

Immigrants working in regulated occupations

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In 2006, there were 3.6 million immigrants in Canada's labour force, many of whom were highly educated. Education levels of more recent immigrants have risen in recent years such that, by 2006, 42% of immigrants who had landed in Canada since 2001 had a university degree. At the same time, 16% of the Canadian-born had university degrees. In addition to high levels of education, many of these immigrants also came with foreign work experience.

One of the principal goals of Canadian immigration policy is to fill gaps in the labour market. With the aging of the baby boomers, a number of occupational shortages have emerged in the Canadian labour market, particularly in health care professions (such as physicians, nurses and pharmacists) and in management occupations. Shortages are projected to continue as boomers exit the labour market (Human Resources and Skills Development Canada 2007). Some projections imply that immigrants could account for nearly all labour force growth as soon as 2011 (Statistics Canada 2003).

Despite their high levels of educational attainment, many recent immigrants struggle in the labour market. In 2006, immigrants who had been in Canada for less than 10 years had higher unemployment rates and lower employment rates than those born in Canada. Furthermore, many of these immigrants were unable to find jobs in their chosen fields. And, in recent years, immigrants have become more likely to be in low income (Picot, Hou and Coulombe 2007).

New immigrants to Canada indicate that they faced a number of challenges in the Canadian labour market, most importantly: not enough Canadian job experience, lack of connections in the job market and foreign credentials not being recognized (Schellenberg and Maheux 2007). Others suggest that newcomers may lack knowledge about getting their skills recog-

nized, employers may lack knowledge about foreign credentials, and there may be real differences in the quality of foreign credentials relative to domestic qualifications (Kustec, Thompson and Xue 2007).

For many occupations, hiring is based on the employer's decision that the candidate has an acceptable combination of education and experience to do the job. For those seeking work in regulated occupations, another hurdle is added. Regulated occupations are governed by provincial regulatory bodies and/or professional associations and have very specific requirements regarding the credentials necessary to practice the occupations. This study focuses on the regulated occupations since a clear relationship exists between educational credentials and the ability to meet the requirements of the occupation.

Many occupations for which immigrants have trained are regulated occupations. These include engineering, medicine, nursing and teaching. For immigrants who wish to work in a regulated occupation, practicing that occupation outside Canada is not considered sufficient and they must prove that their foreign credentials meet Canadian standards.

In 2006, of the 1.5 million university-educated, working-age immigrants (15 years of age and over), 41% had studied in fields that would typically place them in regulated occupations compared to 39% of Canadian-born university graduates.

This study examines the extent to which immigrants in 2006 with a field of study that typically leads to a regulated occupation were working in that occupation (see *Data source and definitions*). For example, how likely are immigrants with engineering degrees to find work as an engineer? It then examines how this match rate varies across provinces and by the immigrants' source countries, and the amount of time they spent in Canada. Finally, it looks at the type of work performed by those not working in the occupations for which they studied.

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1.8 million graduates from fields of study leading to regulated professions

In 2006, there were 1.8 million university degree holders in Canada from fields of study that would typically lead to work in a regulated occupation. Of these, 208,700 were immigrants educated in Canada, while 403,900 were immigrants who were foreign-educated (Table 1).

Immigrants with a degree in a regulated field of study who studied outside Canada had an unemployment rate that was much higher than that for Canadian-educated immigrants with similar degrees. In 2006, foreign-educated immigrants from regulated fields of study had an unemployment rate of 7.0%, while immigrants with Canadian degrees in regulated fields of study had an unemployment rate of 4.2%, a gap of 2.8 percentage points.

Table 1 Labour force activity of university graduates with regulated field of study, by immigrant status and location of study

	Total	Canadian-born	Immigrants	
			Studied in Canada	Studied outside Canada
			'000	
Population	1,819.8	1,207.2	208.7	403.9
Labour force	1,437.0	961.2	170.3	305.5
Employed	1,384.3	937.1	163.2	284.1
Unemployed	52.7	24.1	7.1	21.4
Not in labour force	382.8	246.0	38.3	98.4
			%	
Participation rate	79.0	79.6	81.6	75.6
Unemployment rate	3.7	2.5	4.2	7.0
Employment rate	76.1	77.6	78.2	70.3

Source: Statistics Canada, Census of Population, 2006.

Data source and definitions

Unless otherwise stated, all data are from Statistics Canada's 2006 Census of Population. Since census data are randomly rounded to the nearest 0 or 5, not all numbers will reflect totals and there may be slight differences among tables.

Who's included in this study?

