

SEDAP

A PROGRAM FOR RESEARCH ON

SOCIAL AND ECONOMIC DIMENSIONS OF AN AGING POPULATION

**Initial Destination Choices of Skilled-worker Immigrants
from South Asia to Canada: Assessment of the Relative
Importance of Explanatory Factors**

**Lei Xu
Kao-Lee Liaw**

SEDAP Research Paper No. 193

For further information about SEDAP and other papers in this series, see our web site:
<http://socserv.mcmaster.ca/sedap>

Requests for further information may be addressed to:
Secretary, SEDAP Research Program
Kenneth Taylor Hall, Room 426
McMaster University
Hamilton, Ontario, Canada
L8S 4M4
FAX: 905 521 8232
e-mail: sedap@mcmaster.ca

**Initial Destination Choices of Skilled-worker Immigrants
from South Asia to Canada: Assessment of the Relative
Importance of Explanatory Factors**

**Lei Xu
Kao-Lee Liaw**

SEDAP Research Paper No. 193

May 2007

The Program for Research on Social and Economic Dimensions of an Aging Population (SEDAP) is an interdisciplinary research program centred at McMaster University with co-investigators at seventeen other universities in Canada and abroad. The SEDAP Research Paper series provides a vehicle for distributing the results of studies undertaken by those associated with the program. Authors take full responsibility for all expressions of opinion. SEDAP has been supported by the Social Sciences and Humanities Research Council since 1999, under the terms of its Major Collaborative Research Initiatives Program. Additional financial or other support is provided by the Canadian Institute for Health Information, the Canadian Institute of Actuaries, Citizenship and Immigration Canada, Indian and Northern Affairs Canada, ICES: Institute for Clinical Evaluative Sciences, IZA: Forschungsinstitut zur Zukunft der Arbeit GmbH (Institute for the Study of Labour), SFI: The Danish National Institute of Social Research, Social Development Canada, Statistics Canada, and participating universities in Canada (McMaster, Calgary, Carleton, Memorial, Montréal, New Brunswick, Queen's, Regina, Toronto, UBC, Victoria, Waterloo, Western, and York) and abroad (Copenhagen, New South Wales, University College London).

This paper is cross-classified as No. 416 in the McMaster University QSEP Research Report Series.

**Initial Destination Choices of Skilled-worker Immigrants
from South Asia to Canada:
Assessment of the Relative Importance of Explanatory Factors ***

Lei Xu and Kao-Lee Liaw

Abstract:

Using a multinomial logit model, this paper explains the initial destination choices of skilled-worker immigrants from four South Asian countries (India, Pakistan, Bangladesh, and Sri Lanka) who landed in Canada in 1992-2001, based on the micro data of Citizenship and Immigration Canada. We found that their choice pattern, which is characterized by extremely strong concentration in Ontario, was strongly affected by the attractions of (1) co-ethnic communities and (2) long-term income opportunities represented by earned income per capita. The temporal pattern of their choices was subject to the lagged effects of the fluctuations in the spatial pattern of employment opportunities in an economically sensible but relatively mild way. The enhancement of Quebec's attraction by the Canada/Quebec agreement on immigration dissipated within only a few years.

Keywords: Canadian immigrants, South Asia, destination choices

JEL classification: R23, F22, O15, J11

Résumé:

A partir d'un modèle logistique multinomial, cette étude examine le choix initial de la destination de la main-d'œuvre qualifiée immigrante des pays de l'Asie du sud (Indes, Pakistan, Bangladesh et Sri Lanka) vers le Canada entre 1992 et 2001 en se reposant sur une base de micro-données de Citoyenneté et Immigration Canada. Nos résultats démontrent que les choix de la main d'œuvre immigrante qualifiée, caractérisée par une concentration extrême en Ontario, est fortement influencée par 1) l'existence de communautés co-ethniques, 2) les opportunités de revenus à long terme, mesurés par le niveau de revenu par habitant. La tendance temporelle de leurs choix est sujette aux effets différés des fluctuations de la distribution géographique des opportunités d'emploi d'une façon économiquement raisonnable mais relativement modérée. La mise en valeur de l'attraction du Québec résultant de l'accord Canada/Québec sur l'immigration disparaît en quelques années seulement.

* previously published in *Canadian Journal of Regional Science*, Summer 2006: 299-320.

Introduction

The geographic distribution of immigrants has become a major policy concern in Canada in recent years (SPPR, 2001). At the provincial level, immigrants are *too concentrated* in British Columbia and especially Ontario in the sense that the shares of immigrants by these two provinces are substantially greater than their shares of the Canadian-born population. According to the 2001 census, the shares of the nation's stock of 5.45 million immigrants by these two provinces were 18.5% and 55.6%, whereas their shares of the Canadian-born population were 11.8% and 34.0%, respectively. Furthermore, a comparison with the data of the 1996 census revealed that the strong concentration into these two provinces increased in the late 1990s; their shares of the immigration population in 1996 were 18.2% and 54.8%, respectively.

The very uneven distribution of immigrants in Canada has important societal implications. To the extent that immigrants are valuable human resources that help keep productivity high and labour cost low, the heavy concentration of the immigrants into Ontario and British Columbia helps strengthen the economies of these two provinces and sustain the persistent economic disparities between the "have" and "have not" provinces (Higgins and Savoie, 1997). Since this concentration has also been an important factor leading to the declining shares of the Canadian population by Quebec and other "have not" provinces, it has contributed to the decline of their shares of seats in the House of Commons and hence reduced their political representation at the center of the nation's political power (Liaw and Xu, 2005). Receiving a continual inflow of new immigrants in the order of 100,000 persons per year in recent years (CIC, 2005a), the metropolitan area of Toronto in Ontario is under pressure to expand its infrastructures at a rapid pace and is

experiencing problems of traffic congestion and shortage of public housing. In light of such implications, it is not surprising that both the federal government and some provincial governments (especially those of Quebec and Manitoba) are actively pursuing ways to induce a more dispersed distribution of immigrants (SPPR, 2001; CIC, 2005b)

The most important process that has resulted in the very uneven distribution of the immigrant population in Canada is the immigrants' *initial destination choices* (i.e. the choices made at the time of landing). For example, among the 2.2 million immigrants who landed in Canada in the ten years between 1995 and 2004, 18.3% and 55.4% chose British Columbia and Ontario at the times of their landing (CIC, 2005a). Thus, it is important to understand how different factors affect the initial destination choices of the immigrants.

This paper is motivated by the desire to explain the initial destination choices of the immigrants in Canada. We begin by noticing that these choices vary substantially with respect to *immigration class* and *place of origin*. This is best demonstrated by the relative attractiveness of British Columbia and Quebec. Among the 270,000 *refugees* who got the landed immigrant status in 1995-2004, many more were received by Quebec (26.5%) than by British Columbia (7.8%), whereas among the 629,000 immigrants of the *family class* who landed in the same period, more chose British Columbia (19.3%) than Quebec (13.1%). In the same landing period, many more of the 402,000 immigrants from *European sources* chose Quebec (23.4%) than British Columbia (10.9%), whereas many more of the 1,136,000 immigrants from *Asian and Pacific sources* went to British Columbia (25.6%) than to Quebec (7.7%) (CIC, 2005a).

In light of the large differences in the initial destination choices by immigration

class and place of origin, a sensible strategy to understand how they are affected by different factors is to focus on the immigrants of a specific class from some specific sources. Since we are particularly concerned with the excessive concentration in the immigrants' initial destination choices, we decide to focus on the skilled-worker immigrants from four South Asian countries: India, Pakistan, Bangladesh, and Sri Lanka. A common feature of the skilled-worker immigrants from each of these four countries is that over 80% of them chose Ontario as their initial destination. Another feature of them is that their share of the skilled-worker immigrants from all sources showed a sharp upward trend, increasing from 9% in 1992 to 25% in 2001.¹

The main purposes of this paper are (1) to identify a set of explanatory factors that can explain to a large extent the initial destination choices of the skilled-worker immigrants from these four South Asian countries and (2) to assess the *relative importance* of the explanatory factors in a multivariate context. In addition to providing substantive insights into the very uneven destination choice patterns of the immigrants, this paper makes a methodological contribution by presenting a new method for assessing the relative importance of explanatory factors that overlap substantially in explanatory powers.

The Sample and Statistical Model

For generating the information on the initial destination choices, we use the micro data in the 2001 version of the LIDS (Landing Information Data System), which is created and maintained by Citizenship and Immigration Canada (CIC). In order to match the

¹ The share of total immigrants from all sources by the four South Asian countries increased from 13% in 1992 to 23% in 2001.

information on both the dependent variable and explanatory factors, the landing years of the immigrants are restricted to the period between January 1, 1992 and December 31, 2001. Since very few immigrants went to Yukon, Northwest Territory, and Nunavut, we further restrict the immigrants to be those who landed in one of the ten provinces. Under these restrictions, our sample includes 63,468 skilled-worker immigrants who were “principal applicants” from India, Pakistan, Sri Lanka and Bangladesh. Note that principal applicants are allowed to include their spouse and dependents in their application for landed immigrant status. Excluding the 110 immigrants with missing values on one or more personal attributes used in our study, the size of the sample for our multivariate analysis becomes 63,358 persons.

