Research Paper

Analytical Studies Branch Research Paper Series

Internal Migration of Immigrants: Do Immigrants Respond to Regional Labour Demand Shocks?

by Yuri Ostrovsky, Feng Hou and Garnett Picot

Business and Labour Market Analysis Division
24-J, R.H. Coats Building, 100 Tunney's Pasture Driveway
Ottawa, Ontario K1A 0T6

Telephone: 1-800-263-1136

Statistics Canada   Statistique Canada

Canada

**Analytical Studies
Research Paper Series**

The Analytical Studies Research Paper Series provides for the circulation, on a pre-publication basis, of research conducted by Branch staff, visiting Fellows and academic associates. The Research Paper Series is intended to stimulate discussion on a variety of topics including labour, business firm dynamics, pensions, agriculture, mortality, language, immigration, statistical computing and simulation. Readers of the series are encouraged to contact the authors with comments, criticisms and suggestions. A list of titles appears at the end of this document.

Papers in the series are distributed to research institutes, and specialty libraries. These papers can be downloaded from the Internet at www.statcan.gc.ca.

Publications Review Committee
Analytical Studies, Statistics Canada
24th Floor, R.H. Coats Building
Ottawa, Ontario K1A 0T6

Internal Migration of Immigrants: Do Immigrants Respond to Regional Labour Demand Shocks?

by Yuri Ostrovsky, Feng Hou and Garnett Picot

La version française de cette publication est disponible (n° 11F0019M au catalogue, n° 318).

Note of appreciation
Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

Standards of service to the public
Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, the Agency has developed standards of service which its employees observe in serving its clients. To obtain a copy of these service standards, please contact Statistics Canada toll free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca under About us > Providing services to Canadians.

Table of contents

Abstract

The recent economic boom in the Canadian province of Alberta provides an ideal 'natural experiment' to examine immigrants' responses to a strong labour demand outside major metropolitan centres. The key finding of our study, which is based on a unique dataset that combines administrative and immigrant records, is that not only did immigrants respond to the recent economic boom in Alberta, but they responded generally more strongly than non-immigrants. We find, however, a great deal of heterogeneity in the magnitude of the response across different regions and for different categories of immigrants.

Executive summary

It is well known that the vast majority of immigrants in North America choose to live in major metropolitan centres. Understanding the relative importance of economic and non-economic factors in the immigrants' residential choices is crucial in understanding the role that immigrants play in the labour market adjustment mechanism. The literature on internal migration recognizes that mobility choices depend on both economic and non-economic factors, although some evidence suggests that the effect of economic factors may be stronger. Recent Canadian immigration policies aim at encouraging a more diverse geographical distribution of immigrants, and at helping cities and regions other than Montréal, Toronto and Vancouver to attract and retain immigrants. The success of such policies depends on a better understanding of similarities and differences in the mobility choices of immigrants and non-immigrants. Yet many questions about the differences in the role that economic considerations might play in immigrants' and non-immigrants' mobility decisions still remain.

The recent economic boom in Alberta, which led to a rising labour demand in the first years of this century, has created unique economic circumstances in which some hypotheses about immigrants' responses to a strong labour demand outside major metropolitan areas can be tested. Using a unique dataset that combines administrative and immigrant records, we first compare the response to the strong labour demand in Alberta of relatively recent immigrants with that of the comparison group, which consists largely of the Canadian-born population. Second, we examine the impact of different factors on the immigrants' decision to move to Alberta. Although the prospect of acquiring a good, high-paying job might be expected to carry considerable weight in immigrants' mobility choices, it is only one of the many factors affecting such choices. Personal and demographic characteristics, the presence of social networks, as well as the economic situation in the region where they lived before we observed their mobility outcomes may also be expected to play roles in immigrants' decisions to move (or not to move) to Alberta.

The study sample comes from Statistics Canada's Longitudinal Administrative Database (LAD), which contains demographic, income and taxation data. Each year of LAD is a representative 20% random sample of all Canadians who have a Social Insurance Number in that year. The LAD records are linked to the Citizenship and Immigration Canada records, which contain information on, among other things, foreign schooling, birthplace and ability to speak one of the official languages, for all immigrants who arrived to Canada since 1980.

The key finding of the study is that immigrants generally have responded strongly to the rising labour demand in Alberta, although the magnitude of the response varies from region to region. Our estimated probabilities of moving to Alberta among immigrants were about 30% higher for the 2001-to-2005 period than for the 1996-to-2000 period, controlling for differences in immigrant characteristics between the two periods, and 20% based on the raw data without controls. This result contrasts sharply with the results for the comparison group—which includes non-immigrants and immigrants living in Canada for 15 years or more, whose migration rates to Alberta did not change significantly from the 1996-to-2000 period to the 2001-to-2005 period.[1]

---

1. The number of interprovincial migrants to Alberta has increased steadily since the mid-1980s, particularly since 2005. In-migration to Alberta was at 40,000 people in 1984, rising to 100,000 people in 2008 (CANSIM, Statistics Canada). However, there was a period between the mid-1990s and early 2000s when the number changed little; hence the lack of growth in the comparison group's migration rate over that period.

But in terms of levels rather than change, only immigrants in Canada for 5 years or less have migration rates noticeably higher than those of the comparison group. Generally speaking, immigrants in Canada for 10 to 15 years were less likely to move to Alberta than their comparison group counterparts. In particular, immigrants in Canada for more than 5 years and living in major metropolitan areas such as Toronto and Vancouver remain less likely to move than the comparison group. Given the tendency among immigrants to concentrate in these cities, they are under-represented in the overall mobility adjustment triggered by the rising labour demand in Alberta. The proportion of immigrants in Canada (no matter where) who moved to Alberta was 0.27%, compared with 0.35% for the comparison group. Immigrants in Canada for less than 5 years were, however, overrepresented in the migration response, as their overall internal migration rate was 0.45%.

Much of the difference in internal migration rates to Alberta between immigrants and the comparison group can be attributed to the differences in the characteristics of these two groups. Based on our findings, we argue that if immigrants had the characteristics of the comparison group, their internal migration rates would be considerably higher than those of the comparison group.

1   Introduction

It is well known that the vast majority of immigrants in North America—as well as in other major immigrant destinations such as Australia and Europe—choose to live in major metropolitan centres. Three major metropolitan areas—Toronto, Montréal and Vancouver—account for about three quarters of the immigrant population (Statistics Canada). The availability of developed immigrant social networks is often presented to explain why immigrants tend to settle in big cities. Other research suggests that it is due to the economic opportunities in these large cities.

Understanding the relative importance of economic and non-economic factors in the immigrants' residential choices is crucial in understanding the role that immigrants play in the labour market adjustment mechanism. If, for instance, social networking is the dominant factor in such decisions, then the absence of immigrant clusters outside major metropolitan areas may lead to weak immigrant response to the rising labour demand in other regions. Such behaviour would be at odds with the generally important role internal migration plays in the labour market adjustment mechanism (Blanchard and Katz 1992) and may have important policy implications.

The literature on internal migration recognizes that mobility choices depend on both economic and non-economic factors although some evidence suggests that the effect of economic factors may be stronger (Xu 2007). Cebula (2005), for instance, finds that both expected and current incomes play an important role in migration decisions, as does the cost of living. On the other hand, weather, violent crime rates and recreational opportunities are also significant factors in making the decision to relocate. It has been argued that immigrants and non-immigrants have similar considerations when it comes to mobility choices; however, differences have also been noted (Lin 1998). It is possible that, when it comes to mobility, the relative importance of economic, environmental and personal factors in immigrants' choices is different. There may also be immigrant-specific factors that either facilitate or impede the flow of immigrants to the regions with stronger economic demand and greater employment opportunities, which is particularly important in the light of the deteriorating economic performance of immigrants in Canada (Baker and Benjamin 1994, Frenette and Morissette 2003, Aydemir and Skuterud 2005).

Given an increasing presence of immigrants in the population of most Western countries, an understanding of immigrants' mobility choices also has important policy implications. The concentration of immigrants in major metropolitan areas is often viewed as undesirable. Recent Canadian immigration policies have aimed at encouraging a more diverse geographical distribution of immigrants and helping cities and regions other than Montréal, Toronto and Vancouver to attract and retain immigrants. The success of such policies depends on a better understanding of similarities and differences in the mobility choices of immigrants and non-immigrants. Yet many questions about the differences in the role that economic considerations might play in immigrants' and non-immigrants' mobility decisions still remain.