Immigrants and persons born in Canada who meet all of the following criteria:

- non-institutional resident
- age 15 or over
- university degree holder
- have a field of study that typically leads to a nationally regulated occupation
- employed
- immigrant who obtained university credentials outside Canada
- not a senior manager (since no skill level information is available for this group)

Occupations that are regulated in all Canadian provinces and chosen for study:

Architects	Optometrists
Accountants	Pharmacists
Chiropractors	Doctors
Dentists	Physiotherapists
Dietitians/Nutritionists	Registered Nurses
Engineers	Teachers
Lawyers	Veterinarians
Occupational Therapists	

A note on **regulated occupations**: Occupations that are regulated either by the provinces or by professional associations are generally regulated because they have a responsibility either for public health or to protect consumers/clients. For this reason, educational and any additional requirements are clearly defined and licensure cannot be obtained unless requirements are clearly met.

For the regulated occupations selected for this study, detailed occupational requirements are in Appendix I. Some nationally regulated occupations have been excluded from the study due to small numbers of immigrants studying and/or working in those fields.

While a small number of the Canadian-born may have studied abroad (fewer than 150,000 out of over 3 million), these people have been left in the Canadian-born group since they are few in number and do not affect the overall results.

The main indicator employed in this study is the '**match rate**'—the total number of people working in the selected regulated occupations divided by the total number of employed people from the fields of study that would typically lead them to work in those occupations.¹ (See Appendix II for a list of the fields of study that constitute a match with NOC occupations as defined by Human Resources and Skills Development Canada.)

Table 2 University graduates of fields leading to regulated occupations, by location of study

Field of study	Canadian-born	Immigrants		Canadian-born	Immigrants	
		Studied in Canada	Studied outside Canada		Studied in Canada	Studied outside Canada
					%	
	1,207,220	208,675	403,910	100	100	100
Architecture	16,390	4,140	11,115	1	2	3
Accounting	100,235	27,220	40,050	8	13	10
Chiropractics	6,455	450	420	1	0	0
Dentistry	12,965	3,770	5,735	1	2	1
Diet/Nutrition	4,630	635	720	0	0	0
Engineering	209,300	74,440	211,825	17	36	52
Law	96,865	10,955	18,165	8	5	4
Occupational therapy	10,550	1,115	810	1	1	0
Optometry	3,350	340	440	0	0	0
Pharmacy	23,295	4,965	8,890	2	2	2
Medicine	36,050	9,405	19,980	3	5	5
Physiotherapy	14,190	1,725	2,880	1	1	1
Nursing	101,210	13,225	19,030	8	6	5
Teaching	563,945	55,150	60,710	47	26	15
Veterinary medicine	7,790	1,140	3,140	1	1	1

Source: Statistics Canada, Census of Population, 2006.

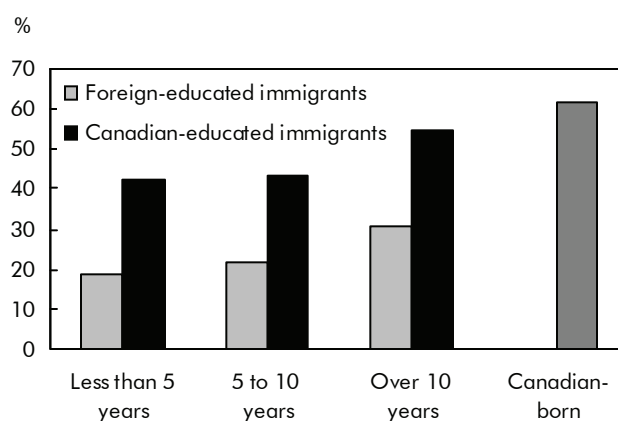
Engineering graduates most numerous among immigrants

In 2006, the field of study distribution differed between immigrants and those born in Canada. Among immigrants from a field of study that typically leads to a regulated occupation, over one-half (52%) of foreign-educated graduates had engineering degrees (Table 2). Among the Canadian-born, education was the number one field of study (47%), while engineering was the second at 17%.

Foreign-educated immigrants less likely to work in their fields of study

Foreign-educated immigrants with fields of study that typically lead to regulated professions were less likely to work in these professions compared to the Canadian-born. Among those employed in 2006, 62% of the Canadian-born were working in the regulated profession for which they trained compared to only 24% of foreign-educated immigrants.

Both the length of time spent living in Canada and where they studied had an impact on immigrants' ability to find work in the regulated profession for which they studied. In 2006, regardless of how long immigrants had been in Canada, those who had studied in

Chart A Match rates by immigrant type, location of study and period of landing

Source: Statistics Canada, Census of Population, 2006.

Canada had much higher match rates than immigrants who had studied abroad (Chart A). Those who landed in Canada in 1996 or earlier and held a Canadian degree had match rates that were twice as high as their

foreign-educated counterparts. In fact, with more time in Canada, the match rates for both foreign- and Canadian-educated immigrants increased.