To explain the initial destination choices of the skilled-worker immigrants, we use the following multinomial logit model:

$$p(j|s,t) = \exp(b'x(s,t,j)) / \sum_{k=1}^{10} (\exp(b'x(s,t,k))) \quad (1)$$

where $p(j|s,t)$ is the probability that an immigrant with personal attributes s who lands in year t will choose province j as the destination; $x(s,t,j)$ is a column-vector of observable explanatory variables; and b' is a row-vector of unknown coefficients.

To estimate the unknown coefficients, we first cross-tabulate all the skilled-worker immigrants according to the following dimensions: (1) gender (male, female); (2) age (20-24, 25-29, ..., 60+); (3) educational attainment²; (4) occupation (managerial,

² Educational attainment has the following 8 levels: (1) 0 to 9 years of schooling, (2) 10 to 12 years of schooling, (3) some university (13 years or more), (4) Trade Certificate, (5) Non-university Certificate, (6) Bachelor’s Degree, (7) Master’s Degree, (8) Doctorate.

engineering, clerical, and other)³; (5) official language ability (English only, French or French and English, other); (6) year of landing (single years from 1992 to 2001); and (7) citizenship (India, Pakistan, Sri Lanka and Bangladesh), which serves as a surrogate for place of origin and ethnicity; and (8) intended destination (the ten provinces of Canada). Based on the assumption that the choices of all immigrants in the same cell of this multidimensional tabulation depend on the same $p(j|s,t)$, we estimate the unknown coefficients in equation (1) by the maximum quasi-likelihood method (McCullagh, 1983), which is implemented by the Newton-Raphson algorithm. Note that we use as many as seven personal attributes as dimensions for the tabulation to enhance the plausibility of this assumption.

Whether the estimated coefficient of an explanatory variable is statistically significant is to be judged by its associated t-ratio (i.e. its estimated coefficient divided by the corresponding asymptotic standard error). Since the sample size (63,358 persons) is very large, the t-ratio can be considered as the standard normal variate so that a value with a magnitude of at least 2.0 can be taken as evidence of a significant relationship.

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

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

where L_g is the maximum log of quasi-likelihood of the given specification, and L_o is the

³ Based on LIDS' Occupation Codes (OCC7), we assign immigrants to 1) "managerial" occupations if they intend to be "managers, administrators, or professionals" in Canada, which spans 248 occupation classes (from code 1111110 to 1179299); 2) "engineering" occupations if they intend to be "engineers, natural scientists, or mathematicians", which spans 293 occupation classes (from code 2111110 to 2189114); 3) "clerical" occupations if they intend to be "clerical workers", which spans 312 occupation classes (from code 4110110 to 4199164); or 4) "other" occupations, including the rest of 7011 classes in LIDS' occupation codes.

log of quasi-likelihood of the corresponding null model (i.e. the model with $b'=0$). It is useful to note that the ceiling of Rho-square is much less than 1.0 so that a value of 0.2 may indicate a very good fit (McFadden 1974).⁴

Specification of the Explanatory Factors

Both qualitative and quantitative studies of immigration have shown that the attraction of co-ethnic communities is an important factor in the commonly observed uneven initial destination choices of immigrants in the host country (e.g. Walton-Roberts, 2003; Xu and Liaw, 2003; Liaw and Frey, 1998; Liaw and Ishikawa, 2007). Among the many benefits that a new immigrant may obtain from a large co-ethnic community are information about employment and housing at destination, various assistances at initial settlement, and the possibilities of working in an ethnic enterprise (Portes, 1995) or an ethnic occupational niche (Waldinger, 1996).

To represent the attraction by co-ethnic communities, we use *ethnic similarity*. For an immigrant of ethnic group i who landed in year t and was considering the possibility of choosing potential destination j , ethnic similarity is defined as the percentage share of the population of province j in year $(t-1)$ by ethnic group i .⁵ The data for this explanatory factor are from the PUMFs (Public Use Microdata Files) of the 1991,

⁴ Although the value of weighted R-square tends to be much larger than that of Rho-square, we choose Rho-square over weighted R-square, because the former is more sensitive to changes in the combinations of explanatory variables (Liaw and Frey, 1998).

⁵ Indian ethnic group includes *Bengali, East Indian, Goan, Gujarati, and Kashmiri*. Pakistani ethnic group includes both *Pakistani* and *Punjabi*. Sri Lankan ethnic group includes *Sinhalese, Sri Lankan, and Tamil*.

1996, and 2001 population censuses. For non-census years, the values of this variable are linearly interpolated from those of the nearest census years.

Since most of the skilled-worker immigrants are expected to look for jobs outside the enclaves of co-ethnics, income level and employment opportunity in the labour market are expected to be influential explanatory factors as well (Sjaastad, 1962; Todaro, 1985; Massey, et al, 1993). For an immigrant landing in year t , we define *income level* of province j as the province's earned income per capita in year $(t-1)$.⁶ Also for an immigrant landing in year t , we represent employment opportunity in province j by (1) *employment growth rate[lagged by 1 years]*, (2) *employment growth rate[lagged by 2 years]*, and (3) *employment growth rate[lagged by 3 years]*.⁷

The distinct status of Quebec as the permanent homeland of Francophones in Canada is an important fact to recognize in migration studies. In recognition of this status, the federal government reached an agreement with the provincial government of Quebec in 1991 to give the government of Quebec the right to select the economic class immigrants, including skilled workers, who intend to go to Quebec. It is useful to know whether this agreement had a significant effect on Quebec's ability in attracting new skilled immigrants from the South Asian countries. The domination of the French language in Quebec also suggests that the skilled-worker immigrants who know French are more prone to selecting Quebec as the destination. To incorporate these ideas into the logit model, we introduce a *Quebec* dummy variable, which assumes the value of 1 if the potential destination under consideration is the province of Quebec. This place-specific

⁶ Savoie (2001, p. 155) provides the data on earned income per capita for 1987, 1992, 1996, and 1997. The values for other years are interpolated and extrapolated.

⁷ The data on the annual employment sizes in all 10 provinces are downloaded from the website of CAMSIM.

dummy variable is then allowed to interact with a dummy variable representing French language ability and two other dummy variables representing the 1992 and 1993 landing years (i.e. the first two years after the signing of the agreement).

Being the province with the mildest winter and having very scenic environments, British Columbia is well known as a nice place for retirement life in Canada. Would skilled-worker immigrants around retirement age be more likely to go to British Columbia? To test this idea, we introduce a *British Columbia* dummy variable, which assumes the value of 1 if the potential destination under consideration is the province of British Columbia. This dummy variable is then allowed to interact with a dummy variable representing the 60+ age group.

In light of the fact that the ten provinces were created by a political process that happened to result in substantial difference in size, the assessment of the effects of the above-mentioned place attributes can not be properly conducted without controlling for the effect of *provincial size*. For potential destination j in year t , this factor is defined as the percentage share of the total employment of the ten provinces in year $(t-1)$ by province j .

Since the effects of the place attributes of the potential destinations on the destination choice probabilities may differ by the personal attributes of the skilled-worker immigrants, we let the above explanatory factors interact with various dummy variables representing the personal backgrounds of the skilled-worker immigrants. Note that we use the term *explanatory factor* to represent a substantively meaningful entity such as ethnic similarity, which can be used to generate several *explanatory variables* in the model such as the interactions of ethnic similarity with each of the four dummy variables

representing the four ethnic groups for allowing the strength of co-ethnic attraction to differ among the ethnic groups.

Assessment of the Relative Importance of Explanatory Factors

We define the *best specification* of the logit model as the specification with a strong explanatory power in which the estimated coefficients of the explanatory variables are all statistically significant and substantively sensible. To assess the relative importance of two explanatory factors (say, ethnic similarity and income level), we delete one of the two factors in turn from the best specification and then observe the resulting decreases in Rho-square: the greater the decrease, the more important the deleted factor. For each deleted factor, we call the corresponding decrease in Rho-square as its *marginal contribution in Rho-square*.

When an explanatory factor is deleted from the best specification, an issue worth considering is whether the estimated coefficients of the remaining variables should (1) remain unchanged or (2) be allowed to change so that the log of quasi-likelihood is maximized. We call these two methods the *fix-coefficient method* and the *maximizing method*, respectively. When all explanatory factors do not overlap in explanatory powers, the distinction between these two methods is not important, because their assessment results will be identical. However, when at least two explanatory factors overlap substantially in their explanatory powers, the two methods may lead to rather different assessment results. To the best of our knowledge, the fixed-coefficient method has not been used in the literature, probably because it can not be done by using any of the commonly available statistical procedures. But, we will demonstrate in our paper that it

is better to use both methods to achieve a good understanding of complicated real-world problems.