The recent economic boom in Alberta, which led to a rising labour demand in the first years of this century, has created unique economic circumstances in which some hypotheses about immigrants' responses to a strong labour demand outside major metropolitan areas can be tested. Using a unique dataset that combines administrative and immigrant records, we first compare the response to the strong labour demand in Alberta of relatively recent immigrants with that of the comparison group, which consists largely of the Canadian-born population. Second, we examine

the impact of different factors on the immigrants' decision to move to Alberta. Although the prospect of acquiring a good, high-paying job might be expected to carry considerable weight in immigrants' mobility choices, it is only one of the many factors affecting such choices. Personal and demographic characteristics, the presence of social networks, as well as the economic situation in the region where they lived before we observed their mobility outcomes may also be expected to play roles in immigrants' decisions to move (or not to move) to Alberta.

The key finding of our study is that not only did immigrants respond to the recent economic boom in Alberta, they responded generally more strongly than non-immigrants. Their migration rates to Alberta rose by about 20% from the 1996-to-2000 period to the 2001-to-2006 period based on the raw data, and 30% after controlling for the difference in immigrant characteristics between the two periods. The rates among the comparison group changed little (see footnote 1). However, in terms of level, while the internal migration rates of 'recent' immigrants tend to be higher than those of the comparison group, they are not for immigrants with a longer tenure in Canada. Much of this difference is associated with differences in characteristics between immigrants and the comparison group.

There is, however, a great deal of heterogeneity in the magnitude of the response across different regions and for different categories of immigrants. Most notably, the probability of relocating to Alberta is much lower among residents of the three largest cities, whether they are immigrants or Canadian born. Since immigrants live in disproportionately high numbers in the largest cities, they are under-represented in term of the overall mobility adjustment triggered by the rising labour demand in Alberta.

The paper is organized as follows. Section 2 describes the recent economic developments in Alberta and provides a relevant background on internal migration. Section 3 describes our sample. Descriptive results are presented in Section 4. Section 5 discusses the results of our multivariate analysis. Finally, Section 6 presents our main conclusions.

2   Background

The economic growth currently experienced by Alberta is unprecedented in recent Canadian history (Cross and Bowlby 2006). Alberta's per capita gross domestic product in 2005 ($66,275) was 56% above the national average and twice as high as it was in 1995. Alberta's employment rate reached the 70% mark in 2004,[2] while the real average hourly wages of private sector employees aged from 15 to 64 were about 13% higher in 2006 than in 1997 (Morissette 2008). Much of this economic boom is attributed to the soaring price of oil and gas exports, although the growth in the energy sector has triggered investments in other sectors of Alberta's economy and infrastructure and has led to a rapid increase in retail sales.

Not surprisingly, Alberta has the lowest unemployment level in Canada (3.4% in 2006), which, in fact, brings about labour shortages in some industries, even though Alberta's population has been growing faster than the population of any other province and this province has the highest rates of migrant inflows. Internal migration directly accounts for 43% of Alberta's recent population growth (this figure excludes migrants' children born in Alberta). Almost a half (46%)

---

2.   Labour Force Survey estimates; CANSIM table 282-0002, (Appendix Chart 1).

of those who migrate to Alberta come from the neighbouring provinces, Saskatchewan and British Columbia. However, people increasingly come to Alberta from the Atlantic provinces and Quebec (20%). About a quarter of all migrants come from Ontario.[3] Cross and Bowlby (2006) note that few immigrants from abroad settle in Alberta. However, very little is known about the internal migration rates of immigrants who arrive in other provinces and decide to migrate to Alberta later.

Previous Canadian and U.S. studies on internal migration have found that the internal mobility of immigrants relative to that of the native born depends on the geographic scale, and the places they move to and from (Rogers and Belanger 1990, Kritz and Gurak 2001, Lin 1998, Rogers and Henning 1999, Trovato 1988). Lin (1998), for instance, finds that immigrants as a whole have lower inter-provincial mobility than the Canadian born. This difference exists mostly because immigrants are highly concentrated in Ontario and British Columbia, they are older and have larger households. Kritz and Gurak (2001) showed that immigrant men made fewer interstate moves than the native-born men in the United States. However, once differences in human capital, state economic conditions and nativity concentration were taken into account, immigrants had higher interstate migration rates than the native born.

Immigrants tend to differ from the native born in the direction of internal migration flows. In Canada, immigrants are less likely to leave Ontario and British Columbia but more likely to leave other provinces than the native born (Edmonston 2002). During the 1980s and 1990s, immigrants were less likely to move away from Canada's three major gateway centres—Toronto, Vancouver and Montréal—than non-immigrants. In comparison, immigrants are more likely to move to Toronto and Vancouver but less likely to move to Montréal than the native born (Hou and Bourne 2006). In the United States, immigrants were more likely to leave the Midwest and migrate to the West than the native born, while the native born were more likely to leave the Northeast and migrate to the South (Rogers and Henning 1999).

Given the fact that immigrants and the native born often move to different destinations from different origins, one would expect that their migration behaviours be affected by different determinants. Indeed, the group affinity hypothesis posits that pre-existing ethnic communities have a strong effect in both attracting and retaining immigrants (Kritz and Gurak 2001, Kritz and Nogle 1994, Lieberson and Waters 1987, Newbold 1996). Some empirical studies have found that pre-existing immigrant communities reduce the likelihood of out-migration, while at the same time, attract immigrants from other places (Kritz and Gurak 2001, Kritz and Nogle 1994, Moore and Rosenberg 1995, Newbold 1996). However, a recent Canadian study shows that the size of the pre-existing immigrant community does not have an independent effect on immigrants' mobility when location fixed effects are controlled for (Hou 2007). This suggests that a location's overall attractiveness to immigrants, rather than the sheer size of pre-existing immigrant communities, plays a major role in attracting or retaining immigrants.

Previous studies are also inconclusive regarding whether immigrants and the native born respond differently to regional economic factors, such as regional differences in employment opportunities, earning potentials and generosity of welfare benefits. Based on data from a national survey, Lin (1998) reported that immigrants were less likely to make inter-provincial moves for economic considerations (e.g., job transfers, accepting a new job, looking for work) than the native born. Meanwhile, the effects of regional economic conditions on mobility were similar for immigrants

---

3. 2006 figures.

and the native born. However, this study relied on a very small sample of inter-provincial migrants among immigrants (<30), which makes the reliability of its results uncertain. Borjas (1999) shows that states with higher welfare benefits attract immigrants who are more likely to depend on social assistance. Using census data, Kritz and Gurak (2001) suggest that immigrants are more responsive than the native born to economic conditions in their state of residence in the United States. In comparison, previous Canadian studies using census data tend to suggest that the migration patterns of immigrants and the native born are similarly influenced by regional economic factors (Edmonston 2002, Newbold 1996).

One major limitation with census data for migration studies is its cross-sectional nature. First, census data lack the information about individuals' labour market status prior to migration. Thus it is impossible from census data to examine how individual economic factors affect mobility. Second, the identification of the association between regional economic conditions and migration rates rests entirely on cross-regional variations in a limited set of variables. Such an approach is likely subject to specification errors due to omitted measured or unmeasured variables (Hou 2007).

In the present study, we can overcome these problems with a large longitudinal tax data file. We first create yearly migration data files from adjacent tax years. Each file contains individuals' information from the first year and migration status based on the change in the location of residence between the first and second year. Second, we pool files covering all adjacent years in the period from 1995 to 2005. By doing so, we can identify the association between regional economic factors and migration rates based on both cross-regional and within-regional variation in these variables. In particular, over the study period, the province of Alberta had a much higher employment growth than the rest of Canada, particularly since the early 2000s when a boom in the oil industry created such a tight labour market that Alberta had the lowest unemployment rate in any province or state in North America. The large increase in labour demand in Alberta versus relatively small changes in the rest of Canada provides an ideal 'natural experiment' to examine how internal migration responds to regional imbalance in labour market conditions. Furthermore, Alberta has not traditionally been a major destination for immigrants when they initially arrive in Canada and when they make subsequent internal migration. Thus, the comparison of immigrant and native-born responses to Alberta's strong growth in employment would give us a clear answer to the question whether regional economic conditions have stronger or weaker effects on mobility for immigrants than for the native born.

3 Data

Our sample comes from Statistics Canada's Longitudinal Administrative Databank (LAD), which contains demographic, income and taxation data. Each year of LAD is a cross-sectionally representative 20% random sample of all Canadians who have a Social Insurance Number in that year. Once selected, tax-filers remain in the sample even if they don't file tax returns in subsequent years, so it is possible to appear in LAD for any number of years up to the number of years that elapsed since 1982.

