: Primary migrants, return migrants, onward migrants

Résumé

La présente étude examine les différences parmi les déterminants qui distinguent la migration interprovinciale primaire, la migration de retour et de continuation *[onward]* au Canada. A partir de la bande-échantillon à grande diffusion du Recensement de 1986, les analyses ont été effectuées au niveau macro ou agrégé en comparant la migration interprovinciale et au niveau micro selon la propension individuelle à entreprendre divers types de migration. Comparés aux migrants primaires, les migrants qui optent pour le retour tendent à être moins éduqués et moins motivés sur le plan économique. Cependant, il est difficile de distinguer les retours motivés par la déception et ceux qui impliquent une stratégie de cycle de vie planifiée. Les personnes appartenant au troisième type de migration sont mieux éduquées que les migrants primaires et paraissent réagir à un ensemble de facteurs plus vastes qui impliquerait un examen plus attentif des diverses possibilités.

The analysis of multiple migration may be regarded as a major advance in migration research over the last two decades (Long, 1988). The recognition of repeat moves implies a reorientation from the dichotomous treatment of movers and non-movers. A number of studies have shown that the desegregation of population movement into types of migrants can reduce

specification bias and provide different explanations to the movement between two regions (DaVanzo, 1976, 1981, 1983; Eldridge, 1965; Gmelch, 1983; Grant and Vanderkamp, 1984, 1986; Miller, 1973).

Knowledge of migration determinants is the key to understanding the migration process, its impact, and possible policy interventions (Massey et al., 1993). Different types of migrants may have different motivations, because they vary in the previous migration experience, familiarity with destination, and in demographic characteristics.

Based on the 1986 Canadian census data, this study will identify the determinants by migration type both at aggregate and individual level. At the aggregate level, we will model the factors influencing migration flow among regions. At the individual level, we will analyze the impact of personal characteristics and expectations on migration behaviour. Three types of migrants will be distinguished; the primary migrants who have left their province of birth, the return migrants who are returning to their province of birth, and the onward migrants who are moving to a third province.

Theoretical Framework and Literature Review

Other literature reviews have provided an overview of migration theory (e.g., Liaw, 1987, Shaw, 1985, Stone, 1974). For the specific phenomenon of repeat migration and its differentiation, two broad conceptual frameworks are useful. One explanation regards multiple migration as a process of re-selection. According to this point of view, experiences after an initial move may serve as an important determinant of the subsequent propensity to migrate and the type of repeat move that will be undertaken. Return migration may be a consequence of overestimating the potential benefits before the initial movement, and as a result, the move turns out to be unwise investments in human capital (DaVanzo, 1981). Alternatively, return may follow the successful achievement of the goals of the initial move. A first move which provides new opportunities elsewhere which were not anticipated at the time of the initial move, may even engender another move (DaVanzo, 1983; Grant and Vanderkamp, 1986).

Empirical results concerning these various hypotheses are not definite. A few studies indicate that all types (return, primary and other repeat) of migration of the whites in the United States are attracted to higher relative income location and repelled by unemployment at origin. Meanwhile, it is found that the income difference between destination and origin has a considerably more significant coefficient for non-return migration than for return

migration. Also, return migration is most influenced by the unemployment rate at origin (DaVanzo, 1976; Kau and Sirmans, 1976). A study by Grant and Vanderkamp (1986) indicates that the variable representing disappointment plays a significant role in explaining repeat migration probabilities. DaVanzo (1976, 1983) finds that the more distant the destination, the greater the probability of a return move. By contrast, a study by Kau and Sirmans (1976) suggests that while primary, onward and return migration negatively respond to distance, return migration is even more responsive to distance than primary migration. With a longitudinal data file on interregional migration in Canada, Grant and Vanderkamp (1986) observe that distance involved in the initial move appears to have no effect on the probability of return migration, but has a strongly positive effect on the probability of onward migration. It is found that the more educated migrants are less likely to return, while education increases the likelihood of onward migration (DaVanzo, 1983). Over the period 1966-71, Rosenbaum (1988) finds that at least 30% of the inter-provincial moves involved a return to the province of birth. However, only age and region helped to distinguish between primary and return moves. A subsequent analysis over the period 1976-81 confirms the importance of region as a measure of opportunity structure, but finds that a composite measure of martial status and family size replaces the age variable as a significant predictor (Rosenbaum, 1993). In particular, return moves are more likely to be single parents, previously married persons or married persons with children, rather than single persons or married persons with no children.