Empirical Findings

Observed Patterns of Destination Choices

We find that the 1992-2001 skilled-worker immigrants from the four South Asian countries had an extremely strong preference for Ontario: as many as 83.2% of them chose Ontario as their initial destination (Table 1). This concentration in Ontario was much greater than that of skilled-worker immigrants from all sources (58.0%), which was in turn greater than that of all classes of immigrants (54.9%). It is useful to point out that with 56.4% choosing Ontario, the family-class immigrants from these four countries were much less strong in their preference for Ontario than their skilled-worker counterparts.

There were two other distinctive features of these skilled-worker immigrants. First, compared with other immigrants, their preference for British Columbia was relatively weak. In fact, BC's share of them (7.1%) was clearly less than its share of the national population (13.0% in 1996). Second, compared with other immigrants, they were extremely unlikely to choose Quebec as their destination. Quebec received only 2.3% of them, while sharing 24.8% of the national population in 1996 (Table 1).

The preference for Ontario did not differ much among the four South Asian ethnicities (ranging from 80.1% for Indians to 88.5% for Pakistanis), despite the fact that Ontario's shares of the stocks of these ethnic groups in 1996 differed substantially (ranging from 41% for Bangladeshis to 83% for Sri Lankans). Although British Columbia shared about 25% of both Indian and Pakistani stocks, its attraction to the skilled-worker immigrants was much weaker for Pakistanis (4.1%) than for Indians

(9.4%). These differences suggest that the strength of attraction by co-ethnic communities may differ substantially among the ethnic groups.

There were two clear features in the temporal pattern of the initial destination choices made by the skilled-worker immigrants from the four South Asian countries (Table 2). Between 1992-96 and 1997-2001, the share by Ontario showed the greatest increase (from 77.4% to 85.5%), whereas the share by Quebec displayed the greatest decrease (from 4.9% to 1.3%). Behind these changes were the rise of Ontario's economy from the serious recession of the early 1990s, and the short duration of the immigration-boosting effect of the 1991 Canada/Quebec agreement.

We find clear evidence that French language ability strongly enhanced the preference for Quebec (Table 2). Among the skilled-worker immigrants from the four South Asian countries, 22.0% of those with the knowledge of French or both French and English, but only 2.0% of those who only knew the English official language, chose Quebec as their initial destination. But, the effect of official language ability was a very small part of the whole picture, because only 1.0% of the skilled-worker immigrants from these countries knew French (or French and English), while 95.6% knew English but did not know French.

Unlike the interprovincial migration of the Canadian population which is strongly selective with respect to educational attainment (Liaw, 1990; Newbold and Liaw, 1994), the destination choices of the skill-worker immigrants from the four South Asian countries did not differ much by educational attainment (Table 2). By classifying the immigrants into *low* (less than Bachelor's degree), *middle* (with Bachelor's degree) and *high* (with Master's or doctoral degree) education categories, we find that those with *low*

education were somewhat less likely to avoid Quebec, and that those with *high* education were somewhat more prone to choosing not only British Columbia and Alberta but also most “have not” provinces. Most of the jobs in the “have not” provinces that attracted the immigrants with post-graduate degrees were probably those of universities and colleges, those of resource industries, or those in governments.

The destination choices of the skill-worker immigrants from the four South Asian countries also did not differ much by occupation (Table 2). Those in managerial occupations were somewhat more likely to choose Ontario, whereas those with occupations of lower status were somewhat more prone to choosing Quebec.

In general, the destination choices of the skill-worker immigrants from the four South Asian countries differed very little by age. The only exception involved those aged 60 and over: 14.4% of them chose British Columbia, compared with 7.1% of younger immigrants. But, this exception was a very small part of the whole picture, because the 60+ age group represented only 0.3% of the skilled-worker immigrants.

Estimation Results

The best specification of the logit model turned out to have an extremely large Rho-square of 0.6965 for two reasons. First, the destination choice outcomes have been very well explained by the explanatory variables in a statistical sense. Second, the observed destination choice pattern had a very strong concentration in Ontario so that it was very different from the predicted destination choice pattern of the null model which assigns the same choice probability (10%) to each of the ten provinces.

The positive coefficients of the interactions between ethnic similarity and the dummy variables representing each of the four ethnic groups, together with the very large magnitudes of the associated t-ratios, indicate that each of the ethnic groups was strongly attracted by co-ethnic communities (best specification in Table 3(a)). The marked difference in the magnitudes of the four estimated coefficients, ranging from 2.508 for Sri Lankans to 5.295 for Pakistanis, indicates that the impact of a unit increase in the share of the destination population by a given ethnic group on destination choice propensity differed substantially among the ethnic groups, being the smallest for Sri Lankans and the largest for Pakistanis.

We also find that the effects of ethnic similarity were selective with respect to educational attainment and age. Among Indians, those with *high* education (with post-graduate degrees) and those being young (in the 20-29 age group) were less subject to the attractions of co-ethnic communities.⁸ Among Sri Lankans, those with *high* education were also less subject to the attraction of co-ethnic communities, whereas those with *low* education (without a bachelor's degree) were more subject to such attraction.

With respect to the labour market factors, we find that both income level and employment growth rate turned out to have the expected positive effects. The positive coefficient of income level and the large magnitude of its associated t-ratio indicate that

⁸ Although there were selectivities in terms of educational attainment and age among Indians, their general responsiveness to the attractions of ethnic communities are consistent with the results from an early study of motivational factors for male independent immigrants from India to Canada (Winchie and Carment, 1989). Based on data from the Canadian High Commission in India, the study showed that the most frequently cited reason for migrating to Canada was the presence of family members or friends. For more accounts of the strong emotional and social connections of the Indians in Canada to their family members and co-ethnics, see Ray and Rose (2000) and Ghosh and Wang (2003).

the skilled-worker immigrants from the four South Asian countries were strongly attracted by provinces with high income level. The positive coefficients of the interactions between income level and occupational dummy variables indicate that those in (1) clerical occupations, (2) managerial occupations, and (3) engineering occupations were more subject to the attractions of high income provinces. Both the estimated coefficients of the lagged employment growth rates and their associated t-ratios indicate that the lagged effect of employment growth rate was stronger for two years than for three years, whereas employment growth rate lagged by one year turned out to have no statistically significant effect. This finding suggests that the effects of the booms and busts of a provincial economy on its attractiveness tended to be delayed by two or three years.

With respect to the distinct status of Quebec, the positive coefficient of the interaction between *Quebec* and *French language ability* indicates that those with this ability were more prone to going to Quebec. The positive coefficients of the three-way interactions among *Quebec*, *landing year*, and *ethnic group* suggest that, the preference for Quebec of the skilled-worker immigrants of all ethnic groups from South Asia was strengthened by the 1991 Canada/Quebec agreement, with the effects being delayed by two or three years, and that the effects were stronger in 1992 than in 1993. Actually, for Bangladeshis, the effect disappeared in 1993. Since we also tried an interaction between the Quebec dummy variable and a dummy variable representing the 1994 landing year and found that its coefficient was not significantly different from zero, we learned that the strengthening effect of the Canada/Quebec agreement on the skilled-worker immigrants' preference for Quebec dissipated rather quickly. Note that a similar study

has shown that the enhancing effect of this agreement on Quebec's share of the skilled-worker immigrants from China, Hong Kong, Taiwan also lasted only up to 1993 (Xu and Liaw, 2003).

The positive coefficient of the interaction between British Columbia and the dummy variable representing the 60+ age interval indicates that the skilled-worker immigrants at age 60 or over were more prone to being attracted to British Columbia, the province with the mildest winter.

Finally, the positive coefficients of provincial size and its interaction with managerial occupation indicate that *ceteris paribus*, the immigrants were more prone to going to a larger province, and that somehow this tendency was stronger for those in managerial occupations.

