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Immigration and Location Choices of Native-Born Workers in Canada

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There are two competing views on how immigration would affect local labor markets. When immigrants offer skills similar to those of native-born workers, they may compete directly with them, and this competition may lead to lower economic returns for native-born workers. This view can be called the "substitution" hypothesis. The alternative view is that immigrants may provide "complementary" skills, which can raise the productivity of other workers. If the substitution argument is effective, immigration might lead to out-migration of the nonimmigrant population from a community in the short run. Models in location-choice studies usually examine the migration decision in two separate processes: whether-to and where-to decisions about moving. The present study investigates how location choices of native-born workers can be influenced by the conditions in both the potential destinations and the departure regions. To validate either the substitution or complementary view, we apply choice-specific, clustered fixed-effect response models, which use industry- and occupation-specific regional attributes that allow us to control for unobserved regional heterogeneity as well as to identify regional factors that affect location choices. This study uses the 20 percent sample of the 2006 Census that covers the entire country with 282 census divisions. The results show that location-choice models are sensitive to how regional attributes are defined. When industry-specific immigration density differentials across regions are measured only at destinations, they have strong and negative effects on the location choices of the native born. However, when the models control choice-specific attributes relative to the origin, immigration variables become insignificant on the desirability of destinations.

Keywords: Immigration, Migration, Crowding Out, Displacement, Mobility

***JEL* Classification:** J61, J15, R23

The objective of this study is to develop a better understanding of the mechanism by which the Canadian native-born workers adjust to immigration. The well-known argument is that rising immigration levels may result in the out-migration of an area's local residents if immigrants displace the local workers in employment and bid down wages. This view is called the "substitution" hypothesis. In general, when immigrants offer comparable skills, they may compete directly with native-born workers; in turn, this competition may lead to lower economic returns in local labor markets. If the substitution argument is valid, immigration might lead to out-migration of the nonimmigrant population from a community in the short run. However, when immigrants provide complementary skills, they can raise the productivity of other workers, and hence local wages for the native-born rise. This is known as the "complementary" hypothesis. Or immigrants may cause housing prices to soar through increased demand for shelter. Besides these economic reasons, the native-born may also have some degree of social avoidance regarding immigrants.

Every year, Canada receives more than 200 thousand immigrants, of which around 30 percent are selected through the "skilled worker" program. Over the last two decades, more than 3 million immigrant workers entered into local labor markets, accounting for roughly 20 percent of the total labor force. Immigration in Canada is now, more than before, a prominent feature in the economic, social, and political landscape of all provinces, including small and rural locations that have been trying to reverse their demographic declines. Despite the fact that Canada is one of the major immigrant receiving countries in the world, studies investigating the earning displacement effects of immigration are scarce and have produced mixed results.[1] This is not unique to Canada but results from the nature

[1] For example, Akbari and Aydede (2013), Islam (2009), Akbari and DeVoretz (1992), and Roy (1987, 1997) conclude, using national data on industries and occupation, that there is an imperfect

of the subject. Economic theory is not able to offer a decisive answer about the expected impact of immigration on wages, employment, labor force participation, and unemployment. There are presently hundreds of empirical studies on the impact of immigration on labor markets of host countries. Most studies employ spatial comparisons that, typically, look at the relationship between labor markets and immigration flows or densities. Two meta-analyses (Longhi et al., 2006, 2008) on the subject show that the impact of immigration on local labor markets is quantitatively very small and that, more than half the time, estimated coefficients are statistically insignificant.

On the other hand, Aydemir and Borjas (2007) find a strong negative impact of immigrant inflows on labor-market outcomes in Canada. Unlike others, they question how much of the disparity in outcome for different skill groups among native-born workers can be attributed to immigration that shifts the relative demand and supply of these skills at the national level. In the immigration literature, this approach (*skill-cell approach*) is justified by the fact that, if there are substantial out-migrations in response to immigrant inflows, a "naïve" spatial empirical study, which compares local market outcomes with different immigrant densities (*spatial correlations approach*), may even find a positive impact of immigration on local market outcomes for the native born. However, the literature also has a number of papers replicating the skill-cell approach with mixed results. In their most recent paper, Aydemir and Borjas (2011) explain this by the measurement error that plays a central role in both approaches due to the longitudinal nature of those analyses. When the regressions, which examine the relation between the wage and the immigrant share within a particular labor market, include various vectors of fixed effects (regional or skill-level),

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substitution between immigrant- and native-born workers. Two recent studies on housing markets (Akbari and Aydede, 2012; Ley and Tutchener, 2001) also indicate a weak negative linkage between immigration and local housing prices.

there is very little variation left in the variable that captures the immigrant supply shift. This, in turn, magnifies any sampling error in the immigration density. Hence, studies not taking this attenuation bias into account result in mixed and inconsistent evidence in the literature.

Hatton and Tani (2005) illustrate how interregional mobility can mask the effects of immigration on wages and employment. One proposed solution to this bias in typical wage-displacement studies is to test directly the migratory reactions of local native-born workers to immigration. However, regional studies using panel observations on population flows to estimate the crowding-out effect of immigration face a similar challenge: some native-born workers might not choose to leave the local market if they were willing to accept reduced wages, which would weaken the crowding-out effect of immigration. The literature shows that, although studies using aggregate data on spatial population flows have also found mixed evidence on the crowding-out effect, the earning displacement effect of immigration is greater the less that the native born have the opportunity to move out of the location (Longhi et al., 2008).

Instead of using population flows, the present study investigates how industry- and occupation-specific immigration density variations across alternative destinations affect location choices of native-born workers by using discrete choice specifications. It adds to the Canadian literature in three major ways: first, it analyzes the migratory decisions of native-born workers by their skills and industries. Second, it reports the sensitivity of the results when the where-to-move decision is not separated from the whether-to-move decision. Lastly, it questions the displacement effect when spatial scales get finer and reports the results at 282 census divisions[2] (CD), which covers the entire Canadian population by using the 20 percent sample of the 2006 census.

The results show that, after controlling regional- and individual fixed-effects, when they are measured only at destinations, industry-specific immigration density variations across regions have robust negative effects on native-born workers' location choices. However, when the models control choice-specific attributes relative to the origin, immigration variables lose their significance in the desirability of a region. The rest of the paper is as follows: Section 1 summarizes the literature. The model and the empirical strategy are developed in Section 2. Section 3 describes the data. The estimation results are discussed in Section 4. The concluding remarks are given in Section 5.