The LAD records are linked to the Citizenship and Immigration Canada records, which contain information on, among other things, foreign schooling, birthplace and ability to speak one of the official languages for all immigrants who arrived to Canada since 1980. Unfortunately, immigrants who arrived before 1980 cannot be identified in LAD. Yet by the late 1990s, those

who arrived to Canada prior to 1980 had spent more than 15 years in Canada. It does not seem unreasonable to assume that these immigrants had integrated into the Canadian society to a degree that would make their mobility decisions more similar to those of the Canadian born than those of the recently arrived immigrants. Hence, we refer to the Canadian-born **and** immigrants who have lived in Canada for more than 15 years as the **comparison group**.

Because of the immigrant concentration in three major metropolitan areas—Toronto, Vancouver and Montréal—and a very small number of immigrants in some provinces, we consider the following eight regions: Atlantic provinces (Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick), Montréal, 'rest of Quebec,' Toronto, 'rest of Ontario,' Prairies (Manitoba and Saskatchewan), Vancouver, and 'rest of British Columbia.' The identification of Toronto, Vancouver and Montréal residents is based on the census metropolitan area (CMA) definitions in the census; individuals are matched to the CMAs through the postal codes available in LAD.

Our sample is restricted to individuals from 20 to 54 years of age. In the context of the issues examined in this study, we are primarily interested in the mobility patterns of prime-age workers; their mobility choices are likely to be quite different from those of older individuals (55+). We also excluded residents of the territories from our analysis. The 'region of residence' is the region in which the tax-filer resided on December 31 of the tax year. Those whose region of residence in period t was different from the region of residence in period t-1 are identified as movers.[4] Conversely, those whose region of residence did not change are identified as 'stayers.' Those who were observed in t-1 but not in t (or vice versa) were excluded.

4   Incidence of moving to Alberta

Our first set of results answers two general questions: (1) how does the incidence of migration to Alberta among immigrants compare with the incidence of moving to Alberta in the comparison group; and, (2) how does the incidence of moving to Alberta in the early 2000s compare with the incidence of moving to Alberta in the late 1990s for both immigrants and the comparison group? We identify as 'movers to Alberta in period t' those who resided in region p on December 31 in year t-1 and whose province of residence on December 31 in year t was Alberta. The incidence of moving to Alberta from a region p for immigrants is simply defined as

$$I_{pt} = \frac{r_{pt}}{n_{pt}} \cdot 100\%, \tag{1}$$

where r_{pt} is the number of immigrants who moved from region p in period t and n_{pt} is the total number of immigrants living in region p in t-1 and observed in both periods, t-1 and t (this includes those who did not move in period t, those who moved to a region other than Alberta and those who moved to Alberta).

Charts 1 to 8 show the incidence of migration to Alberta for immigrants and the comparison group from eight different regions of Canada, including three major metropolitan areas. It

---

4.   If the province of residence is not reported, it is imputed based on the postal code.

confirms results in other studies suggesting that the two regions neighbouring Alberta (Prairies and 'rest of British Columbia') have a high proportion of immigrants and non-immigrants moving to Alberta. Among both immigrants and the comparison group, the incidence of moving to Alberta from Montréal, Toronto and Vancouver is much smaller than from other regions; it was particularly small for Montréal and Toronto.

When it comes to the differences in migration rates between immigrants and the comparison group, the 'rest of Quebec' certainly stands out. In 1996, immigrants were more than seven times more likely to move from the 'rest of Quebec' to Alberta relative to the comparison group; in 2005, they were 17 times more likely to leave the 'rest of Quebec' for Alberta. This was not solely due to the high moving rate among immigrants; in fact, their moving rates were considerably lower than in some other regions. Much of the difference in the moving rates can be attributed to the very low migration rates among the individuals in the comparison group. Only the migration rates in the comparison group in Montréal were lower.

In most provinces, with a possible exception for Montréal where the incidence of moving to Alberta declined, there is little change in the migration rates of the comparison group. Although compared with 1995, the incidence of moving to Alberta in this group was somewhat higher in 2005 in the Atlantic provinces, the rest of Ontario and the Prairies, these regions experienced a lot of variation in migration rates in the years from 1995 to 2005. The migration rates of immigrants in most regions seem to carry less ambiguity: in most regions, particularly the Atlantic provinces and the rest of Ontario, there is a clear upward trend in migration rates in recent years. In 2005, the proportion of immigrants moving to Alberta from the Atlantic provinces was as high as the proportion of immigrants moving from the 'rest of British Columbia.'

These results suggest that in most regions, immigrants may have responded more strongly to the rising labour demand in Alberta than non-immigrants. Not surprisingly, the magnitude of the response was even higher among newly arrived immigrants than among immigrants who had lived in Canada for five years or more. Table 1 shows moving rates computed for two five-year periods to avoid small sample-size cells: 1996 to 2000 and 2001 to 2005. The incidence of moving to Alberta during the 1996-to-2000 period is computed according to

$$\Delta_{p,1996/2000} = \frac{\sum_{t=1996}^{2000} r_{pt}}{\sum_{t=1996}^{2000} n_{pt}} \cdot 100\%, \tag{2}$$

where $\Delta_{i,1996/2000}$ is the average migration rate from region i to Alberta in the 1996-to-2000 period, r_{pt} is the number of immigrants (non-immigrants) who lived in region p in year t-1 and moved to Alberta in t, and n_{it} is the total number of immigrants (non-immigrants) in region p in year t-1, who were also observed in t.[5]

---

5. The average migration rate to Alberta from the rest of Canada for the comparison group was substantially higher in 1996 to 2000 (0.364%) compared with 1991 to 1995 (0.301%) but remained almost unchanged in the next five-year period (0.348%). For immigrants, however, the average migration rate from the rest of Canada was 20% higher in 2001 to 2005 than in 1996 to 2000 (0.271% compared with 0.226%).

Charts 1 to 8
Migration rates to Alberta, by region

Atlantic

Montréal

Rest of Quebec

Toronto

Rest of Ontario

Prairies

Vancouver

Rest of British Columbia
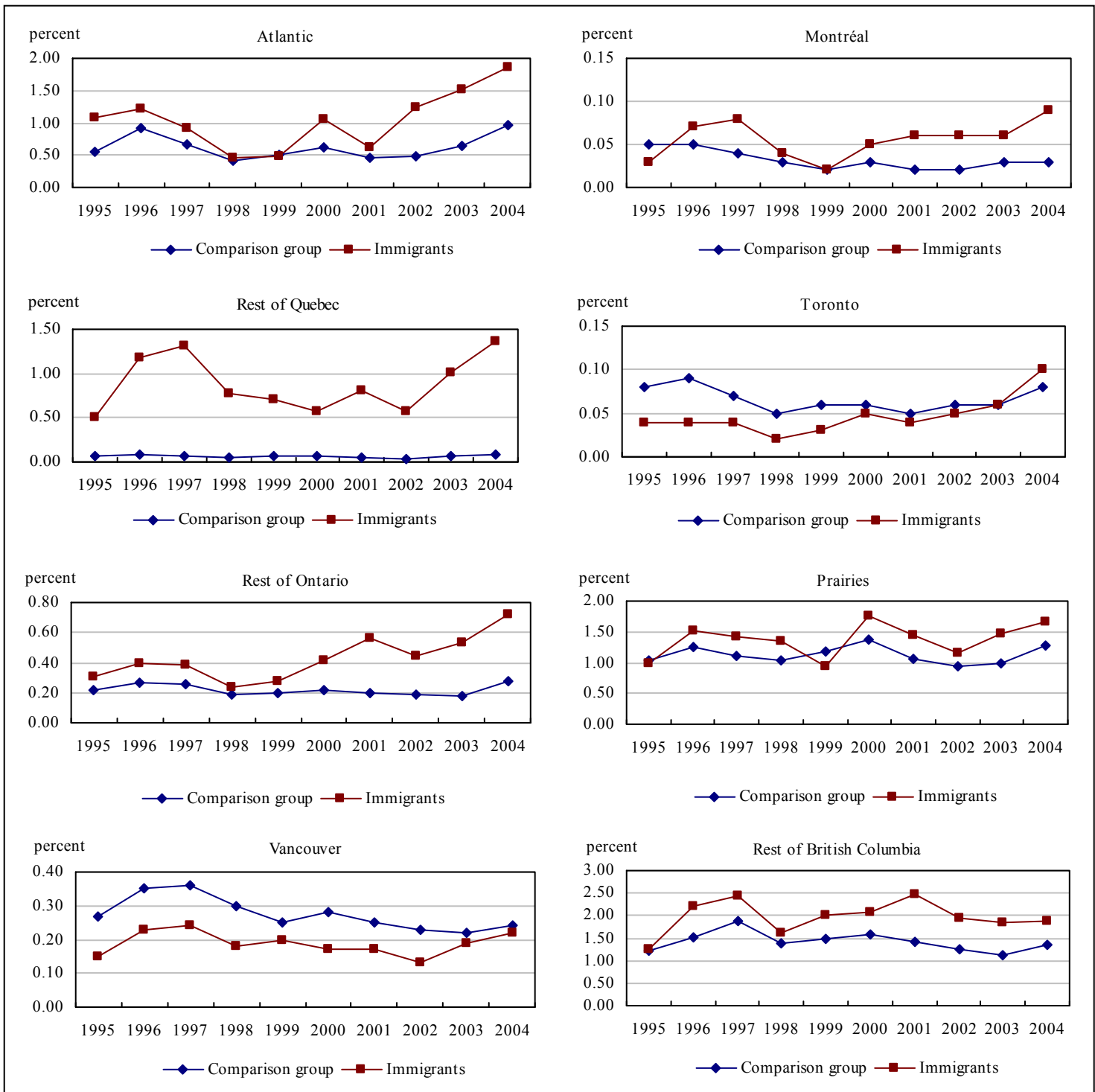
Source: Statistics Canada, Longitudinal Administrative Databank.