Relative Explanatory Powers of Explanatory Factors

To get a sense of the overlaps in explanatory power among the explanatory factors, we delete each factor in turn from the best specification and re-estimate the unknown coefficients by the previously mentioned *maximizing method* and then watch the changes in the estimated coefficients of the remaining variables (see Tables 3(a) and 3(b) in which the name of each deleted factor is shown as a column heading). We find that after the explanatory variables representing the various effects of ethnic similarity were deleted, the coefficient of provincial size increased sharply from 3.659 to 10.408, and the magnitude of the associated t-ratio also jumped from 22.7 to 139.5. This finding indicates that the explanatory powers of ethnic similarity and provincial size overlapped to a very large extent. Consequently, ethnic similarity's marginal contribution in Rho-

square based on the maximizing method (0.0122) seriously understates its explanatory power. We also find that after the explanatory variables representing the various effects of income level were deleted, the coefficient of provincial size increased markedly from 3.659 to 5.593, and the magnitude of the associated t-ratio also increased markedly from 22.7 to 44.6. This finding indicates that the explanatory power of income level also overlapped substantially with that of provincial size, but to a much lesser extent than did ethnic similarity. Consequently, income level's marginal contribution in Rho-square based on the maximizing method (0.0141) also understates its explanatory power, but not as seriously as the case of ethnic similarity. It is important to realize here that, because of the large difference in the overlaps in explanatory power, the finding that the marginal contribution in Rho-square by the maximizing method was greater for income level (0.141) than for ethnic similarity (0.0122) need not imply that the explanatory power of income level was greater than that of ethnic similarity.

Another useful piece of information from the coefficients generated by the maximizing method is that the assessment of the effects of the 1991 Canada/Quebec agreement can not be meaningfully conducted without controlling for the effects of ethnic similarity, labour market factors, and provincial size, because when these factors were removed, nonsensical negative coefficients started to emerge (Table 3(b)). This finding demonstrates a very important point about empirical research: it is very dangerous to assess the importance of any policy-relevant explanatory factor without using a multivariate model, if the dependent variable is also subject to more powerful effects of other factors.

To rectify the maximizing method's differential understatements of the explanatory powers of ethnic similarity and income level, we use the *fix-coefficient method* to re-compute their marginal contributions in Rho-square, which turn out to be 0.1579 and 0.0307, respectively (see the last row of Table 3(a)). According to this method, the explanatory power of ethnic similarity was much stronger than that of income level.

Unlike the findings on the explanation of the destination choices made by interprovincial migrants in Canada (e.g. Liaw, 1990) and interstate migrants in the United States (e.g. Liaw and Frey, 1996) which show that both income level and employment growth rate are similarly powerful explanatory factors, we find that with respect to the destination choices of the skilled-worker immigrants from the South Asian countries, the explanatory power of employment growth rate was *much weaker* than that of income level. This is true no matter whether we use the maximizing or fixed-coefficient method (Table 3(a)). This finding suggests that the destination choices of the immigrants were more influenced by the persistent contrast between the "have" and "have not" provinces than by the short-term fluctuations in the spatial economy of Canada.

We also find that the joint marginal contribution in Rho-square of income level and employment growth rate (0.0179 or 0.0335) is greater than the sum of their separate marginal contributions in Rho-square (0.0141+0.0011 or 0.0307+0.0012), irrespective of which method we use. This finding shows that the explanatory powers of these two labour market factors also overlapped to some extent.

With respect to the distinct status of Quebec, we find that the explanatory power of the lagged effects of the Canada/Quebec agreement was greater than that of the

enhanced preference of those with French language ability for Quebec, irrespective of the method used. Behind this difference lies the fact that only 1.1% of the immigrants knew French.

Among all the explanatory factors, the attractiveness of British Columbia to those aged 60 and over had the weakest explanatory power. Based on both methods, its marginal contribution in Rho-square was only 0.0001. Behind this finding is the fact that only 0.3% of the immigrants were in this age group.

To get a more concrete sense of the effects of the explanatory factors on the destination choices of the immigrants, we now introduce the explanatory factors successively into the logit model and show how the overall destination choice pattern is affected. In order to make the big picture easier to visualize, we classify the destinations into two groups: the “have” provinces (Ontario, Alberta, and British Columbia) versus the “have not” provinces (Quebec, and all remaining provinces combined into the “other” destination). In the successive introduction of the explanatory factors, we use the estimated coefficients of the best specification shown in Table 3(a). The predicted overall destination choice patterns at successive introductions are shown in Table 4. Note that the variations in destination choice pattern by landing year and other personal attributes are not visible in this table.

We start by first introducing provincial size into the logit model. Since the idea that larger provinces get larger shares of the immigrant is not a theoretically interesting idea, we consider the resulting overall predicted destination choice pattern simply as the benchmark. In this benchmark, Ontario, Alberta, and British Columbia are predicted to share 26.43%, 9.03%, and 10.00% of the immigrants, whereas Quebec and the remaining

“have not” provinces are predicted to get 14.66% and 39.88%, respectively (Table 4). The dissimilarity index between this pattern and the observed pattern is as large as 56.77%. Note that the dissimilarity index is simply the sum of the positive differences of the corresponding provincial shares, and that the sum of the positive differences and the sum of the negative differences are always equal in magnitude.

Next, we introduce all the terms involving ethnic similarity into the model. The introduction of this explanatory factor results in a huge increase in Ontario’s share to 73.40%, at the expense of all other provinces (Table 4). Since South Asian ethnics represented only a very small proportion of the populations of the “have not” provinces, the introduction of ethnic similarity into the model results in massive reductions in the shares of Quebec (-8.40%) and other “have not” provinces (-29.42%). The dissimilarity index between this destination choice pattern and the observed destination choice pattern is reduced to 11.68%.

Income level is introduced next. Its introduction results in a marked further increase in the share of Ontario to 83.77%, which has slightly exceeded the corresponding observed share (83.20%). With a dissimilarity index of only 1.17%, the destination choice pattern predicted by the model is now nearly identical to the observed pattern (Table 4). It is worth noting that the introduction of income level into the model also causes an increase in the share of the immigrants by another “have” province, Alberta.

Since we have learned from marginal contributions in Rho-square that employment growth rate was much less important than income level in explaining the immigrants’ destination choices, the introduction of employment growth rate into the

model is expected to have a much smaller effect on the predicted destination choice pattern. We find that its introduction indeed results in very little change in the overall destination choice pattern: the shares of Alberta and British Columbia go up slightly, whereas the shares of Ontario and all “have not” provinces decrease somewhat. The dissimilarity index between the predicted and observed destination patterns is further reduced somewhat to 0.87% (Table 4).

Although the information in Table 4 suggests that the effect of employment growth rate is trivial, our more detailed examination reveals that the introduction of this factor into the model actually has visible effects on the *temporal* pattern of the immigrants’ destination choices. For Ontario, it causes the 1992-97 share to decrease by 2.88% and the 1997-2001 share to increase by 0.44%. For British Columbia, it causes the 1992-97 share to increase by 2.43% and the 1997-2001 share to decrease by 0.44%. These changes reflect the fact that from 1992-96 to 1997-2001, employment opportunities improved in Ontario but deteriorated in British Columbia.

Next, we introduce into the model the effect of Quebec’s particular attraction to those with French language ability. It causes the overall share of Quebec to increase only slightly by 0.14%, at the expense of all other provinces (Table 4). However, our more detailed examination reveals that its introduction into the model causes Quebec’s share of those with French language ability to increase sharply from 3.03% to 16.68%.

Next, the proxies for the lagged effects of the 1991 Canada/Quebec agreement are introduced into the model. It also causes the overall share of Quebec to increase only slightly by 0.60%, at the expense of all other provinces (Table 4). However, with respect to temporal pattern, their introduction into the model causes Quebec’s share of the

immigrants in 1992-1997 to increase visibly from 3.32% to 5.44%.

Finally, the introduction of the proxy for the attractiveness of British Columbia's nice environment to those aged 60 and over causes British Columbia's share to increase very slightly by 0.03%, at the expense of most of the other provinces (Table 4). However, we find that its introduction into the model causes British Columbia's share of those aged 60 and over to increase sharply from 6.61% to 14.42%, which is exactly equal to the corresponding observed share.

Concluding Discussion

We have found that the most salient feature of the skilled-worker immigrants from the four South Asian countries was their extremely strong tendency to select Ontario as their initial destination: over 80% of them ended up in Ontario. Our multivariate analysis revealed that this extremely strong concentration in Ontario was mainly due to two reasons. First, they were strongly subject to the attraction of their co-ethnic communities, which were heavily concentrated in Ontario. Second, they were strongly subject to the positive effect of high income level. Since Ontario has been one of the high income provinces for many decades, the immigrants' preference for Ontario was determined, to a large extent, by its promising long-term income prospect.

We have also found that the initial destination choices of the immigrants in question responded to changes in the spatial pattern of employment growth in a sensible way: their preference was subject to the positive effect of employment growth rate. In light of the time span between the submission of the application for landed immigrant status and the granting of the status, it is reasonable that the effect of employment growth

turned out to be mostly lagged by two years and, to a lesser extent, by three years. However, compared with the interprovincial migrants in Canada and the interstate migrants in the United States (Liaw and Ledent, 1987; Newbold and Liaw, 1994; Liaw and Frey, 1996; Frey and Liaw, 2005), the immigrants in their destination choice behaviors have been found to be much less sensitive to short-run fluctuations in the spatial pattern of employment opportunities.