1 Literature

Many analysts have studied native-born mobility responses to immigration for the U.S. and have obtained mixed evidence.[3] Frey (1994, 1995, 1996, and 2002) found strong native-born mobility responses leading to the "demographic balkanisation" of U.S. cities. Borjas et al. (1997) reported consistent evidence confirming the substantial out-migration of the native born in response to immigrant inflows on a national scale. Frey's displacement hypothesis has been challenged by White and Imai (1994), Wright et al. (1997), and Harrison (2002); they found that net in-migration of the native born is either positively related or unrelated to immigration in metropolitan areas. In fact, their results indicate that

[2] To conduct a population census, Statistics Canada divided the country into 289 provincially legislated census divisions (CDs) or smaller communities that are intermediate geographic areas between the province/territory level and the municipality (census subdivision).
[3] An excellent literature review can be found in the Hou and Bourne (2004) paper.

the net loss of unskilled native-born workers from metropolitan areas is probably a function of those cities' population size and industrial restructuring rather than immigrant inflows to them. Moreover, Card and DiNardo (2000) estimated the net impact of immigration inflows on the relative skill distribution of several cities in the U.S. and found that increases in the immigrant population in specific skill groups led to small increases in native-born individuals of the same skill group. In a recent study, Borjas (2006) showed that the internal migration of the native born is a significant adjustment process that accounts for as much as 60 percent of the difference between wage effects of immigration estimated by skill-cell and spatial-correlation approaches. Federman et al. (2006) tested for native-born responses to the arrival of Vietnamese immigrants in the manicurist occupation in California and concluded that the displacement effect was due not to the exit of native-born workers but to fewer new entries of native-born manicurists. Hatton and Tani (2005), which reviewed migration patterns across 11 regions of the U.K. using annual data for the period from 1981 to 2000, found a strong negative link between immigration flows and native-born mobility responses. More specifically, for all 11 regions, their results showed that a 1 percentage point increase in the net immigration rate decreases the net migration by 0.064 percentage points, implying that immigration induces local residents to relocate to other regions.

A few recent studies analyzed the displacement effect by using individual data. White and Liang (1998) studied the one-year immigration pattern in the origin *(Departure Model*) and potential destinations (*Arrival Model*) with two separate models. They used overall immigration densities in the U.S. states taken from 1981, 1984, 1987, and 1990 Current Population Surveys. They found that states with high levels of recent immigration are less likely to retain Anglo workers. In their most recent work, Crowder et al. (2011) have investigated the same issue for the U.S. by using data from the 1968 through 2005 waves of the Panel Study of Income Dynamics, linked to contextual data drawn from the U.S. Census. They also used general local-immigration densities at the departure to observe the relationship between changing immigrant concentrations in the local population and native-born out-mobility decisions in the origin. They found that the likelihood of out-migration for the native-born is significantly and positively associated with the immigrant population in the neighborhood. Both studies mentioned above were not able to control unobserved regional fixed-effects at the origin or potential destinations.

No Canadian study has reviewed native-born mobility responses to immigration on a national scale. Since Canada has a point system that targets skilled immigrants to reduce the labor shortages in specific markets, it could be expected that selective immigration policies may bring more “complementary” new immigrant workers into Canada rather than a stream of “substitute” foreign labor that competes with native-born workers for the existing jobs, as arguably is the case in the U.S. Although the Canadian immigration system largely aims at skilled workers, fewer than 40 percent of the new immigrants come through the point system. Two recent studies, Hou and Bourne (2004) and Ley (2007), found that the growth in recent immigration covaries with out-migration rates among the less-educated native born in Toronto and Vancouver, which are traditional immigrant destinations in Canada. While Ley compared Sydney (Australia) and Toronto by using time-series data between 1977 and 2002, Hou and Bourne calculated in- and out-migration rates by using multivariate logistic regression techniques on a sample of microdata drawn from five censuses from 1981 to 2001 for the working population aged between 25 and 64 living in three Census Metropolitan Areas (Toronto, Montreal, and Vancouver).

As of 2012, the share of foreign-born nationals has reached 20 percent of the total population in Canada. The same figures for the U.S. and the EU-27 are around 11 and 6.3

percent (excluding immigrants born in another EU country), respectively. Table 1 provides information about the provincial differences in population growth rates between 1971 and 2006. As seen by the numbers, the direction of immigration is very asymmetric across provinces. Although British Columbia, Ontario, and Quebec have experienced large increases in their immigrant population relative to the increase in the native-born population, the opposite was true in Alberta, Manitoba, and Saskatchewan.

Table 1: Components of population growth rates across provinces (1971–2006) (%)

Provinces	Total	Native Born	Immigrants
Canada	44.85	35.66	87.74
Newfoundland and Labrador (NL)	-4.12	-4.35	-6.32
Prince Edward Island (PEI)	20.21	19.66	29.15
Nova Scotia (NS)	14.47	13.66	21.51
New Brunswick (NB)	13.41	13.07	11.25
Quebec (QE)	23.36	17.57	81.6
Ontario (ON)	56.16	41.97	99.06
Manitoba (MB)	14.7	16.46	-0.01
Saskatchewan (SK)	2.98	10.49	-56.49
Alberta (AB)	100.04	100.82	86.72
British Columbia (BC)	86.5	72.06	125.35

Source: Author's calculations based on the data.

To our knowledge, the present study is the first of its kind that analyzes the job displacement of immigration on a national scale in Canada.

2 The model and empirical strategy

This paper investigates how differential regional characteristics, particularly immigration densities, across industries and occupations in alternative destinations would affect the mover's destination choice. The appropriate model is the McFadden's (1973) alternative specific conditional logistic model based on a standard additive random-utility framework. If person i faces J alternative destinations, the utility of choice j is

$$U_{ij} = \boldsymbol{\alpha}'\mathbf{c}_j + \boldsymbol{\beta}'\mathbf{z}_{ij} + \boldsymbol{\gamma}'\mathbf{x}_i + \varepsilon_{ij}$$

where $\mathbf{c}_j$ is the alternative specific constant, $\mathbf{z}_{ij}$ is a vector of choice-specific attributes, $\mathbf{x}_i$ are case (individual) specific regressors, and the last term is the unobserved random component. Person i chooses destination j if the utility U_{ij} is highest among all J choices.