The second explanation emphasizes the socio-psychological aspects of return migration. It suggests that return migrants are motivated primarily by patriotic, social, and familial concerns. These concerns embody their identification with the homeland and its traditional values and the desire to live close to kin and people who share the same culture (Gmelch, 1985). In a study concerning return migrants in rural Newfoundland, Richling (1985) indicates that return migration expresses rural value orientation. For many out-migrants, migration is a means of improving one's standard of living while returning helps to maintain the quality of life of the home environment. In this view, return does not signify disappointment with the initial move, but rather "personal success in balancing rural priorities with short-term exploitation of urban resources" (Richling, 1985:247). By returning, migrants could be fulfilling their original intentions at the time of out-migration. Empirical tests of this explanation have mostly been conducted in the situations when return migration occurs from urban to rural area, or from developed region to less-developed region.

Previous studies on the differentiation of determinants among different types of migrants have not reached consistent conclusions. This is partly due to the fact that only limited geographical areas or special data sources have been used, sometimes at the aggregate level and at other times at the individual level. The major purpose of this study is to conduct a comprehensive comparison of determinants among different types of interprovincial migration in Canada at the individual and aggregate level, for various geographic areas.

Data, Estimation Technique and Method of Analysis

Most of the data for this paper are developed from the 1986 Census of Canada Public Sample Use, two percent individual file. Based on the information on the province of birth and the province of residence at census time and five years before the census, a migration stream for each province can be decomposed into three components: 1) primary migrants—persons moving to a province from their province of birth; 2) return migrants—persons returning to their province of birth from the province to which they initially moved, and; 3) onward migrants—persons moving but neither from nor to their province of birth. Therefore, our sample includes those who were Canadian born, and lived in Canada in both 1981 and 1986. It should be noted that only lifetime return moves can be captured, and that all multiple moves that occurred within the five year inter-census period are missed. We are also not distinguishing moves made as part of a family from those where the migrant is the primary decision maker. This is partly because it would be impossible to determine if a previous move had been the person's choice or had taken place in conjunction with moves made by their parents.

Model construction at Aggregate Level

At the aggregate level, three regression equations are created based on the following human capital model:

$$M_{ij} = f_{ij} (X_i, X_j, c_{ij})$$

where, X_i and X_j are respectively a set of variables in the origin region i and destination j which influence the decision to migrate; c_{ij} includes the cost of moving from i to j; f_{ij} is a particular functional form. The dependent variable M_{ij} is interprovincial return in-migration rates, onward in-migration rates and primary in-migration rates respectively in our three

models. These rates are calculated dividing by corresponding at-risk population for each type. We adopt the following procedures to estimate the at-risk population for calculating migration rates by type, for migrants in province X from province Y:

- for *primary in-migration*, persons born in province of Y and living in Y in the census year, plus half of all the primary out migrants from Y to remaining provinces, minus half of all the return migrants from remaining provinces;
- for *return in-migration*, persons born in province X and residing in province Y in the census year, plus half of return in-migrants from province Y to X, minus half of primary out-migrants to province Y;

- for *onward in-migration*, persons born in the province other than X and Y and residing in province Y in the census year, plus half of all the onward out-migrants from Y to the remaining province, minus half of all the onward in-migrants to Y from the remaining provinces.

For each type of migration, every province has nine in-migration flows from other individual provinces (the two territories are not included in the analysis), therefore, there are 90 observations for each of the three equations.

The selection of explanatory variables is based on a broad human capital model with four categories of variables: labour market conditions, fiscal structure differences, costs of moving, and physical environment. Table 1 gives the operational definitions and sources of the variables included in the model (for a fuller description of these variables and associated distributions see Hou, 1993).

Model And Variables for Individual Data

At the individual level, we consider how the labour market conditions and individual characteristics influence the probability of choosing a specific type of migration. Our dependent variable represents the decision of individual migrants among the three choices. Since it has three categories, we use maximum likelihood polytomous logit regression. Primary migrants are used as the reference category. Therefore, the calculated regression coefficients are the log-odds ratios of return and onward migrants relative to primary

TABLE 1. DEFINITIONS OF VARIABLES IN AGGREGATE MODEL OF MIGRATION DETERMINANTS.