Table 1
The incidence of moving to Alberta, in 1996 to 2000 and 2001 to 2005, by the length of stay in Canada

	Atlantic	Montréal	Rest of Quebec	Toronto	Rest of Ontario	Prairies	Vancouver	Rest of British Columbia	Moved from Alberta
					Moved to Alberta from				
					%				
1996 to 2000									
Comparison group	0.61	0.04	0.06	0.07	0.23	1.13	0.30	1.51	2.04
Immigrants									
All	0.84	0.05	0.89	0.03	0.33	1.25	0.20	1.90	1.85
< 5 years	1.09	0.06	1.40	0.05	0.52	1.80	0.22	2.63	2.40
5 to 9 years	0.54	0.04	0.73	0.03	0.25	1.18	0.20	1.62	1.67
10 to 15 years	0.85	0.03	0.29	0.02	0.21	0.79	0.14	1.30	1.42
2001 to 2005									
Comparison group	0.63	0.02	0.06	0.06	0.21	1.13	0.24	1.35	2.01
Immigrants									
All	1.26	0.06	0.88	0.06	0.53	1.49	0.18	2.04	1.65
< 5 years	2.16	0.11	1.46	0.10	1.05	2.55	0.23	3.21	2.20
5 to 9 years	0.82	0.05	0.62	0.04	0.36	1.26	0.14	1.81	1.51
10 to 15 years	0.65	0.03	0.31	0.03	0.24	0.68	0.16	1.27	1.26

Source: Statistics Canada, Longitudinal Administrative Databank.

It is clear that large increases in the immigrants' migration rates are mostly driven by the increases in the migration rates among newly arrived immigrants (Table 1). The increases in the migration rates of immigrants who had lived in Canada for five to nine years were much smaller, and in some regions ('rest of Quebec,' Vancouver) these rates actually fell. For the '10 to 15 years in Canada' category, there was almost no change in most regions and some decline in the Atlantic provinces and the Prairies. Interestingly, however, the incidence of moving out of Alberta among newly arrived immigrants was also the highest.

The higher incidence of moving among newly arrived immigrants is consistent with the notion that the costs of moving—both financial and psychological—are lower for newly arrived immigrants than for immigrants who have already settled in Canada as well as non-immigrants. Newly arrived immigrants are less likely to find stable employment during the first several years in Canada and to establish strong attachment to the labour market; they are also less likely to buy a house and to become more attached to the place of their residence.

Although the analysis of migration rates above is informative, such analysis does not account for differences in the personal characteristics of immigrants and non-immigrants as well as geographical and other differences. It is possible that some of the differences in the migration rates between these groups can be explained by these differences. The next section describes the results of a multivariate analysis in which migration choices are modelled using a multinomial logit framework that allows us to control for the effects of the observed personal, demographic and economic variables.

5 Multivariate analysis

We assume that in each period, immigrants and non-immigrants face a choice between three states: "stay", "move to Alberta" and "move to another province". EU_{ij} is the expected utility for individual i associated with each of choice j. An individual moves to Alberta if

$$EU_{i,AB} > EU_{i,stay} \text{ and } EU_{i,AB} > EU_{i,another\_province} \tag{3}$$

The probability of any of the three outcomes can be modelled as logit function of the expected utility of $EU_{i,s}$. More specifically, let X_i be a K×1 vector of exogenous variables such that $EU_{i,s} = f(X_i)$ and $f(X_i)$ is linear in parameters. Hence,

$$P(y = j \mid X_i) = \exp(X_i \beta_j) \left/ \left[1 + \sum_j \exp(X_i \beta_j) \right] \right., \tag{4}$$

where y is a variable that equals 0 if an individual does not move (j=0), 1 if an individual moves to any province except Alberta (j=1) and 2 if an individual moves to Alberta (j=2); and β_j is a K×1 vector of parameters for each j.

Our first model specification is chosen to answer the key question we posed at the outset of this study: have immigrants responded to the strong labour demand in Alberta and was their response different from the response of non-immigrants? To answer this question we estimate a model with the same set of explanatory variables separately for immigrants and non-immigrants. The explanatory variables include the following:

- A quadratic in age ('age' and 'age^2'), which accounts for different propensities to move at different stages of the life course.
- A binary indicator of marital status.
- Interactions between the age variables and marital status indicator, which allows married and unmarried individuals to have different age profiles.
- Dummy variables for each region (omitted: Toronto).
- A dummy variable indicating the receipt of employment insurance benefits in t-1 (t is the year in which the outcome is recorded).
- A dummy variable indicating the receipt of social assistance in t-1.
- Unemployment rate in the region p in t-1 (Model 1).
- Employment growth in the region p in t-1 (Model 1).
- The difference between the unemployment rates in the region p and in Alberta (Model 2).
- The difference between the employment growth in the region p and in Alberta (Model 2).
- An indicator variable for the 2001-to-2005 period.

For each model, the first column in Table 2 represents coefficient estimates for the j=1 (moved to a region other than Alberta) outcome, while the second column represents the coefficients for j=2 (moved to Alberta) outcome.

Table 2
Multinomial logit model of moving to Alberta, immigrants and non-immigrants

Variable	Immigrants				Comparison group			
	Model 1		Model 2		Model 1		Model 2	
	Moved not to Alberta	Moved to Alberta	Moved not to Alberta	Moved to Alberta	Moved not to Alberta	Moved to Alberta	Moved not to Alberta	Moved to Alberta
	Coefficient							
Age	0.107***	0.134***	0.107***	0.135***	0.009***	-0.075***	0.009***	-0.075***
Age squared	-0.002***	-0.002***	-0.002***	-0.002***	-0.001***	0.000***	-0.001**	0.000**
Female	-0.140***	-0.252***	-0.141***	-0.252***	-0.027***	-0.193***	-0.027***	-0.193***
Married × age	-0.142***	-0.160***	-0.142***	-0.160***	-0.180***	-0.066***	-0.180***	-0.066***
Married × age squared	0.002***	0.002***	0.002***	0.002***	0.002***	0.001***	0.002***	0.001***
Married	2.470***	2.951***	2.474***	2.962***	2.952***	0.886***	2.950***	0.889***
Atlantic	1.437***	3.236***	1.408***	2.793***	-0.625***	2.328***	-0.530***	2.097***
Montréal	0.316***	0.056	0.303***	-0.126	-0.144***	-0.692***	-0.102***	-0.784***
Rest of Quebec	1.910***	2.902***	1.895***	2.695***	-0.328***	-0.082*	-0.280***	-0.185***
Rest of Ontario	0.971***	2.137***	0.977***	2.214***	-0.450***	1.111***	-0.462***	1.161***
Prairies	0.767***	3.229***	0.785***	3.492***	-0.988***	2.599***	-1.037***	2.762***
Vancouver	0.154***	1.370***	0.156***	1.399***	0.126***	1.387***	0.121***	1.414***
Rest of British Columbia	1.390***	3.726***	1.385***	3.643***	0.040***	3.071***	0.060***	3.048***
Period from 2001 to 2005	0.084***	0.260***	0.054***	0.274***	-0.071***	-0.092***	-0.059***	-0.023**
Employment insurance	-0.089***	0.055	-0.087***	0.057	0.007	0.246***	0.007	0.246***
Social assistance	0.268***	0.502***	0.270***	0.504***	0.127***	-0.020	0.126***	-0.019***
Unemployment rate	0.025***	-0.023	…	…	-0.001	-0.048***	…	…
Δunemployment[1]	…	…	0.033***	0.084***	…	…	-0.023***	0.01
Employment growth	-0.018***	-0.062***	…	…	-0.014***	-0.057***	…	…
Δemployment growth[2]	…	…	-0.015**	-0.016	…	…	-0.021***	-0.022***
Constant	-5.644***	-9.039***	-5.553***	-9.550***	-2.761***	-4.137***	-2.774***	-4.717***

… not applicable
* p<0.05
** p<0.01
*** p<0.001
1. Δunemployment is the difference in the unemployment rates between the province in which an individual resides and Alberta.
2. Δemployment growth is the difference in the employment growths between the province in which an individual resides and Alberta.
Note: Standard errors are available upon request for all models.
Source: Statistics Canada, Longitudinal Administrative Databank.