That is,

$$\Pr(y_i = j) = \Pr(U_{ij} > U_{ik}) \text{ for all other } k \neq j$$

where y_i is a random variable that represents the outcome. If J disturbances are independently and identically distributed with the Weibull distribution and the independence of irrelevant alternatives (IIA) assumption holds, then

$$\Pr(y_i = j) = \frac{\exp(\boldsymbol{\alpha}'\mathbf{d}_j + \boldsymbol{\beta}'\mathbf{z}_{ij})}{\sum_{j=1}^{J} \exp(\boldsymbol{\alpha}'\mathbf{d}_j + \boldsymbol{\beta}'\mathbf{z}_{ij})}.$$

Since the outcome probability is based on utility differences only, $\mathbf{x}_i$ cannot be identified, and $\mathbf{d}_j$, which is equal to ($\mathbf{c}_j - \mathbf{c}_{base}$), captures the choice probabilities relative to the base alternative that cannot be attributed to the other explanatory variables. With the presence of choice-specific constants, this model would converge only if alternative-specific variables,

$\mathbf{z}_{ij}$, vary over both individuals and alternatives. This is because choice-fixed covariates, $\mathbf{z}_j$, will be perfectly collinear with the constant terms of the alternative equations. This represents a major challenge in location-choice models because regional attributes, such as local immigration densities and unemployment rates, won't vary across individuals.

The strategy that we developed to separate the effects of immigration across industries and occupations on native-born workers' migratory behaviors also helps us address this problem: we built choice-specific regressors that vary across individuals by their occupation and industry. We achieved this by creating index measures for every alternative destination (for each of 282 CDs), which indicate the relative size of the regional immigration density, average hourly wage, and employment in each industry- and occupation level. For example, the industry immigration index for industry *I* in destination *j*,

$$INDimmINX_{Ij} = \frac{M_{Ij} / M_{IT}}{M_j / M_T},$$

where *M* is the number of immigrant workers and *T* denotes the entire country, captures the size of immigrant workers in industry *I* in region *j* relative to the region *j*'s overall share in national immigration. We have 10 occupation and 20 industry categories in total.[4] The other industry indices – the industry specialization index and the industry wage index – are constructed as follows:

$$INDspecINX_{Ij} = \frac{L_{Ij} / L_{IT}}{L_j / L_T},$$

[4] The detailed description of these categories is given in the Appendix.

$$INDwageINX_{Ij} = \frac{w_{Ij} / w_{IT}}{w_j / w_T},$$

where, *L* is the number of people in the labor force, *w* is the average hourly wage. The same index calculations (occupation immigration, specialization and wage indices) are done for each occupation category.[5] In addition, to account for possible regional shifts in each industry in the last five (2001–2006) of the years we looked at, we calculated the regional shift component, a variable that measures how many jobs are created or lost in an industry due to local factors, from a shift-share decomposition for every industry. For industry *I* and destination *j*, the regional industry shift is calculated as follows:

$$ISS_{Ij} = E_{Ij}^{t-1}\left[\left(\frac{E_{Ij}^{t}}{E_{Ij}^{t-1}}\right) - \left(\frac{E_{IT}^{t}}{E_{IT}^{t-1}}\right)\right],$$

where *E* is the number of workers.

In the literature, the decision-making process of migrants is usually separated into two steps: first, deciding whether to move; then, deciding where to move. For instance, to be able to identify the effect of regional characteristics, such as local immigration densities, on moving-out decisions, White and Liang (2001) and Crowder et al. (2011) apply a standard logistic model for the first step without controlling unobserved regional fixed-effects at the departure. The same identification problem occurs in modeling the second step, because

[5] Since the existence of choice-specific constants, a log-linearization results in perfect collinearity with the denominators of these indices.

when unobserved regional heterogeneity is controlled at destinations, none of the regional characteristics can be identified. Therefore, they usually focus on personal features and their effects on destination decisions or avoid controlling the fixed-effects, to be able to identify regional attributes at destinations that have an impact on migration. Since local characteristics vary across movers in our approach, choice-specific intercepts, which control the desirability of each alternative because of unmeasured attributes of the alternative, can be introduced to the model without any compromise in identifying the effects of choice-specific immigration densities, average wage levels, and employment structure on deciding where to move.

There are other potential problems with this two-step modeling. For example, modeling the first step alone presumably misses the fact that the decision to stay or go may not be separated from considering the conditions in potential destinations relative to the present location. Empirically, even if a rise in the local immigration in a specific industry and occupation increases the likelihood of moving-out for a person, it omits whether the same person is picking a destination with a higher or a lower immigration density, relative to the origin (Davies et al., 2001). A similar problem in modeling location-choice decisions also exists. Even if a mover picks a destination with a lower immigration density among the alternatives, the same results may become statistically insignificant when immigration densities in potential destinations are calculated relative to the origin. Hence, if migration is a simultaneous process in deciding whether and where to move, then location choices should be made by comparing the conditions in both departure and destination regions at the same time. However, if the reason in deciding whether to move is different from the reason in deciding where to move, this comparison cannot outline the decision-making process in choosing the destination. For example, if a person decides to move for a personal reason, she would not pick a destination by comparing its regional attributes with her origin location but, instead, would decide by comparing the destination with other location choices. Even though this theoretical ambiguity may be reduced empirically by including only a certain segment of the movers, such as a sample of workers in certain age groups, it still imposes a restriction on a mover to have a symmetric response for changes in the same regional characteristic of departure and destination regions. To see the sensitivity of estimation results to these assumptions, we additionally use relative measures for choice-specific regressors that control the difference between departure and destination values.

It is obvious that any compromise in controlling unobserved regional heterogeneity in location-choice models, in order to identify regional attributes, leads to biased and inconsistent estimators. Still, the other source of a potential endogeneity bias in location-choice models is the possibility that choosing a destination and the attributes of that destination may be subject to correlated shocks. In general, at the spatial equilibrium, if differences in prices and incomes equate the utilities across regions, the motivation for migration should come from different sources. Two main sources are identified in the literature: local labor demand and supply shocks; and the locational mismatch between the availability of skills and the distribution of local demand for skills, which is often conceptualized as the reason for a spatial sorting – due to a random distribution of skills within the population but a concentrated demand for these skills across regions (Brown and Scott, 2012).