In addition to the brief positive effect of the 1991 Canada/Quebec agreement on Quebec's share of the immigrants in question, we have also found that those with French language ability were much more prone to going to Quebec, and that those aged 60 and over were much more likely to choose British Columbia as their destination. But, these highly selective outcomes involved only very small proportions of the skilled-worker immigrants from the South Asian countries and hence were very small parts of the whole picture.

Since the income gap between the "have" and "have not" provinces has been stubbornly persistent (Higgins and Savoie, 1997), and since the concentration of the South Asian communities in Ontario has been sustained and even strengthened by the continual arrival of new immigrants, our findings suggest that there is little an immigration policy can do to induce new skilled-worker immigrants from these South Asian countries to shift their initial destination from Ontario to the "have not provinces". An attempt to strengthen their preference for another "have" province, Alberta, has a better chance to succeed.

This research on South Asian immigrants and our earlier research on the immigrants from China, Hong Kong and Taiwan (Xu and Liaw, 2003) have confirmed

the main point that in addition to being strongly affected by the attractions of their co-ethnic communities, the destination choices of skilled-worker immigrants are strongly subject to the influence of the spatial pattern of economic opportunities in Canada. Unfortunately, the theoretical insights into the spatial economy of Canada developed recently by Polese and Shearmur (2006) from their careful case study of the declining regions within the province of Quebec suggests that the relatively poor economic prospects of the peripheral and lightly populated parts of Canada are mostly immune to the stimulus of policy measures.

However, it is useful to put our findings in the context of what happened in the United States. A comparison of the destination choices of the newly arrived immigrants between 1985-1990 and 1995-2000 showed that the destination choice pattern of the newly arrived immigrants became more dispersed from the late 1980s to the late 1990s, and that the change was particularly great for Hispanic immigrants with less than high school education (Liaw and Frey, 2006). Many of them took the jobs in the food processing (including meatpacking), construction, and low-skilled service sectors in the local economies of non-metropolitan and rural part of the country (Lichter and Johnson, 2006). They were actively recruited and welcomed by employers who had difficulties in filling such injury-prone, physically demanding, and menial jobs with native-born workers (Gozdziak and Bump, 2004; Kandel and Parrado, 2005). The widespread dispersal surprised both academics and government officials and created serious problems in the provision of social services (including the schooling of non-English-speaking children) in many small communities (Waters and Jiménez, 2005). In light of the lagged effect of the prevalence of sub-replacement fertility on the reduced supply of

native-born workers, and in light of the weak financial capacities of small municipalities in Canada, further research is needed to assess whether the dispersal of immigrants via such a mechanism can also occur in Canada in the near future.

Finally, for assessments of the socioeconomic integrations and impacts of the immigrants in their chosen destinations, we refer to Lo and Wang (1997), Walton-Roberts and Hiebert (1997); Ray (1999), Preston and Cox (1999), Hiebert (2000), and Prescott and Wilton (2002).

References

- CIC (Citizenship and Immigration Canada). 2005a. *Facts and Figures: 2004*.
(www.cic.gc.ca)
- CIC. 2005b. *News Release: 2005-12*. (www.cic/english/oress/05/0512-e.html)
- Frey, W. H. and K. L. Liaw. 2005. "Migration within the United States: Role of Race and Ethnicity", in G. Burtless and J. Rothenberg Pack (eds.) *Brookings-Wharton Papers on Urban Affairs, 2005*. Washington DC: The Brookings Institution Press. pp.207-262.
- Ghosh, S. and L. Wang. 2003. "Transnationalism and Identity: a Tale of Two Faces and Multiple Lives". *The Canadian Geographer*, 47: 269-282.
- Gozdziak, E. M. and M. N. Bump. 2004. "Poultry, Apples, and New Immigrants in the Rural Communities of the Shenandoah Valley: An Ethnographic Case Study". *International Migration*, 42: 149-164.
- Hiebert, D. 2000. "Immigration and the changing Canadian city". *The Canadian Geographer*, 44: 25-43.

- Higgins, B. and D. J. Savoie. 1997. *Regional Development Theories & Their Application*.
New Brunswick, New Jersey: Transaction Publishers.
- Kandel, E. W. and E. A. Parrado. 2005. "Restructuring of the US Meat Processing Industry and New Hispanic Migrant Destinations". *Population and Development Review*, 31: 447-471.
- Liaw, K.L. 1990. "Joint Effects of Personal Factors and Ecological Variables on the Interprovincial Migration Pattern of Young Adults in Canada: A Nested Logit Analysis". *Geographical Analysis*, 22: 189-208.
- Liaw, K.L. and W. H. Frey. 1996. "Interstate Migration of American Young Adults in 1985-90: An Explanation Using Nested Logit Model". *Geographical systems*, 3: 301-334.
- Liaw, K.L. and W. H. Frey. 2006. "Multivariate Explanation of the 1985-1990 and 1995-2000 Destination Choices of Newly Arrived Immigrants in the United States: The Beginning of a New Trend?" Paper for presentation at the 53rd North American Regional Science Association International Conference, Toronto, November 16-18, 2006.
- Liaw, K. L. and Y. Ishikawa. 2007 "Destination Choice of the 1995-2000 Immigrants to Japan: Salient Features and Multivariate Explanation". *Environment and Planning A*. (forthcoming)
- Liaw, K. L. and J. Ledent. 1987. "Nested Logit Model and Maximum Quasi-Likelihood Method: A Flexible Methodology for Analyzing Interregional Migration Patterns". *Regional Science and Urban Economics*, 17: 67-88.
- Liaw, K. L. and L. Xu. 2005. "Problematic Post-Landing Interprovincial Migration of

- the Immigrants in Canada: From 1980-1983 through 1992-1995". *Journal of Population Studies* (Taiwan), 31:105-152.
- Lo, L. and S. Wang. 1997. "Settlement patterns of Toronto's Chinese immigrants: convergence or divergence?" *Canadian Journal of Regional Science*, 20: 49-72.
- Massey, D.S., J. Arango, G. Hugo, A. Kouaouci, A. Pellegrino, and J. E. Taylor. 1993. "Theories of International Migration: A Review and Appraisal". *Population and Development Review*, 19: 431-468.
- Newbold, K. B. and K. L. Liaw. 1994. "Return and Onward Interprovincial Migration Through Economic Boom and Bust in Canada, From 1976-81 to 1981-86". *Geographical Analysis*, 26: 228-245.
- Polese, M. and R. Shearmur. 2006. "Why some regions will decline: A Canadian case study with thoughts on local development strategies". *Papers in Regional Science*, 85: 23-46.
- Portes, A. 1995. "Economic Sociology and the Sociology of Immigration: A Conceptual Overview", in A. Portes (ed.) *The Economic Sociology of Immigration*. NY: Russell Sage Foundation. pp. 1-41.
- Prescott, D. and D. Wilton. 2002. "The Location of Canada's Immigrants and the Spatial Distribution of Canada's Overseas Visitors". *Canadian Journal of Regional Science*, 25: 79-99.
- Preston, V. and J. C. Cox. 1999. "Immigrants and Employment: A Comparison of Montreal and Toronto between 1981 and 1996". *Canadian Journal of Regional Science*, 22: 87-111.
- Ray, B. 1999. "Plural Geographies in Canadian Cities: Interpreting Immigrant

- Residential Spaces in Toronto and Montreal”. *Canadian Journal of Regional Science*, 22: 65-86.
- Ray, B. and D. Rose. 2000. “Cities of the Everyday: Socio-Spatial Perspectives on Gender, Difference, and Diversity”, in T. Bunting and P. Filion (eds.). *Canadian Cities in Transition: The Twenty-first century* (Second Edition). Toronto: Oxford University Press. pp. 502-524.
- Savoie, D. J. 2001. *Pulling Against Gravity: Economic Development in New Brunswick During the McKenna Years*. Montreal: The Institute for Research on Public Policy.
- Sjaastad, L.A. 1962. “The costs and returns of human migration”. *Journal of Political Economy*, 70S: 80-93.
- SPPR (Strategic Policy, Planning and Research). 2001. *Towards a More Balanced Geographic Distribution of Immigrants*. Communications Branch, Citizenship and Immigration Canada, Ottawa, Ontario K1A 1L1 (www.cic.gc.ca).
- Todaro, M. P. 1985. *Economic Development in the Third World*. New York: Longman.
- Waldinger, R. 1996. *Still the Promised City?* Cambridge, Massachusetts: Harvard University Press.
- Walton-Roberts, M. 2003. “Transnational Geographies: Indian Immigration to Canada”. *The Canadian Geographer*, 47: 235-250.
- Walton-Roberts, M. and D. Hiebert. 1997. “Immigration, Entrepreneurship, and the Family: Indo-Canadian Enterprise in the Construction Industry of Greater Vancouver”. *Canadian Journal of Regional Science*, 20: 119-140.
- Waters, M. C. and T. R. Jiménez. 2005. “Assessing Immigrant Assimilation: New Empirical and Theoretical Challenges”. *Annual Review of Sociology*, 31: 105-125.