Variable	*Definition*		*Source*
Dependent variable			
M_{ij}	Migration rate from origin province i to destination j, defined as the number of migrants by divided by at-risk population.	type	note 1
Labour market conditions			
WAGEi,WAGEj	1985 average individual wages and salaries at i and j.		note 2
UNEMi,UNEMj	1985 provincial unemployment rates at i and j.		note 2
UNERi,UNERj	Unemployment change at i and j, defined as 1985 number/1981 number.		note 3
EMPRi,UNPRj	Employment increase at i and j, defined as 1985 number/1981 number.		note 3
Costs of relocation, information			
INVD	The inverse of Trans-Canada highway distance between i,j capitals.		note 2
LANGi,LANGj	Percentage of French mother tongue population at i, j; 1985.		note 2
Fiscal sector variables			
FEDEi,FEDEj	Federal government transfers to provincial gov. per capita at i, j, 1985.		note 3
UIPOi,UIPOj	Probability of obtaining UI benefits, defined as (weeks of entrance requirements/weeks of regional extended UI benefits) × (claims allowed/total claims received) at i, j, 1985.		note 4
UIGEi,UIGEj	Unemployment insurance generosity index, defined as the ratio of average payment of UI benefits to average weekly employment wage of individuals at i, j, 1985.		note 5
Climate			
TEMP	The difference of mean January temperatures between i and j.		note 2

Sources: (1) calculated from PUST; (2) **Canada Year Book**, Statistics Canada,1988, Cat. No.11-402E; (3) calculated from **Canada Year Book**, 1988; (4) used Winer and Gauthier's definition of generosity index (1982:77); calculated from the data in **Statistical Report on the Operation of the Unemployment Insurance Act**, Statistics Canada, Cat.No. 73-001; (5) used Shaw's definition (1985:176). Numerator is drawn from **Statistical Report on the Operation of Unemployment Insurance Act**, Statistics Canada; denominator is drawn from **Canada Year Book**, 1988.

migrants. The model will be used at two levels. One is national in which we put all the provinces together, the other is regional where we distinguish six regions: Atlantic Canada, Quebec, Ontario, Prairie provinces without Alberta, Alberta, and British Columbia. For each level, models are constructed both for the general population and for paid workers (that is, wage and salary earners). The analysis is carried out separately for the general population and for paid workers because the latter would be expected to respond more closely to wage and employment factors, while it is also useful to include results for the general population, regardless of employment status.

The independent variables include individual's age, sex, schooling, family size, marital status, language, and distance of migration. Within the human capital framework, we also need to include explanatory variables relating to the benefits of individual's movement. This problem was usually dealt with by estimating an individual's earning's function at origin and/or destination (Grant and Vanderkamp, 1986; Robinson and Tomes, 1982). The basic idea of an earning's function is that income in a specific region is mainly dependent on personal characteristics such as, schooling, experience and occupation. In our analysis, we simulate the benefits of migration by estimating the earning's functions in different provinces. We assume that the expected income of migrants will be the same as that of non-migrants at origin if they remained, and the expected income at destination is the same as that of local residents at destination, with the same characteristics. Therefore, the expected income gain of a migrant will be the difference of his/her earning's functions at destination and at origin. Problems with these assumptions have been discussed by Grant and Vanderkamp (1986), and Robinson and Tomes (1982).

In this analysis, the earning function for an individual in any province is assumed as: $Y = a + \beta X$, where Y is an individual's income, and X includes all the selected explanatory variables. These are age, sex, schooling, degree, occupation, and language. Since we use two types of sample restriction, total income and wage income are used for general population and paid labours, respectively.

TABLE 2. REGRESSION MODELS FOR DIFFERENTIATING THE DETERMINANTS OF INTERPROVINCIAL MIGRATION BY TYPE AT AGGREGATE LEVEL, CANADA, 1981-1986.