The labor demand (LD) shocks usually result from a negative or positive shock to the industry's demand and supply curves. An increase in demand in a specific industry, for example, raises the labor demand and, hence, leads to higher wages. If incomes, relative to labor and capital flows, respond to LD shocks fairly quickly, as shown by Rappaport (2007), industry specific relative wages in location-choice regressions capture the LD shocks. Labor supply (LS) shocks, on the other hand, occur due to region specific shocks, such as an increase in crime or a decline in the quality of local amenities. Since these shocks are not usually industry or occupation specific, the presence of region specific constants would be sufficient to capture their effects. Moreover, instead of using overall immigration densities, using index numbers that measure the region's immigration size in an industry relative to its overall share in immigration weakens a potential endogeneity in regressors due to LS shocks. That is, an overall regional shock would be less likely to alter the distribution of immigrants across industries and occupations in a region. Hence, when both relative industry- and occupation-specific wages and regional fixed-effects are controlled, immigration index measures should be uncorrelated with the error term. In other words, they rather provide long-term information about expected incomes in destination choices for movers, as immigrants affect the productivity depending on whether they are complements or substitutes in each industry.

As Brown and Scott (2012) explain, the other source of motivation for migration could be a spatial sorting due to an inherent mismatch between the locations of jobs that require certain skills and the random distribution of skills across the population. Even though workers acquire (invest in) skills that are locally in high demand, as long as abilities influence skills, the spatial distribution of skills will have a random part. This inherent mismatch leading to the over- or undersupply of skills across regions will differentiate relative incomes in local labor markets for each industry. Hence, variations in expected incomes should still affect movers' destination choices. This implies a constant flow of workers between locations even at the spatial equilibrium. Immigration indices, therefore, together with relative industry- and occupation-specific wage and specialization indices in the model should be indicators of differences in expected incomes across alternative destinations for migrants.

3 Data development

The 2006 Census is used for the purposes of our study, and we accessed the 20 percent sample of microdata through the Atlantic Research Data Centre of Statistics Canada. For this access, special permission was granted by Statistics Canada through the Social Sciences and Humanities Research Council. These data enable the classification of a person's residential location for three periods: now, a year ago, and five years ago at the CD level.

We created a subsample that includes only nonaboriginal native-born civilians in 10 provinces, who lived in a different CD in 2005, do not have activity limitations, and are more than 19 years old. Since the majority of residential moves originated at the family level, to avoid multilayer clusters in our estimations, we only included household heads in our effective sample. After these limitations we obtain more than 45 thousand native-born movers. McFadden (1978) has shown that consistent estimates of parameters can be obtained from a fixed sample of the full choice set. Hence, to prevent long calculation times, we randomly selected 70 alternatives (25% sampling) for each mover, which include the actual destination, out of 282 possibilities.

Table 2 reports the distribution of native-born and immigrant workers and the relative size of native-born movers by industry and occupation. It shows that while 40 percent of workers are in 4 industries (construction, manufacturing, retail trade, and health care), the rest are spread into the 16 others. The ratio of movers to nonmovers, on the other hand, is almost evenly distributed across industries, except for agriculture and food services industries that have the lowest and highest movers ratio, respectively. Interestingly, although manufacturing is the biggest industry, it has the third-lowest movers ratio among 20 industries. Four occupations make up around 65 percent of the native-born workforce.

Table 2: Distribution of workers, immigrant/native-born workers ratio, and the ratio of native-born movers to nonmovers by industry and occupation (%) – 2006

Industry	Size	Imm. Ratio	Movers Ratio	**Industry**	Size	Imm. Ratio	Movers Ratio
Food Services	5.93	37.47	7.83	Finance & Insurance	4.01	34.50	4.37
Mining	1.49	10.53	6.33	Construction	6.41	20.47	4.35
Administrative Services	4.34	35.23	5.51	Other Services	4.84	31.94	4.27
Retail Trade	10.28	25.65	5.27	Utilities	0.83	15.02	4.12
Arts and Recreation	1.98	18.95	5.22	Wholesale Trade	4.24	33.06	4.07
Information	2.37	28.51	4.90	Real Estate	1.78	34.51	3.88
Professional Services	6.59	37.83	4.84	Warehousing	4.91	27.46	3.77
Education	7.32	23.16	4.46	Manufacturing	11.67	39.38	3.67
Health Care	10.52	25.38	4.43	Management Services	0.12	34.77	3.53
Public Administration	6.74	12.69	4.38	Agriculture	3.61	14.35	2.16
Occupation				**Occupation**			
Arts and Culture	2.95	24.29	8.93	Business & Finance	18.14	26.28	4.25
Sales and Service	22.49	28.88	5.42	Trades & Transportation	15.32	22.01	3.88
Applied Sciences	6.50	42.94	5.34	Management	9.85	28.43	3.78
Health	5.65	28.69	5.19	Manufacturing & Utility	5.83	48.49	3.53
Social Science & Education	9.04	23.06	5.15	Primary Industry	4.25	13.70	3.06

Sources: The authors' calculations based on the data.
Notes: (i) "Size" gives the proportional size of the industry in all industries. (ii) "Ratio" is the number of movers divided by the number of nonmovers. (iii) "Imm. Ratio" is the number of immigrant workers divided by the number of native-born workers. (iv) Sorted by "Movers Ratio."

Table 3 summarizes average values for index variables at departure and destination CDs grouped by industry and occupation. At the industry level, the immigration index is higher on average at destinations than the departure regions for native-born movers. Other numbers clearly show that workers pick destinations relative to their origins with higher wages, more specialization and more development in their industries. While the numbers at the occupation level indicate the same direction, the average wage at the destination is slightly lower than the origin. Although these numbers are informative, given the different sizes of 20 industries and 10 occupations – and the distribution of movers across them – they are far from conclusive.

Table 3: Average indices at departure and destination CDs by occupation and industry – 2006

		Departure	Destination
Industry			
	Immigration	1.3210	1.4264
	Specialization	1.2084	1.2892
	Average Hourly Wage	1.0198	1.0233
	Shift-Share	-209.83	-35.85
Occupation			
	Immigration	1.0717	1.1026
	Specialization	1.0738	1.0946
	Average Hourly Wage	1.0276	1.0230

Source: The authors' calculations based on the data.

To provide a general overview of the data for the native-born, we report in Table 4 some of their personal characteristics by regions for movers and nonmovers. We created a subsample that includes only nonaboriginal native-born civilians who do not have activity limitations and are more than 19 years old, living in 10 provinces. After this limitation we obtain more than 1.9 million observations at the CD level. For each native-born individual we have information about age, visible minority status, sex, marital status, education level, labor market status in 2005 and 2006, and first official language. In addition to these personal characteristics, we have information about their household traits, such as the number of kids, people, and income earners in the household.