While the differences in match rates between Canadian- and foreign-educated immigrants with the same landing period show that Canadian-educated immigrants do not face the obstacle of foreign credential recognition (and are less likely to have foreign work experience), they also reflect other factors. For example, the differences might also indicate that these immigrants are more likely to speak an official language with greater ease, have more knowledge of the Canadian labour market, and have more established networks through which to find employment.

To focus on the recognition of foreign credentials, immigrants who obtained their university degrees in Canada have been excluded from the sample for the remainder of the study.

Foreign-educated immigrants less likely to find work in their trained professions

Canadian-born and foreign-educated immigrants in regulated health occupations generally had the highest match rates (Table 3). These included medicine, occupational therapy, chiropractics and nursing. While these fields had high match rates for the Canadian-born, the same was not always true for foreign-educated immigrants. Immigrants who trained as chiropractors had a match rate that was comparable to the Canadian-born match rate (84% versus 87%). Immigrants who trained as nurses and occupational therapists had match rates that were lower than that for their Canadian-born counterparts, (56% versus 73% for nurses and 65% versus 82% for occupational therapists), but nevertheless had some of the highest match rates among foreign-educated immigrants.

Among the health professions, veterinary medicine had one of the lowest match rates for immigrants—29%, compared to 83% for the Canadian-born. Of the Canadian-born who studied dentistry, 90% worked as dentists compared to 44% of immigrants.

Immigrants who studied law outside Canada had the lowest match rates of all fields of study leading to a regulated occupation. While 69% of the Canadian-born who studied law worked as lawyers, the corresponding figure was 12% for immigrants, making the Canadian-born with law degrees almost 6 times as likely as immigrants to be working as lawyers.

Table 3 Match rates of employed foreign-educated immigrants working in the corresponding occupation, by immigrant type

	Canadian-born		Foreign-educated immigrants	
	Total	Match rate	Total	Match rate
		%		%
Field of study	937,050	62	284,080	24
Chiropractics	5,745	87	345	84
Occupational therapy	9,345	82	560	65
Medicine	31,040	92	12,865	56
Nursing	78,880	73	13,150	56
Pharmacy	18,760	84	6,020	45
Physiotherapy	12,310	82	2,165	44
Dentistry	10,465	90	3,750	44
Optometry	2,760	95	340	38
Veterinary medicine	6,580	83	2,225	29
Architecture	13,860	56	7,695	26
Accounting	85,410	50	29,445	24
Teaching	408,795	62	35,860	20
Diet/Nutrition	3,225	60	435	20
Engineering	167,260	42	157,930	19
Law	82,615	69	11,295	12

Source: Statistics Canada, Census of Population, 2006.

Engineering was the most common field of study in a regulated occupation for immigrants. Of the 157,900 immigrants who studied engineering and were employed, 30,000 were working as engineers, a match rate of 19%. Slightly more Canadian-born graduates studied engineering (167,300), with a match rate more than double that of immigrants (42%).

While 92% of the Canadian-born who studied medicine were working as doctors in 2006, immigrants with the same field of study were less likely to be working as doctors (56%).

Match rates by province

While match rates among the Canadian-born were similar from province to province, match rates for foreign-educated immigrants were more varied (Table 4). The provincial match rates for the Canadian-born fell between 59% and 65%, while for immigrants they ranged from a low of 19% in Quebec to a high of 60% in Newfoundland and Labrador.

Table 4 Match rates of foreign-educated immigrants working in the corresponding occupation, by immigrant type and province

Province	Canadian-born	Foreign-educated immigrants
	%	
Newfoundland and Labrador	63	60
Prince Edward Island	63	37
Nova Scotia	60	40
New Brunswick	62	37
Quebec	59	19
Ontario	62	24
Manitoba	65	26
Saskatchewan	61	38
Alberta	62	31
British Columbia	62	22

Source: Statistics Canada, Census of Population, 2006.