Variable	*return*	*In-migrants primary*	*onward*
Dependent variable: migration rates among provinces			
		Standardized β-value	
WAGEi	-.065	-.057	.071
WAGEj	.063	.668**	48*
UNEMi	.593**	.061	.308**
UNEMj	-.022	.022	-.068
UNERi	.224**	.219**	.073
UNERj	.036	.021	.114
EMPRi	.181	-.008	.056
EMPRj	.005	.104	.401**
INVD	-.046	.436**	.261**
LANGi	-.227**	-.130	-.135
LANGj	-.070	-.307**	-.112
FEDEi	.089	.003	-.075
FEDEj	-.236**	.190	.522*
UIPOi	-.042	-.052	-.090
UIPOj	-.127	.055	-.458**
UIGEi	-.008	-.016	-.063
UIGEj	-.099	-.072	-.526**
TEMP	.475**	.125	.447**
R-square	.530**	.510**	.589**
N	90	90	90

Sources: Calculated from the 1986 Census PUST.

Notes: 1) ** significant $\alpha<.01$; * significant $\alpha<.05$

2) WAGE-average personal wage income, UNEM-unemployment rate, UNER-increase of unemployment rate between 1981-85, EMPR-increase of employment between 1981-85, INVD-inverse of distance between provinces, LANG-percentage of French mother tongue population, FEDE-federal transfer to provincial government per capita, UIPO-probability of obtaining unemployment insurance, UIGE-unemployment insurance generosity index, TEMP-average January temperature difference between destination and origin.

3) i-variables in province of origin for the current move, j-variables in province of destination for the current move.

Findings

Differentiation of Determinants Among Three Migration Flows

Overall, the three models at the aggregate level are highly significant (Table 2). The amount of variation in migration rates accounted for by the independent variables ranges from 53.0% to 58.9%. The independent variables seem to work best in explaining onward migration rates.

As a major indicator of economic benefit of migration, the average personal wage income variable reflects one important aspect of the differentiation among the three types of migration. Both primary and onward migrations positively respond to the wage income level at destination, while the coefficient for return migration is not statistically significant. Previous studies have indicated that wage level at destination is strongly correlated with the migration stream between two provinces, while the effect of wage level at origin is usually not significant (Courchene, 1970, Vanderkamp, 1971). It would appear that only primary and onward migrations are sensitive to the wage level at destination.

The variables concerning employment opportunities reveal further differentials. Return and onward migrations both are strongly associated with current unemployment rate at origin. In addition, deterioration of employment conditions at origin (UNERi) affects primary and return migrants, while improvements in conditions at destination (EMPRj) affect onward migrants.

Return migration has a negative sign for the coefficient of inverse distance, which implies that return migration rate increases with spatial distance (see also DaVanzo, 1976, 1983). However, this coefficient is not statistically significant in our model. By contrast, primary and onward migration rates significantly decrease with the increase of distance.

The proportion of French mother tongue population, which is used as an indicator of psychic cost, generally exhibits a negative sign for all three types of migration. The coefficient is significant at destination for primary migration, and at origin for return migration. This pattern may imply that high proportions of French mother tongue at origin generally discourages population to move out, whereas at destination, it discourages population to move in. In other words, a higher proportion of English mother tongue population in a province generally has higher in and out- migration rates.

The three variables representing fiscal structure also exhibit important results. Onward migrations are strongly correlated with the three variables at destination. Higher per capita transfer payment from federal to provincial government (FEDE) at destination encourages more onward migrants but discourages return migrants. The increasing opportunity of obtaining unemployment insurance and better unemployment insurance generosity at destination decrease the onward migration rate. By contrast, the coefficients of the three variables are not significant for primary migration. From tax data of 1968 to 1977, Winer and Gauthier (1982) observed that the influence of fiscal variables were not significant among the migration flows where return migrants accounted for a high proportion. Furthermore, they suggested that return migrants might not be motivated by differences in net fiscal benefits across provinces. However, our results indicate that only primary migrants do not significantly respond to the difference of regional fiscal structure. Onward migrants are most influenced by the difference. Traditional factors still dominate the decision of primary migrants. At the same time, the fiscal situation in the province of birth does not act as a pull factor at all for return migrants. These facts do not support the argument that equalization payments induce inefficiency in the regional allocation of resources in Canada by holding or drawing back labour to poorer provinces (see Shaw, 1985).