As expected, relative to nonmovers, movers are younger and have fewer kids with smaller household sizes on average. There is no clear trend between movers and nonmovers in terms of number of household maintainers, but the proportion of employed people among movers is higher than among nonmovers. The percentage of visible minorities in each group also changes from region to region without showing a clear trend.

Table 4: Regional differences in selective personal characteristics for native-born movers and nonmovers on average – 2006

	1	2	3	4	5	6	7	Canada
				Movers				
Age	35.18	36.01	35.36	36.65	36.39	36.21	37.97	35.83
Visible Minority	0.013	0.011	0.056	0.016	0.010	0.024	0.035	0.030
No. of Kids	1.022	0.826	0.968	1.068	1.037	1.023	0.877	0.930
Education	5.207	5.108	5.465	4.756	4.620	4.680	5.031	5.139
No. of HH Maintainers	1.568	1.623	1.629	1.535	1.550	1.591	1.960	1.609
L. Market Status 2005	0.857	0.866	0.870	0.863	0.895	0.886	0.857	0.871
No. of Individuals in HH	3.088	2.831	3.053	3.098	3.064	3.149	2.971	2.992
				Nonmovers				
Age	44.66	45.26	42.51	44.20	45.35	42.31	43.93	43.81
Visible Minority	0.010	0.012	0.042	0.025	0.007	0.030	0.064	0.030
No. of Kids	1.104	1.061	1.295	1.189	1.135	1.205	1.120	1.171
Education	4.340	4.564	4.983	4.496	4.243	4.697	4.777	4.707
No. of HH Maintainers	1.568	1.519	1.611	1.591	1.579	1.598	1.622	1.578
L. Market Status 2005	0.796	0.778	0.846	0.851	0.860	0.879	0.836	0.824
No. of Individuals in HH	3.132	3.031	3.327	3.185	3.132	3.280	3.176	3.184

Sources: The authors' calculations based on the data.
Notes: (i) Regions are as follows: 1=Newfoundland, Nova Scotia, PEI, New Brunswick, 2=Ontario, 3= Quebec, 4=Manitoba, 5=Saskatchewan, 6=Alberta, 7=British Columbia. (ii) There are 13 education levels: from 1, indicating no high school, to 13, indicating Ph.D. (iii) HH stands for household and L. Market Status 2005 is 1 if the person is employed.

Table 5 reports regional differences in locational characteristics for movers for both departure and destination CDs, for which we used publicly available data from Statistics Canada that provides information on cumulative regional profiles of the 2006 census. The first observation is that, in general, departure locations have higher immigration densities, except for Alberta. Recent immigration ratios also have a similar pattern, except for Quebec and Alberta. Another trend is out-migration from more to less populous regions, except for Alberta, which attracts more in-migration from other regions – perhaps because its economy is booming due to the oil industry. As predicted, while there are clear differences in unemployment rates and average housing costs across departure and destination locations, the average employment income is lower at some destinations than at departure locations. This can be explained by the fact that using separate values for housing cost and income masks the net income effect.

Table 5: Regional differences in locational characteristics for native-born movers in departure and destination CDs on average – 2006

	1	2	3	4	5	6	7	Canada
				Departure				
Imm. Density	0.098	0.110	0.249	0.129	0.087	0.135	0.199	0.166
R. Imm. Density	0.017	0.024	0.042	0.024	0.015	0.024	0.032	0.030
Pop. Density	249.70	1,065.40	890.80	422.70	105.00	208.60	339.30	705.20
Un. %	9.24	6.74	6.44	5.98	5.71	6.08	6.11	6.63
Emp. Income	24,667	26,106	28,578	24,853	24,044	27,071	26,399	26,879
Rent	682	602	813	618	642	749	773	704
House Price	194,632	198,125	294,899	185,518	181,778	253,692	335,279	250,155
				Destination				
Imm. Density	0.037	0.073	0.216	0.108	0.047	0.139	0.190	0.137
R. Imm. Density	0.006	0.015	0.052	0.022	0.008	0.027	0.024	0.022
Pop. Density	24.99	687.30	568.90	370.70	6.63	44.56	177.20	426.60
Un. %	11.77	6.49	6.13	5.60	5.93	4.27	6.39	6.46
Emp. Income	21,561	26,183	29,169	23,671	22,421	29,489	24,584	26,805
Rent	603	577	809	547	584	807	755	701
House Price	136,256	177,904	282,830	150,213	127,176	281,306	358,915	239,228

Sources: The authors' calculations based on the data taken from Statistics Canada cumulative regional profiles at Statistics Canada.
Notes: (i) Regions are explained in the Table 3 Notes. (ii) Since regional averages in our data are taken from the cumulative profiles provided by Statistics Canada, they reflect population magnitudes. (iii) R.imm Density shows the percentage of recent immigrants in the local population.

4 Results

Although these descriptive tables are informative, they have limitations as the numbers reflect only averages. Based on the random utility model described above, we employ several different estimation specifications by using the conditional logistic model to predict the migration decision of a native-born worker resident at a location:

$$\Pr(y_i = j) = \Pr(U_{ij} > U_{ik}), \qquad U_{ij} = V_{ij} + \varepsilon_{ij},$$

$$\Pr(y_i = j) = \frac{\exp(V_{ij})}{\sum_{j=1}^{J} \exp(V_{ij})},$$

where V_{ij} is the deterministic (observed) part of the utility of native-born worker i in destination j. First, we estimate the following three specifications of V_{ij}:

$$V_{ij} = \boldsymbol{\beta}'\mathbf{z}_{ij} + \lambda'\mathbf{y}_j + \mu km_{ij} + u_{ij}, \quad (1)$$

$$V_{ij} = c_{pr} + \boldsymbol{\beta}'\mathbf{z}_{ij} + \lambda'\mathbf{y}_j + \mu km_{ij} + u_{ij}, \quad (2)$$

$$V_{ij} = c_j + \boldsymbol{\beta}'\mathbf{z}_{ij} + \mu km_{ij} + u_{ij}, \quad (3)$$

where the vector **z** includes industry and occupation indices and the industry shift-shares, the vector **y** contains regional characteristics (unemployment rates, labor force participation rates, average employment incomes, average rental rates, recent immigration ratios, and population densities) at alternative destinations, and *km* is the distance measured in kilometers between the centroids of alternative destinations and the origin location. Specifications 1 and 2 do not include choice-specific constants but regional characteristics at destinations. Specification 2 controls the unobserved heterogeneity at the provincial level.