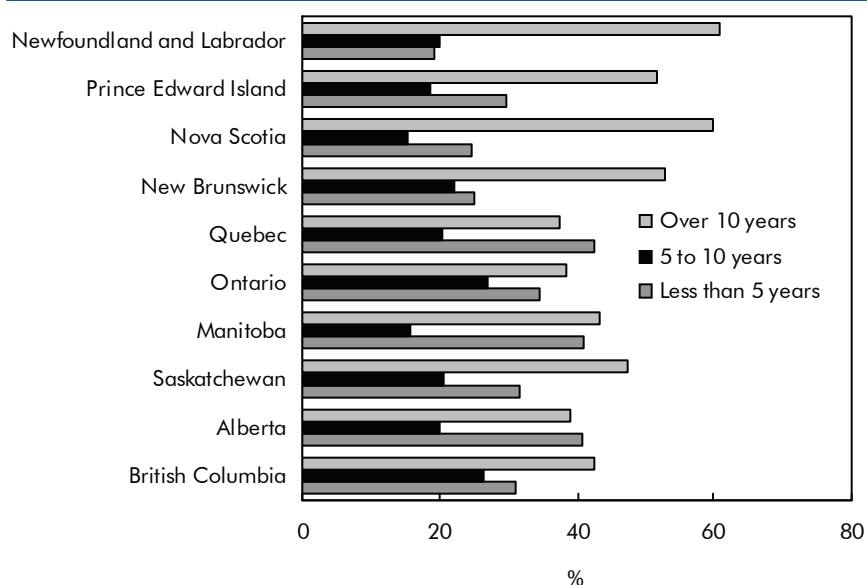
Foreign-educated immigrants living in Canada's most popular immigrant destinations (Ontario, British Columbia and Quebec) had the lowest match rates. Immigrants in Quebec were the least likely to find a career match in their field of study, with 19% of immigrants working in the regulated occupation most commonly associated with their field of study. British Columbia was next with a match rate of 22%, and Ontario's rate was 24%. In all of these provinces, the match rates for immigrants were less than one-half the match rates of the Canadian-born in their respective provinces.

Newfoundland and Labrador had the highest match rate for immigrants at 60%, three percentage points behind the Canadian-born in the province. However, their numbers were small: 605 in total.

While the mix of fields of study can have an impact on overall provincial match rates, other factors, like distribution of immigrants by period of landing, could also affect overall match rates. More specifically, provinces with higher concentrations of more recent immigrants could have lower match rates than those with higher concentrations of immigrants who have been in Canada for longer than 10 years since more recent immigrants are less likely to be working in the regulated occupation for which they trained.

Quebec, with the lowest match rate, also had the highest proportion of immigrants who had studied for regulated occupations (42%) and landed after 2001 (Chart B). Elsewhere the results were less clear cut. In general, the Atlantic provinces had higher proportions of immigrants who had landed prior to 1996. Match rates for immigrants were also above the national average in Saskatchewan and Alberta, regions that had strong labour markets in 2006. Ontario's match rate for foreign-educated immigrants mirrored the national average at 24%. In contrast, Quebec and British Columbia had match rates that were below the national average.

Chart B Proportion of employed immigrants who studied for work in regulated occupations, by province and time since landing



Source: Statistics Canada, Census of Population, 2006.

Immigrants with the highest match rates studied in countries with similar education systems and language of instruction as Canada

Immigrants with the highest match rates studied in English-speaking countries, the official language spoken by the majority of Canadians. In fact, these immigrants had very similar match rates to the Canadian-born. Immigrants who studied in Ireland, New Zealand and South Africa had match rates that were similar to the 62% rate for the Canadian-born, while the match rate for all immigrants was 24%. Immigrants from Australia and the United Kingdom also had match rates that were well above the average (Table 5).

Table 5 Highest match rates by country where degree earned¹

	Foreign-educated immigrants	Match rate
Country where immigrants' highest degree earned		%
Ireland	810	59
New Zealand	575	57
Republic of South Africa	3,790	56
Australia	2,105	50
United Kingdom	17,975	44
Jamaica	605	41
Trinidad and Tobago	270	41
Israel	1,145	39
United States of America	22,225	39
Hungary	790	36

1. Includes only countries of highest degree with at least 200 immigrants who have a field of study that would typically lead them to work in a regulated occupation.

Source: Statistics Canada, Census of Population, 2006.

Table 6 Lowest match rates by country where degree earned

	Foreign-educated immigrants	Match rate
Country where immigrants' highest degree earned		%
Ukraine	6,995	14
Algeria	2,750	13
Cuba	1,020	12
South Korea	5,835	12
Haiti	555	12
El Salvador	645	12
Belarus	1,050	10
Morocco	720	9
Republic of Moldova	585	9
Kazakhstan	740	7

Source: Statistics Canada, Census of Population, 2006.

At the other end of the spectrum, immigrants with the lowest match rates often obtained their degrees in developing countries (Table 6). Immigrants who studied in Kazakhstan had the lowest match rate, with 7% working in the associated regulated occupation.

What are the actual occupations of the unmatched?

The unmatched are university graduates who studied for a regulated occupation but are employed in a different occupation. Based on match rates of 62% for the Canadian-born and 24% for all immigrants, there remains a substantial fraction of both groups who were unmatched. In total, in 2006 there were approximately 365,000 Canadian-born graduates and

216,000 foreign-educated immigrants who were working in occupations to which their studies would not typically lead.

The top two occupations held by unmatched immigrants in 2006 were in professional occupations in natural and applied sciences, followed by technical occupations related to natural and applied sciences, and accounting for 33% of unmatched immigrants (Table 7).

The next two occupations were clerical and sales and service occupations. Twenty-six percent of unmatched immigrants were working in these occupations, which would not normally require a degree.