- Winchie, D. and D. Carment. 1989. "Migration and Motivation: the Migrant's Perspective". *International Immigration Review*, 23: 96-104.
- Xu, L. and K. L. Liaw. 2003. "Explanation of Initial Destination Choices of Skilled Immigrants from Hong Kong, China and Taiwan to Canada: 1983 – 1999". *Journal of Population Studies (Taiwan)*, 26: 26-70.

TABLE 1. The Geographical Distributions of 1992-2001 Skilled-worker Immigrants from South Asia by Citizenship, Overall Immigrant Flows, and the 1996 and 2001 Canadian population

Citizenship	N.L.	P.E.I.	N.S.	N.B.	Quebec	Ontario	Manitoba	Sask.	Alberta	B.C.	Total	
											Total Share	Volume
India	0.32	0.02	0.71	0.24	1.95	80.09	1.05	0.87	5.36	9.38	52.79	33,506
Bangladesh	0.29	0.00	0.84	0.35	5.78	80.46	0.95	0.60	3.92	6.82	7.12	4,519
Pakistan	0.07	0.02	0.54	0.13	1.75	88.48	0.61	0.42	3.83	4.14	33.29	21,126
Sri Lanka	0.97	0.02	0.53	0.28	4.29	84.20	0.86	0.60	3.50	4.75	6.8	4,317
Total Share	0.28	0.02	0.65	0.21	2.32	83.19	0.88	0.69	4.62	7.14	100.00	
Total Volume	177	14	415	134	1,471	52,799	560	435	2,932	4,531		63,468
All Citizenship: S.W.(1)	0.22	0.04	0.70	0.31	14.80	58.03	1.32	0.70	5.86	18.02	100.00	
All Citizenship (2)	0.24	0.07	1.14	0.32	14.90	54.88	1.85	0.88	6.70	19.03	100.00	
Canadian Population, 1996	1.92	0.47	3.16	2.57	24.83	37.40	3.87	3.44	9.38	12.95	100.00	
Canadian Population, 2001	1.71	0.45	3.04	2.44	24.19	38.14	3.74	3.27	9.94	13.06	100.00	

Notes: (1): skilled immigrants of all citizenship; (2): total immigrants of all citizenship.

Source: Computed by the authors from Landing Information Data System (LIDS); 1996 and 2001 Census data.

TABLE 2. The Destination Choice Patterns of the 1992-2001 Skilled-worker Immigrants from India, Pakistan, Bangladesh, and Sri Lanka: By Personal Attributes

Personal Attribute	Destinations (%)										Immigrants	
	N.L.	P.E.I.	N.S.	N.B.	Quebec	Ontario	Manitoba	Sask.	Alberta	B.C.	Volume (persons)	Composition (%)
1. Period												
1992-1996	0.51	0.02	1.10	0.33	4.86	77.43	1.37	1.04	5.50	7.84	17,954	28.3
1997-2001	0.19	0.02	0.48	0.16	1.30	85.49	0.69	0.54	4.26	6.87	45,404	71.7
2. Official Language Ability												
English	0.29	0.02	0.67	0.22	1.98	83.44	0.88	0.70	4.64	7.16	60,234	95.1
French*	0.00	0.00	0.45	0.45	22.02	66.37	0.00	0.15	3.92	6.64	663	1.0
None	0.04	0.00	0.33	0.04	5.04	81.92	1.14	0.45	4.23	6.83	2,461	3.9
3. Educational Attainment												
LT Bachelor	0.14	0.01	0.46	0.12	4.59	82.75	0.83	0.33	4.05	6.72	14,495	22.9
Bachelor	0.22	0.03	0.70	0.16	1.43	84.90	0.70	0.52	4.42	6.97	32,366	51.1
HT Bachelor	0.51	0.02	0.74	0.38	2.02	80.24	1.30	1.33	5.49	7.98	16,497	26.0
4. Occupation												
Manager	0.10	0.02	0.73	0.10	1.46	86.19	0.92	0.28	3.61	6.59	8,594	13.6
Engineer	0.25	0.02	0.66	0.25	1.40	83.23	0.92	0.95	5.29	7.03	29,277	46.2
Clerical	0.11	0.00	0.77	0.11	1.56	83.65	1.02	0.25	5.11	7.43	4,427	7.0
Other	0.43	0.03	0.59	0.23	4.07	81.84	0.79	0.57	3.98	7.47	21,060	33.2
5. Age Group												
20-29	0.25	0.02	0.62	0.25	2.69	82.97	0.93	0.83	4.34	7.10	19,848	31.3
30-59	0.29	0.02	0.67	0.19	2.13	83.36	0.86	0.63	4.72	7.13	45,302	71.5
60+	0.00	0.00	0.96	0.48	8.65	68.28	1.44	0.48	5.29	14.42	208	0.3

Notes: * Includes French and English.

The number of the skilled worker immigrants without missing values for the personal attributes in question is 63,358 persons.

TABLE 3 (a). Estimation Results of the Logit Model for Explaining the Choices of Destination Provinces Made by Skilled-worker Immigrants from India, Pakistan, Bangladesh, and Sri Lanka: 1992-2001

Explanatory Variables	Best Specification		-Ethnic Attraction		- Provincial Size		- Income		- Employment Growth		- Income & Employment Growth	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
1. Ethnic Attraction												
Ethnic Similarity * Indian	4.167	38.8	----	----	6.405	114.1	4.519	53.8	4.412	42.2	5.116	61.8
Ethnic Similarity * Bangladeshi	3.716	27.7	----	----	5.695	56.1	3.661	32.4	3.971	30.5	4.340	38.8
Ethnic Similarity * Pakistani	5.295	47.7	----	----	7.519	120.1	5.604	63.5	5.530	51.4	6.170	71.6
Ethnic Similarity * Sri Lankan	2.508	18.2	----	----	3.765	29.4	2.800	23.3	2.655	19.6	3.207	26.7
Ethnic Similarity * Indian * Young-age	-0.246	-3.2	----	----	-0.293	-3.7	-0.259	-4.0	-0.243	-3.2	-0.234	-3.6
Ethnic Similarity * Indian * High Education	-0.834	-10.6	----	----	-0.857	-10.6	-0.812	-12.3	-0.816	-10.5	-0.755	-11.6
Ethnic Similarity * Sri Lankan * High Education	-1.131	-5.6	----	----	-1.149	-5.7	-1.079	-6.1	-1.173	-5.9	-1.119	-6.3
Ethnic Similarity * Sri Lankan * Low Education	0.399	2.6	----	----	0.389	2.5	0.596	4.4	0.276	1.8	0.435	3.3
2. Labour Market Factors												
Income	4.824	32.4	5.796	31.6	5.189	34.9	----	----	4.980	35.0	----	----
Income * Managerial Occupations	1.087	3.4	1.247	3.2	1.959	6.7	----	----	1.147	3.7	----	----
Income * Sci/Eng Occupations	0.945	5.1	0.734	3.2	0.989	5.2	----	----	1.047	5.8	----	----
Income * Clerical Occupations	2.186	5.8	2.438	5.2	2.107	5.4	----	----	2.009	5.5	----	----
Employment Growth Rate [Lagged by 2 years]	7.536	8.7	10.804	9.5	7.918	9.5	4.871	6.5	----	----	----	----
Employment Growth Rate [Lagged by 3 years]	3.935	4.6	8.366	7.1	-0.555	-0.7	15.976	21.6	----	----	----	----
3. Quebec's French Milieu												
Quebec * French Language Ability	1.978	16.4	1.489	10.7	2.308	17.9	1.604	15.6	1.978	16.6	1.618	15.5
4. Canada/Quebec Agreement												
QUE * 92 * Indian	1.150	9.1	0.466	3.1	1.707	13.5	0.691	6.4	1.210	9.8	0.684	6.3
QUE * 93 * Indian	0.658	4.5	-0.125	-0.7	1.274	8.6	0.081	0.6	0.812	5.6	0.301	2.4
QUE * 92 * Bangladeshi	1.742	13.2	2.642	16.4	1.407	10.6	1.189	10.6	1.714	13.3	0.967	8.6
QUE * 92 * Pakistani	2.981	21.5	1.900	11.5	3.460	24.7	2.461	20.8	3.036	22.3	2.424	20.5
QUE * 93 * Pakistani	1.637	7.2	0.462	1.7	2.171	9.4	0.974	5.0	1.794	8.0	1.175	6.0
QUE * 92 * Sri Lankan	0.983	6.7	0.436	2.5	1.268	8.5	0.653	5.1	0.969	6.7	0.562	4.4
QUE * 93 * Sri Lankan	0.914	4.5	0.289	1.2	1.264	6.1	0.453	2.5	1.001	4.9	0.601	3.4
5. Mild Winter of British Columbia												
BC * Age 60 and Over	0.882	3.9	1.090	3.9	0.724	3.2	1.022	5.1	0.977	4.4	1.315	6.6
6. Relative Sizes of Provinces												
Provincial Size	3.659	22.7	10.408	139.5	----	----	5.593	44.6	3.123	20.6	4.456	36.9
Prov. Size * Managerial Occupations	0.904	5.6	0.863	4.4	----	----	1.053	8.6	0.843	5.3	0.949	7.8
Rho-Square (Maximizing Method)	0.6965		0.6843		0.6940		0.6824		0.6953		0.6786	
Marginal Contribution in Rho-Square	----		0.0122		0.0025		0.0141		0.0011		0.0179	
Rho-Square (Fixed-coefficient Method)	0.6965		0.5385		0.6578		0.6658		0.6952		0.6629	
Marginal Contribution in Rho-Square	----		0.1579		0.0387		0.0307		0.0012		0.0335	