These two specifications are included in our first estimations to distinguish the results from Specification 3 where the choice-specific heterogeneity is controlled. Hence, we will consider Specification 3 as our main estimation framework, which includes choice-specific constants at the CD level and, therefore, drops regional characteristics. The estimation results of these three specifications are given in Table 6. The models under the Destination heading include choice-specific regressors measuring regional characteristics only at destinations. The models under the Destination/Departure heading use the same regressors divided by their departure equivalents, except for industry shift-share and distance variables.

The first two specifications with both level and scaled variables give mixed results, showing that they are sensitive to how regional heterogeneity is controlled in estimations. Although the regressors that control observed regional differences in unemployment, labor force participation (LFPR), recent immigration, employment income, rental rate and population density are included in the first two specifications, unobserved differences across destination choices at the CD level lead to biased and inconstant estimators. For instance, the industry specialization index, which has the largest effect among all indices, becomes insignificant when provincial constants are included in Specification 2. While occupation immigration indices are insignificant, occupation wage index has a significant and negative effect on choosing a destination in both specifications 1 and 2. Similar variations in estimation results are also present when relative measures are used.

Table 6: Conditional (fixed-effects) logistic regression results predicting location choices of native-born movers with level and relative alternative-specific regressors

	Destination			Destination/Departure		
Model	**1**	**2**	**3**	**1**	**2**	**3**
Industry Indices						
Immigration	-0.0989***	-0.1004***	-0.0864***	-0.0031	-0.0026	0.0027
Specialization	0.3433***	0.3354	0.4089***	0.0278***	0.0232***	0.0253***
Wage	0.0028	0.0178***	0.0805***	-0.0181	-0.0154	0.0341***
Occupation Indices						
Immigration	0.0134	0.0171	0.0354***	-0.0207***	-0.0195**	-0.0072
Specialization	0.2511***	0.2533***	0.3251***	0.1792***	0.1720***	0.1606***
Wage	-0.0976***	-0.1166***	0.1211***	-0.2075***	-0.2442***	0.0847***
Industry Shift-Share	0.00001***	0.00007***	0.00001***	-0.00004***	-0.00004**	0.00002***
Regional Attributes						
Unemployment Rate	-0.0151	-0.0466***		0.0244	0.0522	
LFPR	-0.0041	-0.0434***		-0.1264	-1.2061**	
Recent Imm. Ratio	0.0001***	0.0001***		0.0001***	0.0001***	
Average Emp. Inc.	0.0001***	0.0001***		1.6496***	2.2240***	
Average Rental Rate	0.0012***	-0.0001		1.6894***	1.2421	
Population Density	0.0004***	0.0005***		0.00007	0.00001	
Distance						
Kilometer	-0.0043***	-0.0043***	-0.0044***	-0.0045***	-0.0046***	-0.0044***
Kilometer Squared	0.00001***	0.00001***	0.00001***	0.00001***	0.00001***	0.00001***
Destination Constants	None	10 Prov.	282 CDs	None	10 Prov.	282 CDs
Number of Observations		2854355			2792861	
Pseudo R2	0.3221	0.3341	0.3899	0.2820	0.2880	0.3828

Notes: (i) *, **, and *** indicate that coefficients are statistically significant at 10%, 5%, and 1% levels, respectively. (ii) Standard errors are adjusted for 282 CD clusters at the origin.

Since the index variables are comparable, differences between coefficients imply their relative explanatory power in predicting location choices. There is a significant improvement in R2 when Specification 3 is used, where wage and specialization indices are significant with expected signs. A high-level concentration in the mover's industry and occupation implies a better potential match between the mover's skill and job requirements. Similarly, greater wage rates at both industry and occupation levels, which also suggest a potential spatial sorting between skills and jobs, invite more workers who are in the same industry and occupation. Because these regressors capture the differential in industry- and occupation wages and employment densities, they are independent of broader dynamics that drive average employment incomes and growths in a location.

When only level regressors are used, that is, if movers decide their destinations without comparing them with the conditions in departure regions, the results suggest that an increasing immigration density in the mover's industry reduces a destination's desirability across alternative locations. In Specification 3, although its magnitude is smaller than any other index variable, the same relationship between the immigration density in the worker's occupation and the attractiveness of a region becomes positive. This may imply that when the negative effects of an increasing competition due to a high immigration density at the industry level is controlled, a rising immigration in their respective skill groups may not reduce the appeal of a region.

The regional shift component of a shift-share decomposition identifies the regions' leading and lagging industries. In other words, it indicates how many jobs are created or lost as a result of regions' competitiveness. Its coefficient is positive and highly significant, showing that migrants pick locations that have a comparative advantage in their industry.[6] In addition to those industry- and occupation-specific variables, the distance and squared distance between destinations and departures are included in regressions. Although the distance variable captures the effect of higher costs associated with moving farther, the marginal cost of moving longer distances is not linear, as indicated by the squared-distance. In other words, the cost of moving one kilometer farther is lower at greater distances.

As expected, magnitudes of the coefficients and their significance are affected by using relative measures in regressors under the "Destination/Departure" heading in Table 6. This can be shown in Specification 3 as expressed in the following:

$$V_{ij} = c_j + \boldsymbol{\beta}_i' \frac{\mathbf{z}_{ij}}{\mathbf{r}_i} + \mu km_{ij} + u_{ij}, \quad (3)$$

where $\mathbf{r}_i$ is a constant value of departure attributes for individual i. The coefficients of $\mathbf{z}_{ij}$ ($\boldsymbol{\beta}/\mathbf{r}$) now represent a scale parameter and cannot be estimated separately. The coefficients that are estimated indicate the effect of each observed choice-specific variable relative to the departure. Therefore, larger values at the departure lead to smaller coefficients, even if the observed destination-specific attributes have the same effect on utility. In other words, this model reflects the concept that the immigration density, labor density, or the wage level in a worker's industry in alternative destinations becomes less important in her decision making, relative to other issues, when the same density or wage level rises in the region she is

[6] When we used relative variables, we kept this regressor unchanged, reflecting values only for alternative destinations. This is because it takes positive and negative values, a number of new or lost jobs. Hence the relative values cannot reflect the true directions due to the following sign confusion: -100/+20 and +100/-20 have the same value, -5; while the former has the direction from a gaining to a losing region in the industry, the latter has the opposite.

departing from. It is interesting to see that, while all other indices are still significant with the same anticipated signs, immigration densities at both industry and occupation levels become insignificant when relative measures are used. This change in the effect of immigration densities underlines the importance of the question of whether or not the location choices are made by comparing the conditions in alternative destinations and in the origin location simultaneously. As discussed earlier, this assumption may be too restrictive, as it requires symmetric responses for changes in both a destination and a departure region characteristic (Davies et al. 2001).