All the three types of migration are positively correlated with the difference of the average January temperature between destination and origin, although the coefficients are significant only for return and onward migrations. The fact implies that moving for better weather is an important consideration for repeat migration.

Using significance level and standardized β-value as a measure of the relative importance of the explanatory variables, we can see that there are some obvious differences among the three types of migration. For return migration, the most important variables are current unemployment rates at origin and regional difference in temperature. On the other hand, higher wage income at destination and shorter distance encourage more primary migrants. Onward migration has a larger number of significant determinants and they are approximately equal in terms of importance. It seems that return migrants are repelled by the difficulty of employment in their earlier destination, and attracted by the better physical environment at their final destination. Primary migrants especially consider the expected long-term income gains and direct costs of moving. By contrast, the considerations of onward migrants are much broader and based on a larger number of variables. It should be noted that region was not included in these aggregate level analyses because we are looking at migration rates among provinces.

However, regions are considered in the individual level analysis that follows.

Differentiation at the Individual Level

Tables 3 and 4 provide the coefficients of regression, the likelihood ratio at convergence, Chi-square and pseudo-R^2 for the general population and paid workers, respectively. For each model, there are two separate sets of coefficients for return and onward migration. A negative coefficient indicates the variable is less likely associated with return or onward migration than with primary migration. Conversely, a positive coefficient indicates the variable is more likely associated with return or onward migration than with primary migration. The odds ratio of the variable is the antilogarithm of its regression coefficient. The Chi-square in each model is statistically significant at the $\alpha<.01$ level indicating a fairly good overall fit for the model. The pseudo R^2 represents how much of the maximum likelihood ratio is explained by the model. For individual data, the values of pseudo R^2 in our models are acceptable, with all values being above 0.10 in given regions.

In terms of economic benefits, primary migrants are most likely to respond to the increase of expected income, while return migrants are least likely to respond to the expected income gains. This generally confirms our result at the aggregate level. The difference among the three types of migration are significant but small. For the general population at the national level, return and onward migrants are respectively .9998 (that is, e^{-2E-4}) and .9999 (e^{-1E-4}) times less likely to respond to the expected income gains than primary migrants. For paid workers, these differences are even smaller. At the regional level, the EXPECT (expected income gains) variable is negative for return migrants in all the six regions for general population, four of which are significant. For paid workers, the coefficients of this variable are negative in four out of six regions, three being significant. Alberta has a significantly positive coefficient for return migrants. The regional variation is similar for onward migrants.

Overall, primary migrants pay more attention to the distance of movement. From the coefficients of distance, it is clear that the more the distance, the higher the probability of onward and return migration relative to primary migration. This confirms the pattern observed in the aggregate level. However, there is an obvious regional difference. For the eastern part of Canada, including Ontario, Quebec, and the Atlantic provinces, the coefficients are positive and significant for both the general population and paid workers. By contrast, in Western Canada, most coefficients are negative

TABLE 3. POLYTOMOUS LOGISTIC EQUATIONS FOR ALL IN-MIGRANTS AGED 5 AND OVER (PRIMARY MIGRANTS PROBABILITY IN DENOMINATOR)

variable	***Canada***		***Atlantic***		***Quebec***		***Ontario***		***Man. & Sask.***		***Alberta***		***B. C.***	
	return	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*
							Coefficients of Polytomous Logistic Regression							
EXPECT	-2E-4**	-1E-4**	-9E-5**	2E-5	-7E-5	1E-4	-2E-4**	-1E-4**	-3E-4**	-2E-4**	-2E-4**	-3E-5	-8E-5 -	6E-5
DISTANCE	8E-5**	1E-4**	4E-4**	4E-4**	5E-4**	4E-4**	5E-4**	6E-4**	-3E-4**	3E-5	-5E-4**	-2E-4**	-2E-4**	-2E-4**
HLOSP	-.018**	.031**	-.058**	.025	-.042*	.025	.011	.063**	-.040*	-5E-4	-.018	-.006	.040	.050**
CFSIZE	.096**	.125**	.095*	.157*	.096	.173*	.155**	.232**	-.007	.120*	.128**	.063	.036	-.006
MARRIED	.043	.061	-.141	-.152	-.030	.057	.091	.129	-.404*	-.552**	-.239	.192	-.072	.150
SDW	.495**	.167	.684*	.383	-.162	-.825	.608**	.390*	.271	-.364	.076	.156	.715**	.105
ENGLISH	.125**	.245**	.482**	-.179	-1.289**	.553**	.469**	.208*	.113	-.449*	.018	-.485**	1.040**	-.130**
AGE	.021**	.032**	.050**	.044**	.038**	.046**	.032**	.045**	.051**	.053**	.035**	.038**	-.026**	.014**
MALE	.145**	.191**	.015	.272*	2E-4	.238	.313**	.259**	.061	.072	.131	.120	.101	.228*
INTERCEPT	-1.559**	2.851**	-2.589**	-3.190**	-1.032**	-3.942**	-3.264**	-4.943**	-.690*	-1.809**	-1.446**	-1.491**	-1.323**	-1.023**
Likelihood Ratio	28283		3764		1959		7654		3688		4706		4244	
Chi-Square	1879**		440**		274**		1322**		204**		286**		166**	
Pseudo-R^2	.084		.141		.206		.167		.103		.194		.147	
N	15238		2041		1727		4608		1953		2927		1982	