For the models estimated on the sub-sample of immigrants, the estimates of the 2001-to-2005 period effects are positive and significant at the 99% level for both $j=1$ and $j=2$ in Model 1 and Model 2, but the coefficient for $j=2$ is much larger in magnitude. The Wald test for the equivalence of the 2001-to-2005 period effect for $j=1$ and $j=2$ rejects the null $[j=1]2001/2005=[j=2]2002/2005$ for immigrants in both models ($\chi^2(1)=19.14$ and $\chi^2(1)=51.03$). For the comparison group, the null $[j=1]2001/2005=[j=2]2002/2005$ is rejected for the coefficients in Model 2 ($\chi^2(1)=22.27$) but not in Model 1 ($\chi^2(1)=2.31$).

It should be remembered, however, that the coefficients in multinomial logit models show the effect on the odds ratio relative to the base outcome ('staying' in out models). For a more intuitive interpretation we have computed predicted probabilities associated with the effects of the 2001-to-2005 period (Table 3). In particular, using the sample of immigrants, we first assumed that all immigrants were observed during the 1996-to-2000 period and computed predicted probabilities for each outcome setting the '2001-to-2005' indicator variable equal to 0 for all individuals in the sample. Next, we assumed that all immigrants were observed during the 2001-to-2005 period (setting this variable to 1 for all individuals) and re-computed predicted probabilities for each outcome. Table 3 shows the means of predicted probabilities for each outcome in each of the two models (panel A). We did the same for the comparison group (panel B).

The results in panels A and B can be interpreted as follows: holding other variables in the immigrant equations constant, immigrants were considerably more likely to move to Alberta during the 2001-to-2005 period than during the 1996-to-2000 period. At the same time, holding the variables in the comparison group equation constant, we saw no evidence that members of this group were more likely to move during the 2001-to-2005 period than during the 1996-to-2000 period. Yet, even though predicted migration rates of immigrants were higher from 2001 to 2005, they were still lower than the predicted migration rates in the comparison group.

How much of this difference can be attributed to the differences between the characteristics of immigrants and those of the comparison group? To answer this question, we, first, considered the Blinder-Oaxaca type of decomposition, extended to logit in Fairlie (1999) and Fairlie (2005).

Table 3
Predicted probabilities of staying, moving to a region other than Alberta and moving to Alberta, based on the coefficient estimates from multinomial logit models in Table 2

| | 1996 to 2000 | | | 2001 to 2005 | | | Change | | |
	Stayed	Moved not to Alberta	Moved to Alberta	Stayed	Moved not to Alberta	Moved not to Alberta	Stayed	Moved not to Alberta	Moved to Alberta
	Predicted probability[1]						%		
A – Immigrants									
Model 1	98.00	1.80	0.21	97.79	1.95	0.26	-0.21	8.35	28.90
Model 2	97.97	1.82	0.20	97.82	1.92	0.27	-0.16	5.20	30.91
B – Comparison group									
Model 1	97.74	1.90	0.36	97.90	1.77	0.33	0.17	-7.07	-8.67
Model 2	97.76	1.89	0.35	97.88	1.78	0.34	0.12	-6.03	-2.18
C – Immigrants, with the characteristics of the comparison group									
Model 1	96.06	3.42	0.53	95.63	3.69	0.68	-0.44	7.99	28.65
Model 2	96.01	3.46	0.52	95.68	3.64	0.69	-0.35	4.94	30.73

1. Multiplied by 100.
Source: Statistics Canada, Longitudinal Administrative Databank.

The difference in the predicted probabilities of moving to Alberta can be decomposed according to:

$$\bar{Y}^C - \bar{Y}^I = \left[\sum_{i=1}^{N^C} \frac{F(X_i^C \hat{\beta}^I)}{N^C} - \sum_{i=1}^{N^I} \frac{F(X_i^I \hat{\beta}^I)}{N^I} \right] + \left[\sum_{i=1}^{N^C} \frac{F(X_i^C \hat{\beta}^C)}{N^C} - \sum_{i=1}^{N^C} \frac{F(X_i^C \hat{\beta}^I)}{N^C} \right], \qquad (5)$$

where superscript *I* is for 'immigrants' and *C* is for the 'comparison group.' To gauge the contribution of the immigrants-comparison group differences in the entire set of all independent variables we computed the average predicted probabilities for the comparison group sample using estimates **obtained from the immigrant sample** (panel C). Put otherwise, we computed average predicted probabilities for immigrants pretending that they have characteristics of the comparison group. The resulting probabilities of moving to Alberta are much higher than the probabilities in panels A and B, although the percentage changes in probabilities from the 1996-to-2000 to the 2001-to-2005 periods are approximately the same as in panel A. Hence, the results suggest that if immigrants did not differ from the individuals in the comparison group in any observed way, their migration rates would not only be higher than their actual migration rates but higher than those of the comparison group.

Another way to approach this issue is to estimate a mobility model using the combined sample of immigrants and the comparison group, with a set of interaction variables for immigrants. More specifically, we included interactions between regional dummies and immigrant status, allowing immigrant outcomes to differ by region. We also included the interaction between the immigrant status and the '2001-to-2005' indicator. The results are shown in Table 4.

Table 5 shows predicted probabilities associated with each model computed similarly to the method described above. First, we assume that **all** individuals in the sample belong to the

comparison group and were observed during the 1996-to-2000 period, then we assume that all individuals in the sample belong to the comparison group and were observed during the 2001-to-2005 period, then we assume that all individuals in the sample are immigrants observed during the 1996-to-2000 period and, finally, we assume that all individuals in the sample were immigrants observed during the 2001-to-2005 period. Note that the predicted probabilities are computed holding all other variables constant. The resulted predicted probabilities are very similar to those in Table 3, thus confirming our conclusions that if immigrants did not differ in any other observed way from the comparison group, their migration rates would be considerably higher.

The results above have important implications. First, although overall immigrants' migration rates are lower than those of the comparison group, much of these can be explained by differences in other observables. In fact, once immigrants are assumed to have the characteristics of the comparison group their estimated migration rates are higher than the migration rates of the comparison group. The region of residence is particularly important, since the vast majority of immigrants reside in the major metropolitan areas, but some of the differences can also be attributed to the differences in age, marital status, the role of employment insurance and social sssistance. Second, although the actual migration rates of immigrants are lower than those of the comparison group, they appear to have responded more strongly than other individuals to the rising labour demand in Alberta.