The literature generally suggests that the substitution effect of immigration is felt more among low-skill workers. As Ley (2007) points out, this is because a new economic restructuring that has been ongoing in the last two decades has created a new demand for managerial and professional occupations with decreasing importance of primary jobs in some industries. As a result, blue-collar native-born workers might have been subject to an increasing competition and have had to move to other places or upgrade their skills, whereas new immigrant workers are willing to work for low wages. To verify this argument, we estimate Specification 3 by interacting each regressor with a binary variable that controls whether the worker has a higher education or not. Since the results with relative variables are similar to those reported above with insignificant immigration indices, the estimation results using only destination-specific regressors are given in Table 7.

Table 7: Conditional (fixed-effects) logistic regression results predicting location choices of native-born movers by education categories

At Destination	With Higher Ed.	Without Higher Ed.
Industry		
Industry Immigration Index	-0.1006***	-0.0838**
Industry Specialization Index	0.4662***	0.3927***
Industry Wage Index	0.0575**	0.0943***
Industry Shift-Share	-0.00001**	0.00003***
Occupation		
Occupation Immigration Index	0.0566***	0.0229***
Occupation Specialization Index	0.5224***	0.2997***
Occupation Wage Index	0.0042	0.1639***
Distance		
Kilometer	-0.0036***	-0.0048***
Kilometer Square	0.00007***	0.00009***
Number of Observations		2854355
Pseudo R2		0.3925

Notes: (i) *, **, and *** indicate that coefficients are statistically significant at 10%, 5%, and 1% levels, respectively. (ii) Standard errors are adjusted for 282 CD clusters at the origin. (iii) The regression includes destination constants for 281 CDs.

The results imply that postsecondary degree-holders are likely to be attracted by regions with a greater specialization in the movers' industry and occupations. This is consistent with the idea that workers can increase economic returns to their investment in higher education by choosing locations that are specialized in the worker's industry and occupation. On the other hand, it seems that, holding all other factors constant, positive wage differentials in the worker's industry and occupation have a greater impact on the location's desirability for those without a higher education. This evidence is in line with the fact that low-skill workers without a postsecondary degree have a labor supply that is more elastic than that of postsecondary degree holders. Similarly, the moving cost, measured by the distance between the regions, has a weaker impact on location choices when the mover has a higher education, indicating that degree holders are more willing to move farther. Brown and Scott (2012) report similar results in their recent paper investigating location choices of university degree holders in Canada, without controlling the effect of immigration densities. Even though the greater immigration sensitivity for workers with a higher education seemingly contradicts the argument that low-skill workers should be affected more by the substitution effect, the higher education classification cannot perfectly distinguish the skill distribution across movers. Table 8 reports the estimation results of Specification 3 by using 10 occupation classifications and 2 age categories so that the effects of industry-specific regional attributes on native-born workers' destination choices can be better identified by their skill levels.

Sales and service occupations (G), trades, transport and equipment operators (H), occupations unique to primary industry (I), and occupations unique to processing, manufacturing and utilities (J) are generally considered blue-collar occupations. Together, they represent about half of the total Canadian work force with 22.49, 15.32, 4.25, and 5.88 percent, respectively. Interestingly, the estimation results with the full sample and destination-only variables indicate that the industry-specific immigration density for a worker in the sales and service occupation has a weaker impact on her destination decision than for a worker in the business and finance occupation, which is perceived as a white-collar and high-skill occupation. Nevertheless, industry-specific immigration indices have stronger effects on workers in the H, I and J occupations relative to others. When we estimate destination-only specifications by two age groups, clear differences emerge between younger and older native-born migrants.

First, in every occupation group, a high immigration intensity in the migrant's industry has a weaker effect on a younger worker's decision to pick a destination relative to workers older than 35. This implies that the substitution effect of immigrants in an industry is felt more greatly by a native-born worker as she becomes more experienced in her skill level. If age and education are good proxies for revealing a worker's skill level, this result also seems to be consistent with our earlier finding that university degree holders have more sensitivity to immigration in their industry. Relative to a young worker seeking to gain more experience in her skill, for an older worker who has already built his human capital and specialized in an industry, options such as moving to another industry and building a new set of skills are limited in local labor markets. This may also reinforce the negative effect of immigration in an industry for more experienced and specialized workers.

Second, these two groups differ in their reactions to regional differences in industry-specific wages and specialization. As expected, positive variations in industry wage levels have a stronger effect on choosing a destination for younger migrants. We can hypothesize that older workers' greater human capital level, which leads to higher earnings, reduces their marginal utility of income. Moreover, they may be more willing to trade off income against amenities than are younger migrants. Similarly to university degree holders, more experienced workers choose regions with a greater specialization in their industry, which increases earning potentials for their investment in expertise and human capital.

Table 8: Conditional (fixed-effects) logistic regression results with industry indices predicting location choices of native-born movers by skill (occupation) and age groups