Among the Canadian-born, the most common occupations among the unmatched in 2006 were 'other managers' (which includes managers outside senior management), followed by teachers and professors. Clerical occupations were in the top 10 for unmatched Canadian-born graduates, with 6% of the Canadian-born falling here. Unmatched immigrants, however, were even more likely to work in clerical occupations, with 16% holding clerical jobs. Sales and service occupations accounted for less than 1% of positions among the Canadian-born working outside their field of study compared to 10% for immigrants.

Thus it appears a much higher proportion of highly qualified immigrants than Canadian-born graduates are working in occupations requiring less education than they have acquired. This hypothesis can be addressed more directly by assigning skill levels to occupations (see, for example, Galarneau and Morissette 2008).

Table 7 Actual occupations of immigrants with degrees related to regulated occupations, by immigrant type (unmatched)

Rank		Unmatched immigrant	
		Total	%
1.	Professional occupations in natural and applied sciences	20,460	17
2.	Technical occupations related to natural and applied sciences	19,105	16
3.	Clerical occupations	18,540	16
4.	Sales and service occupations	11,545	10
5.	Specialist managers	9,815	8
6.	Other managers, not elsewhere classified	8,785	7
7.	Teachers and professors	7,975	7
8.	Managers in retail trade, food and accommodation services	7,655	7
9.	Assemblers in manufacturing	7,215	6
10.	Machine operators in manufacturing	6,305	5

Source: Statistics Canada, Census of Population, 2006.

Are the unmatched Canadian-born more likely to work in highly skilled jobs than unmatched immigrants?

The Department of Human Resources and Skills Development's National Occupational Classification System (NOC) not only classifies occupations, but also includes a skill level associated with each of its occupations. There are four main skill levels: university degree; college or apprenticeship training; high school; and short-work demonstration (for example, a demonstration on how to operate a cash register or how to serve food to customers). University graduates who are working in occupations that require less than a university education are considered 'overqualified' for their positions.

Since all people in the sample have university degrees, the percentage of those working in occupations requiring less than university is the overqualification rate. In 2006, 57% of unmatched Canadian-born graduates were overqualified compared to 77% of immigrants (Table 8).

Table 8 Distribution of unmatched university degree holders

	Canadian-born	Immigrants
	%	
Skill level usually required by occupation		
University degree (any level)	43	23
College or apprenticeship training	34	35
High school	19	31
Short-work demonstration	4	11
Overqualification rate	57	77

Source: Statistics Canada, Census of Population, 2006.

When it came to working in an occupation that required no formal education (known as a short-work demonstration), unmatched immigrants were almost three times as likely to be in these occupations. While 11% of unmatched immigrants were working in these types of jobs in 2006, this was the case for 4% of the unmatched Canadian-born.

Summary

This study found that, in 2006, immigrants who studied for a regulated occupation outside Canada were less likely to be working in that occupation compared to both immigrants who studied in Canada and those who were born in Canada.

In 2006, there were 284,000 employed foreign-educated immigrants from fields of study that would normally lead to work in a regulated occupation. Of this number, 24% were working in their trained professions. In contrast, 163,000 Canadian-educated immigrants studied for work in a regulated occupation, with a match rate of 53%. The match rate among the Canadian-born was 62%.

While foreign-educated immigrants were less likely to work in the regulated occupations for which they held degrees, this discrepancy narrowed with time spent in Canada. However, even after 10 years in Canada, foreign-trained immigrants trailed the match rate of the Canadian-born by 27 percentage points, while Canadian-educated immigrants trailed by 6 percentage points.

The match rate also varied by regulated occupation for which an individual had studied. Immigrants with fields of study in health professions had higher match rates than those who studied to be teachers, engineers and lawyers. While match rates for foreign-educated doctors and nurses were both 56%, the rate was much lower for those who studied teaching (20%), and was lower still for those who studied engineering (the most common field of study among foreign-educated immigrants) at 19%. Immigrants who were law graduates had the lowest match rate of all fields of study at 12%.

On a provincial level, match rates were highest for immigrants in the East, particularly in Newfoundland and Labrador (with rates similar to the Canadian-born). Match rates for immigrants were also above the national average in Saskatchewan and Alberta, regions that had strong labour markets in 2006. In contrast, Quebec and British Columbia had match rates that were below the national average, while Ontario's match rate mirrored the national average.

Foreign-educated immigrants who were not working in the regulated occupation typically associated with their field of study were often working in professional occupations in natural and applied sciences and technical occupations related to natural and applied sciences. However, large shares of these immigrants were also working in clerical occupations and sales and service occupations despite their high levels of educational attainment.