TABLE 3 (b). Estimation Results of the Logit Model for Explaining the Choices of Destination Provinces Made by Skilled-worker Immigrants from India, Pakistan, Bangladesh, and Sri Lanka: 1992-2001

Explanatory Variables	Best Specification		- Ethnic Attraction & Labour Market Factors & Provincial Size		- French Language		- Canada/Quebec Agreement		- Climate Effects	
	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio	Coef.	t-ratio
1. Ethnic Attraction										
Ethnic Similarity * Indian	4.167	38.8	----	----	4.086	38.0	3.966	39.5	4.172	38.8
Ethnic Similarity * Bangladeshi	3.716	27.7	----	----	3.652	27.2	3.514	27.4	3.725	27.8
Ethnic Similarity * Pakistani	5.295	47.7	----	----	5.213	46.9	4.993	48.1	5.302	47.8
Ethnic Similarity * Sri Lankan	2.508	18.2	----	----	2.462	17.8	2.368	17.8	2.509	18.2
Ethnic Similarity * Indian * Young-age	-0.246	-3.2	----	----	-0.253	-3.3	-0.241	-3.2	-0.242	-3.1
Ethnic Similarity * Indian * High Education	-0.834	-10.6	----	----	-0.843	-10.7	-0.840	-11.0	-0.832	-10.6
Ethnic Similarity * Sri Lankan * High Education	-1.131	-5.6	----	----	-1.141	-5.7	-1.129	-5.8	-1.129	-5.6
Ethnic Similarity * Sri Lankan * Low Education	0.399	2.6	----	----	0.400	2.6	0.351	2.4	0.398	2.6
2. Labour Market Factors										
Income	4.824	32.4	----	----	4.763	32.0	4.183	30.8	4.822	32.4
Income * Managerial Occupations	1.087	3.4	----	----	1.036	3.2	1.481	4.7	1.087	3.4
Income * Sci/Eng Occupations	0.945	5.1	----	----	0.959	5.2	1.492	8.6	0.950	5.1
Income * Clerical Occupations	2.186	5.8	----	----	2.070	5.5	2.492	6.9	2.194	5.8
Employment Growth Rate [Lagged by 2 years]	7.536	8.7	----	----	7.456	8.6	9.199	11.0	7.573	8.8
Employment Growth Rate [Lagged by 3 years]	3.935	4.6	----	----	4.020	4.7	2.556	3.1	3.957	4.6
3. Quebec's French Milieu										
Quebec * French Language Ability	1.978	16.4	0.858	4.0	----	----	2.243	20.3	1.979	16.4
4. Canada/Quebec Agreement										
QUE * 92 * Indian	1.150	9.1	-0.293	-1.3	1.219	9.8	----	----	1.150	9.1
QUE * 93 * Indian	0.658	4.5	-0.676	-2.4	0.735	5.0	----	----	0.657	4.5
QUE * 92 * Bangladeshi	1.742	13.2	1.955	7.9	1.837	14.2	----	----	1.740	13.2
QUE * 92 * Pakistani	2.981	21.5	1.134	4.5	3.090	22.9	----	----	2.981	21.5
QUE * 93 * Pakistani	1.637	7.2	-0.131	-0.3	1.697	7.6	----	----	1.636	7.2
QUE * 92 * Sri Lankan	0.983	6.7	-0.279	-1.0	1.011	6.9	----	----	0.980	6.6
QUE * 93 * Sri Lankan	0.914	4.5	-0.240	-0.6	0.967	4.8	----	----	0.911	4.4
5. Mild Winter of British Columbia										
BC * Age 60 and Over	0.882	3.9	0.411	0.9	0.888	3.9	0.862	3.9	----	----
6. Relative Sizes of Provinces										
Provincial Size	3.659	22.7	----	----	3.792	23.5	4.033	26.7	3.644	22.6
Prov. Size * Managerial Occupations	0.904	5.6	----	----	0.906	5.6	0.874	5.5	0.909	5.6
Rho-Square (Maximizing Method)	0.6965		0.0016		0.6956		0.6939		0.6964	
Marginal Contribution in Rho-Square	----		0.6948		0.0009		0.0025		0.0001	
Rho-Square (Fixed-coefficient Method)	0.6965		-0.0030		0.6956		0.6937		0.6964	
Marginal Contribution in Rho-Square	----		0.6948		0.0009		0.0025		0.0001	

TABLE 4. Assessments of the Contributions of Different Factors to the Explanation of the Initial Destination Choice Pattern of Skilled-worker Immigrants Landed from India, Pakistan, Bangladesh, and Sri Lanka in 1992-2001: Based on the Best Specification of a Multinomial Logit Model

Explanatory Factors	Economically Strong Provinces		Weak Provinces			Dissimilarity Index with respect to observed pattern
	Ontario	Alberta	BC	Quebec	Other	
Observed Number of Immigrants (persons)						
	52,713	2,923	4,527	1,461	1,734	----
Observed Choice Pattern (%)						
	83.20	4.61	7.15	2.31	2.73	----
Cumulative Predicted Choice Pattern (%)						
Provincial Size	26.43	9.03	10.00	14.66	39.88	56.77
Ethnic Similarity	73.40	3.21	6.67	6.26	10.46	11.68
Income Level	83.77	4.50	6.36	2.91	2.46	1.17
Employment Growth	83.27	4.95	6.74	2.77	2.27	0.87
Quebec * French Language Ability	83.15	4.94	6.73	2.91	2.27	0.93
Canada/Quebec Agreement	82.62	4.92	6.69	3.51	2.27	1.51
British Columbia * Aged 60+	82.60	4.91	6.72	3.51	2.26	1.50
Changes in Predicted Choice Pattern (%) due to Successive Inclusions of Explanatory Factors						
Provincial Size	26.43	9.03	10.00	14.66	39.88	----
Ethnic Similarity	46.97	-5.82	-3.33	-8.40	-29.42	----
Income Level	10.37	1.29	-0.31	-3.35	-8.00	----
Employment Growth	-0.50	0.45	0.38	-0.14	-0.19	----
Quebec * French Language Ability	-0.12	-0.01	-0.01	0.14	0.00	----
Canada/Quebec Agreement	-0.53	-0.02	-0.04	0.60	0.00	----
British Columbia * Aged 60+	-0.02	-0.01	0.03	0.00	-0.01	----

Note: The total number of South Asian skilled workers (principal applicants) in 1992-2001 is 63,358.