	Destination			Destination/Departure		
Model	**Full Sample**	**Age<36**	**Age>35**	**Full Sample**	**Age<36**	**Age>35**
Ind. Immigration Index by Occupation						
Management (A)	-0.1236***	-0.0857***	-0.1391***	-0.0049	0.0004	-0.0105
Business & Finance (B)	-0.1135***	-0.0808***	-0.1351***	-0.0366	-0.0029	-0.0054
Applied Sciences (C)	-0.1224***	-0.0780***	-0.1540***	-0.0178	0.0138	-0.0989**
Health (D)	-0.1143***	-0.0696***	0.1438***	-0.0171***	-0.0141***	0.0638**
Soc. Science & Educ. (E)	0.0496*	0.0516**	0.0470	0.0825	0.0110	0.0032
Arts & Culture (F)	-0.0675**	-0.0496*	-0.0611**	0.0326	0.0136	0.0669***
Sales & Service (G)	-0.0849***	-0.0326	-0.1217***	0.0119	0.0029	0.0289**
Trades & Transport. (H)	-0.1308***	-0.0873***	-0.1615***	0.0024	0.0039	-0.0033
Primary Industry (I)	-0.1448***	-0.0962***	-0.1783***	-0.0506	0.0063**	-0.0136***
Manufac. & Utility (J)	-0.1441***	-0.1099***	-0.1699***	0.0153	0.0200	0.0123
Ind. Specialization Index	0.5132***	0.4158***	0.5826***	0.0338***	0.0274***	0.0408***
Industry Wage Index	0.0796***	0.1159***	0.0358	0.0372***	0.0585***	0.0105
Industry Shift-Share	0.00001***	0.00001***	0.00001***	0.00002***	0.00002***	0.00002***
Kilometer	-0.0044***	-0.0044***	-0.0044***	-0.0045***	-0.0044***	-0.0044***
Kilometer Squared	0.00001***	0.00001***	0.00001***	0.00001***	0.00001***	0.00001***
Number of Observations	2922186	1133772	1788414	2868860	1112481	1756312
Pseudo R2	0.3892	0.3545	0.4190	0.3824	0.3494	0.4111

Notes: (i) *, **, and *** indicate that coefficients are statistically significant at 10%, 5%, and 1% levels, respectively. (ii) Standard errors are adjusted for 282 CD clusters at the origin. (iii) All estimations include destination constants for 281 CDs.

When we use regressors that measure the destination values relative to the origin, industry immigration indices for every occupation group except the health occupation become insignificant, similarly to those reported in Table 6. However, measuring such variables in relative terms does not change the significance of other index variables. This again implies that, when the location-choice models are built on the assumption that migrants have symmetric responses to local attributes at both destinations and departure regions, relative immigration densities do not affect migrants' choice of destinations.

5 Concluding remarks

The main objective of this paper is to develop a better understanding about a possible crowding-out effect of immigration in local labor markets in Canada. Our discussion suggests that studies on the subject using aggregate population flows and immigration densities are subject to several well-known econometric challenges. As in spatial studies looking at the wage displacement effect, there is an inherent bias in spatial crowding-out studies, as some native-born workers would be willing to accept lower wages or remain unemployed instead of moving out of the region. This would dampen the crowding-out effect. Second, even though panel data help in removing regional heterogeneity, studies have to deal with the potential endogeneity of overall regional immigration densities. Many studies show that the skill structure of immigrants relative to the skill structure of the native born, as well as industrial shifts in locations, affect population flows and therefore should be controlled in estimations. Moreover, controlling general equilibrium effects are not easy challenges for studies using aggregate data.

Even though similar challenges exist for studies using individual data to model migratory decisions of native-born workers, they have more options for dealing with those problems. In our view, there are two main problems in location-choice models: first, controlling regional unobserved heterogeneity without compromising identifying regional effects; and second, two-step modeling of migration behaviors.

Many location-choice studies try to address the first challenge by controlling the regional fixed-effects in different levels than those in which the regressors are defined. We show that adding more regional variables or controlling regional heterogeneity at a larger geographical level worsens the problem and creates biased and inconsistent results. Our study addresses this issue by developing regional attributes that are individual specific. As each worker is identified by his industry and occupation, these index variables also reflect differences in regional attributes by industry and occupation.

The second challenge is also important. Our results show that, while all regressors keep their significance and the signs are unchanged, when relative regional attributes are used, immigration variables lose their significance. Would people choose their destinations by comparing only destinations or by comparing destinations relative to their origin location? What's the correct way to model individual location-choice decisions? Our study is not intended to answer this question. But both views have valid points: if people are leaving a region for reasons that are not highly related to the location, they probably would not compare the destinations with their origins. Moreover, even if their motivation to move out is regional, they may not have a symmetric response to a change in the same attribute of a destination and the origin. On the other hand, studies investigating how the level of immigration would affect the appeal of a region should not isolate the conditions at alternative destinations from those at the origin. Someone's moving to a region with the lowest immigration density in their industry or occupation among other alternatives would have a different meaning if this lowest immigration density is higher than the one at the origin. We estimated our location-choice models by using both specifications to see the sensitivity of the results. They are sensitive.

Lastly, we disaggregated the location-choice results to see if they reveal systematic differences across age groups, education levels, and skills. The results do not show clear evidence for the common perception that immigration would have more adverse effects on low-skill and young workers.

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Appendix

Statistics Canada Industry Classification
NAICS Canada 2012 consists of 20 sectors, 102 sub-sectors, 323 industry groups, 711 industries and 922 Canadian industries, and replaces NAICS Canada 2007.

http://strategis.ic.gc.ca/eic/site/cis-sic.nsf/eng/h_00004.html

- Agriculture, Forestry, Fishing and Hunting (NAICS 11)
- Mining and Oil and Gas Extraction (NAICS 21)
- Utilities (NAICS 22)
- Construction (NAICS 23)
- Manufacturing (NAICS 31-33)
- Wholesale Trade (NAICS 41)
- Retail Trade (NAICS 44-45)
- Transportation and Warehousing (NAICS 48-49)
- Information and Cultural Industries (NAICS 51)
- Finance and Insurance (NAICS 52)
- Real Estate and Rental and Leasing (NAICS 53)
- Professional, Scientific and Technical Services (NAICS 54)
- Management of Companies and Enterprises (NAICS 55)

- Administrative and Support, Waste Management and Remediation Services (NAICS 56)
- Educational Services (NAICS 61)
- Health Care and Social Assistance (NAICS 62)
- Arts, Entertainment and Recreation (NAICS 71)
- Accommodation and Food Services (NAICS 72)
- Other Services - except Public Administration (NAICS 81)
- Public Administration (NAICS 91)

National Occupational Classification - Statistics (NOC-S) 2006
http://www.statcan.gc.ca/subjects-sujets/standard-norme/soc-cnp/2006/noc2006-cnp2006-menu-eng.htm

A Management Occupations
B Business, Finance and Administrative Occupations
C Natural and Applied Sciences and Related Occupations
D Health Occupations
E Occupations in Social Science, Education, Government Service and Religion
F Occupations in Art, Culture, Recreation and Sport
G Sales and Service Occupations
H Trades, Transport and Equipment Operators and Related Occupations
I Occupations Unique to Primary Industry
J Occupations Unique to Processing, Manufacturing and Utilities

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