While all of the unmatched foreign-educated immigrants in the study had university degrees that could

Table 9 Match rates, immigrants, by country where degree earned

	Total	Match rate		Total	Match rate
Country of highest degree		%	Country of highest degree (concluded)		%
Ireland (Eire)	810	59	Bangladesh	1,840	23
New Zealand	575	57	Venezuela	850	22
Republic of South Africa	3,790	56	Jordan	300	22
Australia	2,105	50	Argentina	1,140	21
United Kingdom	17,975	44	India	25,915	21
Jamaica	605	41	Armenia	235	21
Trinidad and Tobago	270	41	Lebanon	1,985	21
Israel	1,145	39	Congo, Democratic Republic	285	21
United States of America	22,225	39	Slovakia	975	21
Hungary	790	36	Turkey	1,290	21
Kenya	365	36	Iraq	1,930	21
Hong Kong, Special Administrative Region	1,810	34	Pakistan	8,230	21
Netherlands	1,040	33	Syria	970	21
Nigeria	935	33	Brazil	1,015	20
Sweden	385	32	Taiwan	2,560	20
Belgium	760	32	Philippines	39,455	19
Egypt	5,525	30	Thailand	345	19
Croatia	815	30	Japan	1,360	19
Poland	7,995	30	Bulgaria	2,120	18
Serbia and Montenegro	2,200	30	Colombia	3,115	18
Czech Republic	970	29	Viet Nam	1,330	17
Yugoslavia, n.o.s.	2,400	29	Peru	1,275	17
Greece	210	29	Latvia	365	16
Singapore	405	28	Indonesia	405	16
Bosnia and Herzegovina	1,585	27	Mexico	2,090	16
Chile	785	27	Sudan	360	15
Iran	6,705	27	People's Republic of China	32,505	15
France	4,750	26	Russian Federation	10,440	15
Italy	700	26	Albania	1,505	15
Sri Lanka	1,435	25	Ukraine	6,995	14
Germany	2,530	24	Algeria	2,750	13
Guyana	330	24	Cuba	1,020	12
Romania	13,860	24	South Korea	5,835	12
Switzerland	520	24	Haiti	555	12
Macedonia	455	23	El Salvador	645	12
			Belarus	1,050	10
			Morocco	720	9
			Republic of Moldova	585	9
			Kazakhstan	740	7

Source: Statistics Canada, Census of Population, 2006.

lead to work in a regulated occupation, many of them had considerably more education than what would normally be required for the jobs they did find in 2006. While 57% of the unmatched Canadian-born were overqualified, this was the case for 77% of unmatched immigrants. Foreign-educated immigrants were also more commonly found in low-skill

jobs. In 2006, 11% of foreign-educated immigrants were working in occupations whose skill level required a short-work demonstration and no formal education compared to just 4% of the Canadian-born.

Overall, these results accord with studies that point to some barriers for foreign-trained immigrants intending to work in their chosen occupations in Canada. Results from a survey of Canadian employers by the Public Policy Forum showed that many employers make their hiring decisions based on their perception that the credentials or experience are not equivalent without verifying them (Public Policy Forum 2004). The survey also indicated that many employers—particularly employers in regulated occupations—did not value foreign work experience as much as Canadian work experience. Other research indicates that the lower valuation placed on the foreign work experience of immigrants plays a role in the immigrant-native earnings gap (Green and Worswick 2002).

Perspectives

■ Notes

1. Match rates among immigrants are related to a number of factors that are beyond the scope of this study: foreign credential recognition, recognition of foreign work experience, personal characteristics, labour market conditions, and personal choices (for example, the desire to re-qualify for a regulated occupation in Canada).