Table 4
Multinomial logit model of mobility estimated on the combined set

Variable	Model 1		Model 2	
	Did not move to Alberta	Moved to Alberta	Did not move to Alberta	Moved to Alberta
	Coefficient			
Age	0.013***	-0.067***	0.013***	-0.067***
Age squared	-0.001***	0.000	-0.001***	0.000
Female	-0.040***	-0.198***	-0.039***	-0.198***
Married × age	-0.167***	-0.061***	-0.167***	-0.061***
Married × age squared	0.002***	0.001***	0.002***	0.001***
Married	2.738***	0.825***	2.736***	0.829***
Immigrant × Atlantic	2.218***	1.057***	2.217***	1.060***
Immigrant × Montréal	0.512***	0.832***	0.511***	0.836***
Immigrant × Rest of Quebec	2.340***	3.134***	2.339***	3.138***
Immigrant × Rest of Ontario	1.418***	1.041***	1.418***	1.043***
Immigrant × Prairies	1.706***	0.580***	1.706***	0.579***
Immigrant × Vancouver	0.024	-0.043	0.025	-0.047
Immigrant × Rest of British Columbia	1.389***	0.684***	1.390***	0.681***
Immigrant × Period	0.124***	0.301***	0.126***	0.299***
Atlantic	-0.613***	2.339***	-0.523***	2.095***
Montréal	-0.136***	-0.682***	-0.097***	-0.780***
Rest of Quebec	-0.310***	-0.064	-0.265***	-0.175***
Rest of Ontario	-0.425***	1.128***	-0.437***	1.180***
Prairies	-0.956***	2.619***	-1.003***	2.788***
Vancouver	0.134***	1.396***	0.129***	1.423***
Rest of British Columbia	0.061***	3.085***	0.079***	3.058***
Immigrant	-0.737***	-0.492***	-0.737***	-0.491***
Period from 2001 to 2005	-0.070***	-0.089***	-0.063***	-0.024**
Employment insurance	0.000	0.237***	0.000	0.236***
Social assistance	0.146***	0.022	0.145***	0.022
Unemployment rate	0.002	-0.047***	…	…
Δunemployment[1]	…	…	-0.019***	0.014*
Employment growth	-0.013***	-0.057***	…	…
Δemployment growth[2]	…	…	-0.020***	-0.022***
Constant	-2.894***	-4.320***	-2.888***	-4.894***

… not applicable
* $p<0.05$
** $p<0.01$
*** $p<0.001$
1. Δunemployment is the difference in the unemployemnt rates between the province in which an individual resides and Alberta.
2. Δemployment growth is the difference in the employment growths between the province in which an individual resides and Alberta.
Note: Standard errors are available upon request.
Source: Statistics Canada, Longitudinal Administrative Databank.

Table 5
Predicted probabilities of staying, moving to a region other than Alberta and moving to Alberta, based on the coefficient estimates from multinomial logit models in Table 4

	1996 to 2000			2001 to 2005			Change		
	Stay	To other	To Alberta	Stay	To other	To Alberta	Stay	To other	To Alberta
	Predicted probability[1]						%		
Comparison group									
Model 1	97.722	1.931	0.346	97.878	1.804	0.318	0.164	-6.736	-8.092
Model 2	97.740	1.925	0.335	97.862	1.810	0.328	0.123	-5.729	-2.090
Immigrants									
Model 1	95.963	3.495	0.542	95.669	3.666	0.665	-0.302	5.158	22.694
Model 2	95.995	3.479	0.526	95.633	3.680	0.687	-0.375	5.747	30.608

1. Multiplied by 100.
Source: Statistics Canada, Longitudinal Administrative Databank.

There is still a question, however, about the factors affecting immigrants' decisions to move to Alberta and the importance of non-economic considerations in making such decisions. The next step in our analysis is aimed at taking advantage of the additional information available for immigrants in the LAD-IMDB (Longitudinal Administrative Databank and Longitudinal Immigration Database). We estimate a multinomial model on the sub-sample of immigrants and include extra variables for immigrants' attributes.

- Dummy variables for the immigrant's region of origin (Appendix A).
- Dummy variables for the immigrant category: business class, skilled worker category and other (omitted: family class).
- An indicator variable for a foreign university degree.
- An indicator variable for the ability to speak one of the official languages (self-reported).
- The number of years lived in Canada.

Table 6 presents a set of results for models estimated on the sub-sample of immigrants with some immigrant-specific variables added to the specification in Models 1 and 2 (Models A and B). Controlling for other variables, immigrants with foreign degrees have a greater propensity to move than other immigrants; however, whether they have a greater inclination to move to Alberta than to other provinces is not clear. Immigrants who can speak an official language (English or French) are less likely to move; the log-odds for $j=1$ (move anywhere but Alberta) and $j=2$ (move to Alberta) are negative but the coefficient is much greater in the absolute value for $j=2$. Immigrants from Africa (excluding North African countries and the Republic of South Africa) appear to be most mobile, ceteris paribus, while the immigrants from Western Europe seem to be least inclined to move, whether to Alberta or any other province.

The status of immigrants has a strong impact on mobility. The coefficients for $j=1$ and $j=2$ are positive and similar in magnitude, for skilled immigrants and 'other' immigrants, including refugees; skilled class immigrant age more likely to move than family class (the reference group). The 'business immigrant' coefficient for $j=1$ is positive and strongly significant but negative and non-significant for $j=2$ in both models. Consistent with the descriptive analysis, the longer immigrants live in Canada the the lower the probability of moving.

Table 6
Multinomial model of immigrants' moving to Alberta

	Model A		Model B	
Variable	Moved not to Alberta	Moved not to Alberta	Moved not to Alberta	Moved not to Alberta
	Coefficient			
Age	0.046 ***	0.053 *	0.046 ***	0.054 *
Age squared	-0.001 ***	-0.001 **	-0.001 ***	-0.001 **
Female	-0.071 ***	-0.174 ***	-0.071 ***	-0.175 ***
Married × age	-0.117 ***	-0.094 ***	-0.117 ***	-0.095 ***
Married × age squared	0.001 ***	0.001 *	0.001 ***	0.001 *
Married	1.990 ***	1.776 ***	1.993 ***	1.785 ***
Foreign degree	0.387 ***	0.326 ***	0.386 ***	0.324 ***
Atlantic	1.430 ***	3.193 ***	1.408 ***	2.775 ***
Montréal	0.359 ***	0.104	0.351 ***	-0.067
Rest of Quebec	2.002 ***	2.946 ***	1.991 ***	2.752 ***
Rest of Ontario	1.047 ***	2.204 ***	1.052 ***	2.279 ***
Prairies	0.873 ***	3.319 ***	0.890 ***	3.574 ***
Vancouver	0.097 ***	1.369 ***	0.099 ***	1.398 ***
Rest of British Columbia	1.527 ***	3.895 ***	1.524 ***	3.821 ***
Years in Canada	-0.056 ***	-0.080 ***	-0.056 ***	-0.080 ***
Employment insurance	0.002	0.121 **	0.004	0.124 **
Social assistance	0.222 ***	0.289 ***	0.224 ***	0.290 ***
Unemployment rate	0.028 ***	-0.011	…	…
Employment growth	-0.017 ***	-0.060 ***	…	…
Period from 2001 to 2005	0.046 ***	0.220 ***	0.011	0.219 ***
Δunemployment[1]	…	…	0.034 ***	0.091 ***
Δemployment growth[2]	…	…	-0.014 **	-0.014
Linguistic ability	-0.031 **	-0.128 ***	-0.031 **	-0.128 ***
Region of origin 2	-0.295 ***	-0.424 ***	-0.296 ***	-0.426 ***
Region of origin 3	-0.134 ***	-0.263 ***	-0.137 ***	-0.268 ***
Region of origin 4	0.159 ***	0.204 **	0.155 ***	0.199 **
Region of origin 5	0.295 ***	0.909 ***	0.292 ***	0.904 ***
Region of origin 6	0.236 ***	0.203 **	0.232 ***	0.198 **
Region of origin 7	0.227 ***	0.145 *	0.224 ***	0.141 *
Region of origin 8	-0.098 ***	-0.337 ***	-0.100 ***	-0.340 ***
Region of origin 9	0.046	0.02	0.044	0.017
Business	0.264 ***	-0.027	0.265 ***	-0.028
Skilled	0.363 ***	0.448 ***	0.363 ***	0.448 ***
Other	0.306 ***	0.349 ***	0.306 ***	0.349 ***
Constant	-4.720 ***	-7.745 ***	-4.603 ***	-8.165 ***

… not appliable
* p<0.05
** p<0.01
*** p<0.001
1. Δunemployment is the difference in the unemployment rates between the province in which an individual resides and Alberta.
2. Δemployment growth is the difference in the employment growths between the province in which an individual resides and Alberta.
Note: Standard errors are available upon request for all models.
Source: Statistics Canada, Longitudinal Administrative Databank.