Sources: calculated from the 1986 Census Public Sample Use Tape.

Notes:1) Variables: EXPECT-expected income gains. DISTANCE - distance of the movement, defined as the distance between the capitals of destination and origin. HLOSP-highest level of schooling. CFSIZE-census family size. MARRIED-dummy variable (never married as reference), 1=married; 0=else. SDW- dummy, 1=separated, divorced and widowed; 0=else. ENGLISH- 1=speaking English; 0=else. AGE-Age of individuals. MALE-dummy, 1=male, 0=female. 2) ** significant at $\alpha<.01$; * significant at $\alpha<.05$. 3) Pesudo-R^2 is comparable to a traditional R-square and is calculated as: (Log Likelihood of intercept - Log likelihood of full model)/Log likelihood of intercept.

TABLE 4. POLYTOMOUS LOGISTIC EQUATIONS FOR IN-MIGRANTS WHO ARE PAID WORKERS (PRIMARY MIGRANTS PROBABILITY IN DENOMINATOR)

variable	***Canada***		***Atlantic***		***Quebec***		***Ontario***		***Man. & Sask.***		***Alberta***		***B. C.***	
	return	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*	*return*	*onward*
							Coefficients of Polytomous Logistic Regression							
EXPECT	-2E-4**	-1E-4**	-9E-5**	2E-5	-7E-5	1E-4	-2E-4**	-1E-4**	-3E-4**	-2E-4**	-2E-4**	-3E-5	-8E-5 -	6E-5
EXPECT	-6E-5**	-4E-5**	-1E-4**	-3E-5	-9E-5*	-9E-5	-2E-4**	-2E-4**	2E-5	-8E-6	2E-4**	8E-5**	-3E-5	-9E-5*
DISTANCE	9E-5**	1E-4**	5E-4**	5E-4**	4E-4**	5E-4**	6E-4**	6E-4**	-5E-4**	-9E-5	-4E-4**	-2E-4**	-2E-4**	-2E-4**
HLOSP	-.048**	.007	-.078**	.002	-.105**	.035	-.032*	.038*	-.067**	-.026	-.029	-.032	.052	.037
CFSIZE	.188**	.147**	.170**	.136*	.120	.272*	.206**	.254**	.086	.067	.202**	.098*	.093	.066
MARRIED	-.160*	-.011	-.292	-.080	-.213	.239	-.084	-.037	-.729**	-.511*	-.304	.112	-.041	-.019
SDW	.544**	.177	1.115**	.450	-.498	.081	.584**	.351	.302	-.684	.198	.258	.876**	.015
ENGLISH	.208**	.266**	.605**	-.141	-1.292**	.613*	.728**	.413**	.020	-.615*	.511*	-.247	1.486**	-.673**
AGE	.026**	.039**	.041**	.033**	.044**	.025	.039**	.059**	.060**	.069**	.040**	.040**	-.019	.031**
MALE	.165**	.212**	.121	.287	-.068	-.005	.256**	.260*	.311*	.296	-.279	.028	.125	.325**
INTERCEPT	-1.675**	-2.876**	-2.669**	-2.863**	-.734	-3.882**	-3.414**	-5.078**	-.318	-1.631**	-2.944**	-1.869**	-2.293**	-1.446**
Likelihood Ratio	18921		2307		1193		5270		2289		3319		2372	
Chi-Square	1004**		271**		185**		991**		148**		250**		131**	
Pseudo-R^2	.067		.147		.226		.176		.097		.210		.158	
N	9880		1235		1012		3041		1173		2008		1320	