■ References

- Galarneau, Diane and René Morissette. 2008. "Immigrants' education and required job skills." *Perspectives on Labour and Income*. Vol. 9, no. 12. December. Statistics Canada Catalogue no. 75-001-X.
<http://www.statcan.gc.ca/pub/75-001-x/2008112/article/10766-eng.htm> (accessed February 5, 2010).
- Green, David A. and Christopher Worswick. 2002. *Entry Earnings of Immigrant Men in Canada: The Roles of Labour Market Entry Effects and Returns to Foreign Experience*. Department of Economics. University of British Columbia. Paper prepared for Citizenship and Immigration Canada.
- Human Resources and Social Development Canada. 2007. *Looking Ahead: A 10-Year Outlook for the Canadian Labour Market (2006-2015)*. *Background Briefing on Current and Future Labour Market Shortages in Canada*. 6 p.
http://www.hrsdc.gc.ca/eng/publications_resources/research/categories/labour_market_e/sp_615_10_06/LA06-Shortages-29Jan07.pdf (accessed February 5, 2010).
- Kustec, Stan, Eden Thompson and Li Xue. 2007. "Foreign credentials: The tools for research." *Canadian Issues*. Spring, p. 26-30.
<http://www.unitar.org/ny/sites/default/files/foreign%20credentials.pdf> (accessed February 5, 2010).
- Picot, Garnett, Feng Hou and Simon Coulombe. 2007. *Chronic Low Income and Low-income Dynamics Among Recent Immigrants*. Statistics Canada Catalogue no. 11F0019MIE – No. 294. Analytical Studies Branch Research Paper Series. Ottawa. 48 p.
<http://www.statcan.gc.ca/pub/11f0019m/11f0019m2007294-eng.pdf> (accessed February 5, 2010).
- Public Policy Forum. 2004. *Bringing Employers into the Immigration Debate: Survey and Conference*. November. 100 p.
http://www.ppforum.com/sites/default/files/bringing_employers_into_the_immigration_debate.pdf (accessed February 5, 2010).
- Schellenberg, Grant and Hélène Maheux. 2007. "Immigrants' perspectives on their first four years in Canada: Highlights from three waves of the Longitudinal Survey of Immigrants to Canada." *Canadian Social Trends*. Special Edition. Statistics Canada Catalogue no. 11-008-XWE.
<http://www.statcan.gc.ca/pub/11-008-x/2007000/9627-eng.htm> (accessed February 5, 2010).
- Statistics Canada. 2003. *The Changing Profile of Canada's Labour Force*. Statistics Canada Catalogue no. 96F0030XIE2001009. 2001 Census: Analysis Series. Ottawa.
<http://www12.statcan.gc.ca/english/census01/products/analytic/companion/paid/contents.cfm> (accessed February 5, 2010).

Appendix I Employment requirements among NOC occupations regulated in all Canadian provinces¹

Regulated occupation	Employment requirements
Architects	<ul style="list-style-type: none"> • A bachelor's degree from an accredited school of architecture or Completion of the syllabus of studies from the Royal Architectural Institute of Canada (RAIC) is required. • A master's degree in architecture may be required. • Completion of a three-year internship under the supervision of a registered architect is required. • Completion of the architect registration examination is required. • Registration with the provincial association of architects in the province of work is required. <p>Landscape architect:</p> <ul style="list-style-type: none"> • A bachelor's degree in landscape architecture is required. • A master's degree in landscape architecture may be required. • In Ontario and British Columbia, landscape architects require a two-year internship and the successful completion of a provincial registration exam. • In the remaining provinces and territories, landscape architects usually require two years of landscape design experience and an interview by their respective provincial associations to receive association certification.
Accountants	<ul style="list-style-type: none"> • Chartered accountants require a university degree and completion of a professional training program approved by a provincial institute of chartered accountants and, depending on the province, either two years or 30 months of on-the-job training and membership in a provincial Institute of Chartered Accountants upon successful completion of the Uniform Evaluation (UFE). • Certified general accountants and certified management accountants require a university degree and completion of a training program approved by the Society of Certified General Accountants or Society of Management Accountants and several years of on-the-job training and certification by the Certified General Accountants Association or the Society of Management Accountants. • Auditors require education, training and recognition as indicated for chartered accountants, certified general accountants or certified management accountants and some experience as an accountant. • Auditors may require recognition by the Institute of Internal Auditors. • To act as a trustee in bankruptcy proceedings, auditors and accountants must hold a licence as a trustee in bankruptcy. • Licensing by the provincial or territorial governing body is usually required for accountants and auditors practising public accounting.

Additional information:

- There is limited mobility among the three professional accounting designations (CA, CGA and CMA).
- Progression to auditing or accounting management positions is possible with experience.

Chiropractors

- A minimum of two years of university undergraduate studies in sciences and completion of a four- or five-year program at an institution accredited by the Accreditation Commission of the Council on Chiropractic Education and completion of the examinations of the Canadian Chiropractic Examining Board and of the provincial licensing body are required.
- Licensure by a regulatory body is required in all provinces and in the Yukon.

Dentists

- One to four years of pre-dentistry university studies, or, in Quebec, completion of a college program in sciences and a university degree from a recognized dental program are required.
- Licensing by a provincial or territorial regulatory body is required.
- Dentists in general practice can move into a specialized practice through advanced training.
- Licensing for specializations is required.

Dietitians/Nutritionists

- Dietitians require a master's or bachelor's degree in dietetics, nutrition or a related field such as food and nutritional science or biochemistry and approximately 40 weeks of supervised practicum training.
- Registration with a regulatory body is required in all provinces for dietitians.
- Membership in the national association, Dietitians of Canada, may be required for dietitians to practise.
- Nutritionists usually require the same education and training as dietitians.
- Registration with a regulatory body is required for nutritionists in British Columbia, Alberta, Quebec and (as a registered dietician-nutritionist) New Brunswick.
- Membership with the national association, Dietitians of Canada, and/or a provincial regulatory body is available for nutritionists who have the same education and practicum training as dietitians.