Table 7
Marginal effects for model B, based on the estimation results in Table 6

Variable	Moved but not to Alberta Pr (j=1)=1.437[1]			Moved to Alberta Pr(j=2)=0.087[1]		
	dy/dx[1]	Standard error	z	dy/dx[1]	Standard error	z
Age	0.065	0.011	5.86	0.005	0.002	2.37
Age squared	-0.001	0.000	-8.85	0.000	0.000	-3.05
Married $\times$ age	-0.166	0.014	-11.51	-0.008	0.002	-3.26
Married $\times$ age squared	0.002	0.000	9.79	0.000	0.000	2.49
Married[2]	2.146	0.159	13.46	0.117	0.028	4.25
Degree[2]	0.604	0.021	29.37	0.030	0.003	8.76
Language[2]	-0.044	0.016	-2.71	-0.011	0.003	-3.8
Region of origin 2[2]	-0.369	0.035	-10.43	-0.030	0.005	-5.93
Region of origin 3[2]	-0.185	0.034	-5.45	-0.021	0.005	-4.38
Region of origin 4[2]	0.232	0.040	5.84	0.018	0.006	2.88
Region of origin 5[2]	0.469	0.053	8.8	0.121	0.013	9.33
Region of origin 6[2]	0.357	0.043	8.31	0.018	0.006	2.93
Region of origin 7[2]	0.341	0.043	8.03	0.013	0.006	2.03
Region of origin 8[2]	-0.136	0.036	-3.74	-0.026	0.005	-4.95
Region of origin 9[2]	0.064	0.037	1.71	0.001	0.005	0.26
Business[2]	0.420	0.042	9.92	-0.003	0.006	-0.43
Skilled[2]	0.573	0.028	20.66	0.044	0.005	8.68
Other[2]	0.446	0.019	22.91	0.031	0.003	8.84
Atlantic[2]	4.071	0.246	16.53	1.198	0.167	7.19
Montréal[2]	0.564	0.040	13.97	-0.006	0.008	-0.76
Rest of Quebec[2]	7.888	0.233	33.85	1.099	0.100	11.03
Rest of Ontario[2]	2.224	0.046	48.73	0.540	0.023	23.02
Prairies[2]	1.859	0.103	18.04	2.598	0.178	14.59
Vancouver[2]	0.141	0.026	5.35	0.207	0.013	16.04
Rest of British Columbia[2]	4.460	0.129	34.69	3.207	0.174	18.4
Years in Canada	-0.080	0.002	-42.08	-0.007	0.000	-19.74
Employment insurance[2]	0.006	0.021	0.28	0.011	0.004	3.02
Social assistance[2]	0.348	0.028	12.54	0.028	0.005	5.57
Δunemployment (region − Alberta)	0.048	0.011	4.29	0.008	0.002	3.78
Δemployment growth (region − Alberta)	-0.020	0.007	-2.96	-0.001	0.001	-1.19
Period from 2001 to 2005[2]	0.016	0.014	1.11	0.019	0.003	7.49

1. Multiplied by 100.
2. dy/dx is for discrete change of dummy variable from 0 to 1.
Note: dy/dx = marginal effects.
Source: Statistics Canada, Longitudinal Administrative Databank.

A more intuitive way to gauge the effect of each variable is to compute marginal effects of each variable. Table 7 shows marginal effects for Model B.[6] Given that the probabilities of moving are small, these probabilities and marginal effects in Table 7 are given in percentage terms (out of 100) for convenience. The estimated probability of moving to a region other than Alberta is 1.437, while the probability of moving to Alberta is 0.087. Compared with the probability of moving to Alberta from Toronto, the probability of moving to Alberta is significantly higher if one resides in the Prairies (2.6 percentage points higher) or the 'rest of British Columbia' (3.2 percentage points higher) but negative and not significant for Montréal.

The marginal effects of birthplace variables differ in direction and magnitude but tell essentially the same story as the coefficients: immigrating from Africa increases the probability of moving to Alberta by 0.12 percentage points (the largest effect among the origin dummies) compared with immigrants from the United States, the United Kingdom, Ireland, Australia, New Zealand and the Republic of South Africa, the reference groups, while coming from Europe, or 'Russia and the former USSR' have negative and significant but small effects (-0.03041 and -0.02097). Having a foreign degree increases the probability of moving to Alberta, compared with having no degree, by 0.029, while the ability to speak an official language decreases it (-0.0121).

6 Conclusions

The magnitude of immigrants' responses to regional labour market shocks may have important implications for the labour market adjustment process, given that immigrants comprise an increasing share in the population of most Western countries, including Canada. This study has focussed on the recent economic boom in Alberta and the effect it had on the probability of moving to Alberta among immigrants. We have also examined the effect of personal, demographic and economic factors on the probability of moving to Alberta using a multinomial logit statistical framework.

The key finding of the study is that immigrants generally have responded strongly to the rising labour demand in Alberta, although the magnitude of the response varies from region to region. Our estimated probabilities of moving to Alberta among immigrants were about 30% higher for the 2001-to-2005 period than for the 1996-to-2000 period when controlling for differences in characteristics between the two periods, and 20% based on the raw data. This result contrasts sharply with the results for the comparison group—which includes non-immigrants and immigrants living in Canada for 15 years or more—whose migration rates to Alberta did not change significantly from the 1996-to-2001 period to the 2001-to-2005 period (see footnote 1).

But in terms of levels, only immigrants in Canada for 5 years or less have migration rates noticeably higher than those of the comparison group. Generally speaking, immigrants in Canada for 10 to 15 years were less likely to move to Alberta than their comparison group counterparts. In particular, immigrants in Canada for more than 5 years and living in major metropolitan areas such as Toronto and Vancouver remain less likely to move than the comparison group. Given the tendency among immigrants to concentrate in these cities, they are under-represented in the

---

6. It should be noted that because the overall probability of moving to anywhere but Alberta is higher than the probability of moving to Alberta, an equal marginal effect will have a proportionally greater effect on the probability of moving to Alberta. That is, if $P(j=2)=0.1$ and $P(j=1)=0.01$ then dy/dx=0.005 for both outcomes implies a 5% increase in probability for $j=1$ but a 50% increase in probability for $j=2$ associated with variable x.

overall mobility adjustment triggered by the rising labour demand in Alberta. The proportion of immigrants in Canada (no matter where) who moved to Alberta was 0.27%, compared with 0.35% for the comparison group. Immigrants in Canada for less than 5 years were, however, overrepresented in the migration response, as their overall internal migration rate was 0.45%.

Much of the difference in internal migration rates to Alberta among immigrants and the comparison group can be attributed to the differences in the characteristics of these two groups. Based on our findings, we argue that if immigrants had the characteristics of the comparison group their internal migration rates would be considerably higher than those of the comparison group.

Appendix A

Regions of origin

Region 1: United States, United Kingdom, Ireland, the Republic of South Africa, Australia and New Zealand
Region 2: Western Europe
Region 3: Central, Southern and Eastern Europe; Russia and former Union of Soviet Socialist Republics
Region 4: North Africa and the Middle East
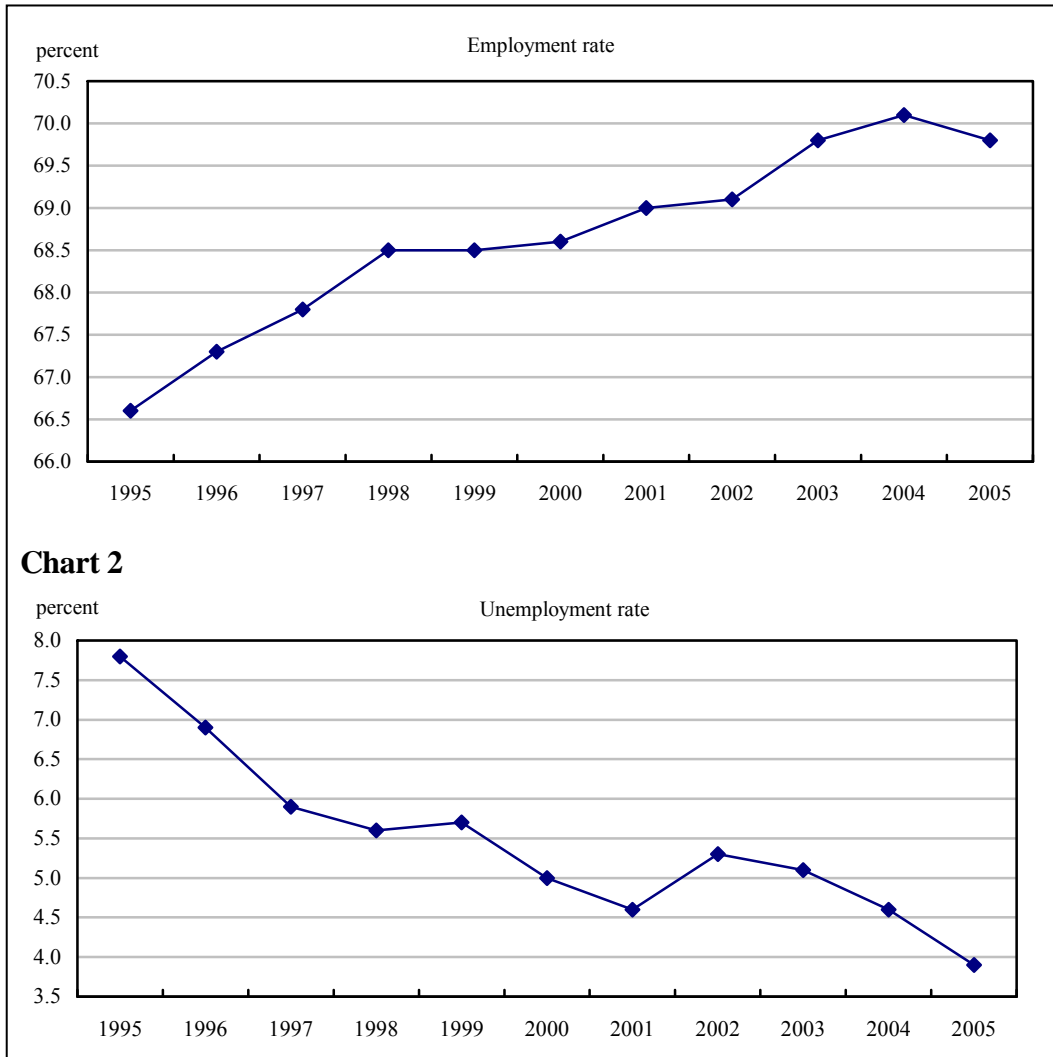Region 5: Africa (except North Africa and the Republic of South Africa)
Region 6: India and the region
Region 7: China and the region
Region 8: Latin America and the Caribbean
Region 9: Japan and South East Asia; Oceania