Sources: calculated from the 1986 Census Public Sample Use Tape.
Notes:1) Variables: EXPECT-expected income gains. DISTANCE - distance of the movement, defined as the distance between the capitals of destination and origin. HLOSP-highest level of schooling. CFSIZE-census family size. MARRIED-dummy variable (never married as reference), 1=married; 0=else. SDW- dummy, 1=separated, divorced and widowed; 0=else. ENGLISH- 1=speaking English; 0=else. AGE-Age of individuals. MALE-dummy, 1=male, 0=female. 2) ** significant at $\alpha<.01$; * significant at $\alpha<.05$. 3) Pesudo-R is comparable to a traditional R-square and is calculated as: (Log Likelihood of intercept - Log likelihood of full model)/Log likelihood of intercept.

and significant. This regional difference is related to the spatial pattern of interprovincial migration streams in Canada. According to our calculation on the 1986 census PUST (not shown here), the regional sources of return and onward migrants in eastern provinces are more diversified than in western provinces. For the six eastern provinces including Ontario, the average proportions of in-migrants who came from within the eastern region are 45.9%, 44.8%, and 79.2% for return, onward and primary migrants respectively. Primary migrants have relatively less proportion originating from outside of the region, and therefore they are associated with less distance. As a consequence, the odds ratio for primary migrants are smaller, thus we get the positive coefficients for return and onward migrants. In the four western provinces, on the other hand, the average proportions of in-migrants who came from within the western region are 80.6%, 63.7% and 53.2% for return, onward and primary migrants. Return and onward migrants have relatively lower proportion originated from outside of the region, and therefore they are associated with less distance. This in turn results in a lower odds ratios for return and onward migrants, shown as a negative sign in the logistic regression.

It has been hypothesized that the more educated the migrants, the less likely they are to return, because more educated people could process information efficiently and therefore make their initial move on a sound basis (DaVanzo, 1976, 1983; Grant and Vanderkamp, 1986). This hypothesis is basically confirmed in our models. At the national level, the coefficient of the highest level of schooling has a significant negative sign for both the general population and paid workers. This pattern also holds true at the regional level, with the exception of Ontario and British Columbia for the general population and British Columbia for paid workers. In these cases, the coefficients are positive but not significant.

Generally, onward migrants have a positive sign for the variable of schooling. The coefficients are significant at the national level for the general population and in the province of Ontario for both general population and paid workers. This implies that educated people are even more likely to make an onward migration than a primary migration. This may partly explain the observation in the aggregate model that the considerations of onward migrant involve more factors, because they are most educated and therefore they could collect and process information from broader sources. The exceptions are the three prairie provinces in which the coefficient are negative for onward migration for both general population and paid workers.

Family size is expected to be an important deterrent to mobility (Robinson

and Tomes, 1982). In our models, the coefficients of family size are all positive for return and onward migration except in the model of Manitoba and Saskatchewan for paid workers, and most of the coefficients are significant. This implies that return and onward migrations are less likely to be influenced by family size than primary migration. This may also be because primary migrants are younger, although age is controlled in the model.

As to the variable of marital status, the differentiation of the migration propensity of married persons among the three types of migration seem to be mixed and not generally significant. By contrast, the pattern for the separated, divorced or widowed is much clearer. It seems that the separated, divorced and widowed have larger probability to make a return migration. The result partly suggests that return migrants may not be only disappointed by the discrepancy between expected and actual income, but also by disturbance of personal life, although it is not sure if the change of marital status happened between the initial and return moves.