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
(2005)		
No. 124:	Exploring the Use of a Nonparametrically Generated Instrumental Variable in the Estimation of a Linear Parametric Equation	F.T. Denton
No. 125:	Borrowing Constraints, The Cost of Precautionary Saving, and Unemployment Insurance	T.F. Crossley H.W. Low
No. 126:	Entry Costs and Stock Market Participation Over the Life Cycle	S. Alan
No. 127:	Income Inequality and Self-Rated Health Status: Evidence from the European Community Household Panel	V. Hildebrand P. Van Kerm
No. 128:	Where Have All The Home Care Workers Gone?	M. Denton I.U. Zeytinoglu S. Davies D. Hunter
No. 129:	Survey Results of the New Health Care Worker Study: Implications of Changing Employment Patterns	I.U. Zeytinoglu M. Denton S. Davies A. Baumann J. Blythe A. Higgins
No. 130:	Does One Size Fit All? The CPI and Canadian Seniors	M. Brzozowski
No. 131:	Unexploited Connections Between Intra- and Inter-temporal Allocation	T.F. Crossley H.W. Low
No. 132:	Grandparents Raising Grandchildren in Canada: A Profile of Skipped Generation Families	E. Fuller-Thomson
No. 133:	Measurement Errors in Recall Food Expenditure Data	N. Ahmed M. Brzozowski T.F. Crossley
No. 134:	The Effect of Health Changes and Long-term Health on the Work Activity of Older Canadians	D.W.H. Au T. F. Crossley M.. Schellhorn

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
No. 135:	Population Aging and the Macroeconomy: Explorations in the Use of Immigration as an Instrument of Control	F. T. Denton B. G. Spencer
No. 136:	Users and Suppliers of Physician Services: A Tale of Two Populations	F.T. Denton A. Gafni B.G. Spencer
No. 137:	MEDS-D USERS' MANUAL	F.T. Denton C.H. Feaver B.G.. Spencer
No. 138:	MEDS-E USERS' MANUAL	F.T. Denton C.H. Feaver B.G. Spencer
No. 139:	Socioeconomic Influences on the Health of Older Canadians: Estimates Based on Two Longitudinal Surveys (Revised Version of No. 112)	N.J. Buckley F.T. Denton A.L. Robb B.G. Spencer
No. 140:	Developing New Strategies to Support Future Caregivers of the Aged in Canada: Projections of Need and their Policy Implications	J. Keefe J. Légaré Y. Carrière
No. 141:	Les Premiers Baby-Boomers Québécois font-ils une Meilleure Préparation Financière à la Retraite que leurs Parents? Revenu, Patrimoine, Protection en Matière de Pensions et Facteurs Démographiques	L. Mo J. Légaré
No. 142:	Welfare Restructuring without Partisan Cooperation: The Role of Party Collusion in Blame Avoidance	M. Hering
No. 143:	Ethnicity and Health: An Analysis of Physical Health Differences across Twenty-one Ethnocultural Groups in Canada	S. Prus Z. Lin
No. 144:	The Health Behaviours of Immigrants and Native-Born People in Canada	J.T. McDonald
No. 145:	Ethnicity, Immigration and Cancer Screening: Evidence for Canadian Women	J.T. McDonald S. Kennedy
No. 146:	Population Aging in Canada: Software for Exploring the Implications for the Labour Force and the Productive Capacity of the Economy	F.T. Denton C.H. Feaver B.G. Spencer

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
-2006		
No. 147:	The Portfolio Choices of Hispanic Couples	D.A. Cobb-Clark V.A. Hildebrand
No. 148:	Inter-provincial Migration of Income among Canada's Older Population:1996-2001	K.B. Newbold
No. 149:	Joint Taxation and the Labour Supply of Married Women: Evidence from the Canadian Tax Reform of 1988	T.F. Crossley S.H. Jeon
No. 150:	What Ownership Society? Debating Housing and Social Security Reform in the United States	D. Béland
No. 151:	Home Cooking, Food Consumption and Food Production among the Unemployed and Retired Households	M. Brzozowski Y. Lu
No. 152:	The Long-Run Cost of Job Loss as Measured by Consumption Changes	M. Browning T.F. Crossley
No. 153:	Do the Rich Save More in Canada?	S. Alan K. Atalay T.F. Crossley
No. 154:	Income Inequality over the Later-life Course: A Comparative Analysis of Seven OECD Countries	R.L. Brown S.G. Prus
No. 155:	The Social Cost-of-Living: Welfare Foundations and Estimation	T.F. Crossley K. Pendakur
No. 156:	The Top Shares of Older Earners in Canada	M.R. Veall
No. 157:	Le soutien aux personnes âgées en perte d'autonomie: jusqu' où les baby-boomers pourront-ils compter sur leur famille pour répondre à leurs besoins ?	J. Légaré C. Alix Y. Carrière J. Keefe
No. 158:	Les générations X et Y du Québec, vraiment différentes des précédentes ?	J. Légaré P.O. Ménard
No. 159: French	La diversification et la privatisation des sources de revenu de retraite au Canada	L. Mo J. Légaré L. Stone
No. 159: English	The Diversification and the Privatization of the Sources of Retirement Income in Canada	L. Mo J. Légaré L. Stone
No. 160:	Evaluating Pension Portability Reforms: The Tax Reform Act of 1986 as a Natural Experiment	V. Andrietti V.A. Hildebrand

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
No. 161:	Estimating a Collective Household Model with Survey Data on Financial Satisfaction	R. Alessie T.F. Crossley V.A. Hildebrand
No. 162:	Physician Labour Supply in Canada: A Cohort Analysis	T.F. Crossley J. Hurley S.H. Jeon
No. 163:	Tax Incentives and Household Portfolios: A Panel Data Analysis	S. Alan S. Leth-Petersen
No. 164:	The Healthy Immigrant Effect and Immigrant Selection: Evidence from Four Countries	S. Kennedy J.T. McDonald N. Biddle
No. 165:	Well-Being Throughout the Senior Years: An Issues Paper on Key Events and Transitions in Later Life	M. Denton K. Kusch
No. 166:	Satisfied Workers, Retained Workers: Effects of Work and Work Environment on Homecare Workers' Job Satisfaction, Stress, Physical Health, and Retention	I.U. Zeytinoglu M. Denton
No. 167:	Contrasting Inequalities: Comparing Correlates of Health in Canada and the United States	H. Armstrong W. Clement Z. Lin S. Prus
-2007		
No. 168:	Health human resources planning and the production of health: Development of an extended analytical framework for needs-based health human resources planning	S. Birch G. Kephart G. Tomblin-Murphy L. O'Brien-Pallas R. Alder A. MacKenzie
No. 169:	Gender Inequality in the Wealth of Older Canadians	M. Denton L. Boos
No. 170:	The Evolution of Elderly Poverty in Canada	K. Milligan
No. 171:	Return and Onwards Migration among Older Canadians: Findings from the 2001 Census	K.B. Newbold
No. 172:	Le système de retraite américain: entre fragmentation et logique financière	D. Béland

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
No. 173:	Entrepreneurship, Liquidity Constraints and Start-up Costs	R. Fonseca P.-C. Michaud T. Sopraseuth
No. 174:	How did the Elimination of the Earnings Test above the Normal Retirement Age affect Retirement Expectations?	P.-C. Michaud A. van Soest
No. 175:	The SES Health Gradient on Both Sides of the Atlantic	J. Banks M. Marmot Z. Oldfield J.P. Smith
No. 176:	Pension Provision and Retirement Saving: Lessons from the United Kingdom	R. Disney C. Emmerson M. Wakefield
No. 177:	Retirement Saving in Australia	G. Barrett Y.-P. Tseng
No. 178:	The Health Services Use Among Older Canadians in Rural and Urban Areas	H. Conde J.T. McDonald
No. 179:	Older Workers and On-the-Job Training in Canada: Evidence from the WES data	I.U. Zeytinoglu G.B. Cooke K. Harry
No. 180:	Private Pensions and Income Security in Old Age: An Uncertain Future – Conference Report	M. Hering M. Kpessa
No. 181:	Age, SES, and Health: A Population Level Analysis of Health Inequalities over the Life Course	S. Prus
No. 182:	Ethnic Inequality in Canada: Economic and Health Dimensions	E.M. Gee K.M. Kobayashi S.G. Prus
No. 183:	Home and Mortgage Ownership of the Dutch Elderly: Explaining Cohort, Time and Age Effects	A. van der Schors R.J.M. Alessie M. Mastrogiacomo
No. 184:	A Comparative Analysis of the Nativity Wealth Gap	T.K. Bauer D.A. Cobb-Clark V. Hildebrand M. Sinning
No. 185:	Cross-Country Variation in Obesity Patterns among Older Americans and Europeans	P.C. Michaud A. van Soest T. Andreyeva

SEDAP RESEARCH PAPERS: Recent Releases

Number	Title	Author(s)
No. 186:	Which Canadian Seniors Are Below the Low-Income Measure?	M.R. Veall
No. 187:	Policy Areas Impinging on Elderly Transportation Mobility: An Explanation with Ontario, Canada as Example	R. Mercado A. Páez K. B. Newbold
No. 188:	The Integration of Occupational Pension Regulations: Lessons for Canada	M. Hering M. Kpessa
No. 189:	Psychosocial resources and social health inequalities in France: Exploratory findings from a general population survey	F. Jusot M. Grignon P. Dourgnon
No. 190:	Health-Care Utilization in Canada: 25 Years of Evidence	L.J. Curtis W.J. MacMinn
No. 191:	Health Status of On and Off-reserve Aboriginal Peoples: Analysis of the Aboriginal Peoples Survey	L.J. Curtis
No. 192:	On the Sensitivity of Aggregate Productivity Growth Rates to Noisy Measurement	F.T. Denton
No. 193:	Initial Destination Choices of Skilled-worker Immigrants from South Asia to Canada: Assessment of the Relative Importance of Explanatory Factors	L. Xu K.L. Liaw