Chart 1
Employment and unemployment rates, Alberta

Employment rate

percent

Chart 2

Unemployment rate

percent

Source: Statistics Canada, Longitudinal Immigration Database.

Text table 1
Number of movers to and from Alberta (all counts are rounded to 5)

	Moved to Alberta from								Moved from Alberta
	Atlantic	Montréal	Rest of Quebec	Toronto	Rest of Ontario	Prairies	Vancouver	Rest of British Columbia	
	number								
1996									
Non-immigrants	1,245	155	245	250	1,280	1,885	380	2,005	4,915
Immigrants	25	10	15	40	90	70	45	85	350
1997									
Non-immigrants	2,040	155	295	275	1,515	2,290	505	2,505	4,495
Immigrants	25	20	40	40	120	100	80	150	280
1998									
Non-immigrants	1,470	110	245	205	1,450	2,005	505	3,060	4,965
Immigrants	20	25	40	35	120	95	95	165	290
1999									
Non-immigrants	920	90	200	155	1,075	1,880	425	2,245	5,860
Immigrants	10	10	25	25	75	85	70	100	345
2000									
Non-immigrants	1,105	65	200	170	1,130	2,140	345	2,355	5,330
Immigrants	10	10	25	35	90	60	75	135	350
2001									
Non-immigrants	1,330	80	220	190	1,240	2,505	400	2,540	5,225
Immigrants	25	20	20	60	150	115	75	140	330
2002									
Non-immigrants	1,020	60	180	180	1,145	1,900	360	2,250	5,655
Immigrants	15	20	35	55	205	95	80	170	370
2003									
Non-immigrants	1,030	60	145	180	1,090	1,660	310	1,950	5,845
Immigrants	30	25	25	65	165	80	65	135	380
2004									
Non-immigrants	1,350	70	200	195	1,040	1,785	300	1,715	5,250
Immigrants	35	25	45	80	195	105	85	125	360
2005									
Non-immigrants	2,015	85	265	260	1,570	2,255	330	2,005	4,900
Immigrants	40	30	60	120	250	105	100	120	255

Source: Statistics Canada, Longitudinal Administrative Databank.

References

Aydemir, Abdurrahman, and Mikal Skuterud. 2005. "Explaining the deteriorating entry earnings of Canada's immigrant cohorts, 1966–2000." *Canadian Journal of Economics.* 38, 2: 641–672.

Blanchard Olivier Jean, and Lawrence F. Katz. 1992. "Regional evolutions." *Brookings Papers on Economic Activity.* 1: 1–75.

Baker, Michael, and Dwayne Benjamin. 1994. "The performance of immigrants in the Canadian labour market." *Journal of Labour Economics.* 12, 3: 369–405.

Bernard, André. 2008. "Immigrants in the hinterlands." *Perspectives on Labour and Income.* 9, 1: 5–14. Ottawa: Statistics Canada.

Borjas, George J. 1999. "Immigration and welfare magnets." *Journal of Labour Economics.* 17, 4: 607–637.

Cebula, Richard J. 2005. "Internal migration determinants: Recent evidence." *International Advances in Economic Research.* 11, 3: 267–274.

Cross, Philip, and Geoff Bowlby. 2006. "The Alberta economic juggernaut: The boom on the rose." *Canadian Economic Observer.* 19, 9: 3.1–3.12. Catalogue no. 11-010-XIB2006009. Ottawa: Statistics Canada.

Edmonston, Barry. 2002. *Interprovincial Migration of Canadian Immigrants.* Research on Immigration and Integration in the Metropolis. Working paper series no. 02-10. Vancouver.

Fairlie, Robert W. 1999. "The absence of the African-American owned business: An analysis of the dynamics of self-employment." *Journal of Labour Economics.* 17, 1: 80–108.

Fairlie, Robert W. 2005. "An Extension of the Blinder-Oaxaca decomposition technique to logit and probit models." *Journal of Economic and Social Measurement.* 30, 4: 305–316.

Frenette, Marc, and René Morissette. 2003. *Will They Ever Converge? Earnings of Immigrants and Canadian-born Workers over the Last Two Decades.* Analytical Studies Branch Research Paper Series. Catalogue no. 11F0019MIE2003215. Ottawa: Statistics Canada.

Hou, Feng. 2007. "Changes in the initial destinations and redistribution of Canada's major immigrant groups: Re-examining the role of group affinity." *International Migration Review.* 41, 3: 680–705.

Hou, Feng, and Larry S. Bourne. 2006. "The migration-immigration link in Canada's gateway cities: A comparative study of Toronto, Montréal, and Vancouver." *Environment and Planning A.* 38, 8: 1505–1525.

Kritz, Mary M., and Douglas T. Gurak. 2001. "The impact of immigration on the internal migration of natives and immigrants." *Demography.* 38, 1: 133–145.

Kritz, Mary M., and June Marie Nogle. 1994. "Nativity concentration and internal migration among the foreign-born." *Demography.* 31, 3: 509–524.

Lieberson, Stanley, and Mary C. Waters. 1987. "The location of ethnic and racial groups in the United States." *Sociological Forum.* 2, 4: 780–810.

Lin, Zhengxi. 1998. *Foreign-born vs. Native-born Canadians: A Comparison of Their Inter-provintial mobility.* Analytical Studies Branch Research Paper Series. Catalogue no. 11F0019MIE1998114. Ottawa: Statistics Canada.

Moore, Eric G., and Mark W. Rosenberg. 1995. "Modelling migration flows of immigrant groups in Canada." *Environment and Planning A.* 27, 5: 699–714.

Morissette, René. 2008. "Earnings in the last decade." *Perspectives on Labour and Income.* 9, 2: 12–24. Catalogue no. 75-001-XIE2008102. Ottawa: Statistics Canada.

Newbold, K. Bruce. 1996. "Internal migration of the foreign-born in Canada." *International Migration R*eview. 30, 3: 728–747.

Rogers, Andrei, and Alain Belanger. 1990. "The importance of place of birth in migration and population redistribution analysis." *Environment and Planning .* 22, 2:193–210.

Rogers, Andrei, and Sabine Henning. 1999. "The internal migration patterns of the foreign-born and native-born populations in the United States: 1975–80 and 1985–90." *International Migration Review.* 33, 2: 403–429

Trovato, Frank. 1988. "The interurban mobility of the foreign born in Canada, 1976–81." *International Migration Review.* 22, 3: 59–86.

Xu, Lei. 2007. *Inter-CMA Migration of the Immigrants in Canada: 1991–1996 and 1996–2001.* Social and Economic Dimensions of an Aging Population (SEDAP) Research Paper No. 195. Hamilton: McMaster University.