The two models for the general population and paid workers reveal similar patterns for the language variable. As indicated by the positive and significant coefficient, English-speaking individuals are generally more likely to make a return or onward migration than a primary migration. At the same time, the regional variation is obvious. For return migration, the coefficient is positive at the national level and in all the regions except for Quebec. The probability of English-speaking individuals returning to Quebec is only about 0.28 times ($e^{-1.29}$) that of the first time in-migrants. This means that among all the migrants originating from Quebec, English-speaking individuals are less likely to return. Thus, return in-migrants to Quebec have lower proportion of the English-speaking population than primary in-migrants who originated from English-speaking provinces. For onward migration, the coefficient is positive and significant at the national level and in Ontario and Quebec. In other regions, however, the coefficients are negative. This suggests that onward in-migrants to Ontario and Quebec have a higher proportion of English-speaking individuals than primary in-migrants, while onward in-migrants to other regions have lower proportion of English-speaking individuals than primary in-migrants. This may be due to the fact that onward migrants are more educated and consider more factors. Taking advantage of different languages may be one of their considerations. Thus, compared with primary migrants, onward migrants have a higher proportion of French speaking people moving to English provinces, while onward migrants have a higher proportion of English-speaking people moving to the French province. The Ontario situation is

prominent since almost half of its in-migrants come from Quebec.

The coefficient of the age variable generally has a positive sign, which is significant for return and onward migration in most situations. This is not consistent with Grant and Vanderkamp's findings based on one-year migration data. They suggested that the probability of return and onward migrations were negatively affected by age (Grant and Vanderkamp, 1986). A tentative explanation to our result is that return and onward migration are the subsequent events of primary migration. The return and onward migrants counted in census data are those who made their primary migration before the previous census time, thus, we could expect that return and onward migrants are older than primary migrants. Even if younger persons tend to be more likely to make a return or onward move, as suggested by Grant and Vanderkamp (1986), they might make the subsequent move shortly after the initial move and therefore many of these moves would not be captured by the census.

Our results indicate that males are more likely to make a repeat movement. This is true in all the models except for the return and onward in-migrants to Quebec and return in-migrants to Alberta for the paid workers. It should be noted that we are not measuring the extent to which moves are part of a family context.

Conclusions

To summarize the differentiation in determinants among the three types of migrants, we compare the results from aggregate and individual models. Generally speaking, the models from the two different data levels support each other and are complementary.

To the extent that there are differences in economic motivation for the three types of migration, models both at aggregate and individual levels indicate that primary migrants are most likely, and return migrants are least likely, to respond to the expected income gains. The models at an aggregate level further reveal that primary and onward migration rates in general vary positively with income at the destination. The models at an individual level, on the other hand, indicate that the general pattern at the national level cannot be universally applicable to regional level. For instance, for paid workers in Alberta, return and onward in-migrants are more motivated by the expected income gains.

As to the variable of distance, the two models with different data levels

indicate that primary migration is most likely to correlate negatively with distance. The aggregate model shows that onward migration is also negatively correlated with distance. The individual model reveals that primary migrants in western Canada are less likely to be deterred by distance than return and onward migration.

With some varying variables included, the models with different levels also independently reveal some important dynamics about the three types of migration. From the aggregate model, we know that the difficulty of employment in their initial destination and the better physical environment at their final destination, are the most important factors in the decision of return migration, while the considerations of onward migrants involve more variables. From the individual model, we know more details about the effect of personal characteristics. Our results suggest that onward migrants, compared to primary migrants, are more educated, older, have larger families and seem to take advantage of their language abilities (Tables 3 and 4). On the other hand, return migrants are less educated, older, and have a larger family size. In addition, disturbance in marital life may be an influential factor for return migrants.

Clearly, the determinants of primary, return and onward migration are sufficiently different to justify their separate treatment in migration analysis. Compared to persons moving across provincial boundaries for the first time, return migrants going back to their province of birth are older and probably responding more to social rather than economic factors. Onward migrants moving to a third province are also older than primary migrants but they appear to be responding to a broader set of factors which would imply a more careful consideration of alternatives.

All of these forms of migration are important to individual and regional adjustment. At the individual level, some returns may be qualified as "disappointments", but they may also have been part of an overall life cycle strategy, or the return may become appropriate as the economic circumstances of given regions change. Similarly, onward migrants appear to take advantage of an earlier move in selecting the destination of a subsequent move. In terms of regional adjustment, it would appear that fiscal sector variables, like the relative levels of unemployment benefits, play a minor role compared to other economic and social factors.

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