Engineers

- A bachelor's degree in civil engineering or in a related engineering discipline is required.
- A master's degree or doctorate in a related engineering discipline may be required.
- Licensing by a provincial or territorial association of professional engineers is required to approve engineering drawings and reports and to practise as a Professional Engineer (P.Eng.).
- Engineers are eligible for registration following graduation from an accredited educational program, and after three or four years of supervised work experience

in engineering and passing a professional practice examination.

Additional information:

- There is considerable mobility between civil engineering specializations at the less senior levels.
 - Engineers often work in a multidisciplinary environment and acquire knowledge and skills through work experience that may allow them to practise in associated areas of science, engineering, urban planning, sales, marketing or management.
 - Supervisory and senior positions in this unit group require experience.
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Lawyers

Lawyers:

- Two to three years of undergraduate studies or, in Quebec, completion of college program and a bachelor's degree from a recognized law school and successful completion of the bar examination and completion of a period of articling are required.
- Licensing by the provincial or territorial law society is required.

Notaries (Quebec):

- A bachelor's degree from a recognized law school and a Diploma of Notarial Law (D.D.N.) or a master's degree of law with specialization in notarial law and a 32-week vocational training program are required.
- Registration with the Corporation of Notaries is required.

Additional information:

- Lawyers wishing to practise in another province may be required to pass examinations set by the provincial law society.

Judges:

- Extensive experience as a lawyer or as a professor of law with continuous membership in the bar association is usually required.
 - Membership in good standing with a provincial or territorial law society or bar association is required.
 - Judges are appointed by federal or provincial cabinet.
 - Those appointed to more senior positions in a court, such as chief justice, usually have experience as judges in that court.
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Occupational Therapists

- A university degree in occupational therapy including supervised fieldwork is required or graduation from an occupational therapy program approved by the World Federation of Occupational Therapists (WFOI) is accepted in some provinces.
- Completion of the national certification examination may be required.
- Licensure with a regulatory body is required in all provinces.
- Membership in the national association, Canadian Association of Occupational Therapists, is required in some provinces.

- Occupational therapists may obtain expertise in a particular area through additional training or experience.

Optometrists

- One to three years of college or university, with a concentration in mathematics and science courses and a four-year university program in optometry are required.
- Licensing by the provincial or territorial regulatory governing body is required.

Pharmacists

- A bachelor of science degree in pharmacy is required.
- Pharmacists also require practical training under the supervision of a pharmacist.
- Licensure is required in all provinces and territories for community and hospital pharmacists.

Doctors

General practitioners and family physicians:

- A bachelor's degree or In Quebec, completion of a college program and one year of pre-medicine university studies is usually required.
- Graduation from an approved medical school and two to three years of family medicine residency training are required.
- Completion of the qualifying examinations of the Medical Council of Canada and licensing by the provincial or territorial licensing authority are required.

Additional information:

- General practitioners and family physicians may become specialist physicians with additional training.

Specialist physicians:

- A bachelor of science degree or, in Quebec, completion of a college program and one year of pre-medicine university studies is usually required.
- Graduation from an approved medical school and specific specialty training are required.
- Completion of the certifying examinations of the Royal College of Physicians and Surgeons of Canada and licensing by the provincial or territorial licensing authority are required.

Specialists in clinical medicine:

- Four to five years of specialty residency training are required.
- Two years of subspecialty training may also be required.

Specialists in laboratory medicine:

- Four to five years of specialty residency training are required.

Specialists in surgery:

- Five to six years of specialty residency training are required.
- Two years of subspecialty training may also be required.

Additional information:

- Progression to management positions, such as director of laboratory medicine or

chief of surgery, is possible with experience.

Physiotherapists

- A university degree in physiotherapy and a period of supervised practical training are required.
- A licence or registration with a regulatory body is required to practise physiotherapy in all provinces.
- Completion of the Physiotherapy National Exam, administered by the Alliance of Physiotherapy Regulatory Boards, may be required.

Registered Nurses

Head nurses:

- Completion of a university, college or other approved registered nursing program is required.
- Courses in management studies such as the Nursing Unit Administration Course offered by the Canadian Hospital Association or other degree, diploma, certificate or studies in management or administration may be required.
- Registration as a registered nurse by a provincial or territorial regulatory body or, in Manitoba, Saskatchewan, Alberta and British Columbia, provincial registration as a registered psychiatric nurse is required.
- Clinical experience as a registered nurse is required.

Registered nurses:

- Completion of a university, college or other approved registered nursing program is required.
- Additional academic training or experience is required to specialize in a specific area of nursing.
- A master's or doctoral degree in nursing is usually required for clinical nurse specialists, clinical nurses, nursing consultants and nursing researchers.
- Registration with a regulatory body is required in all provinces and territories.

Nurse practitioners:

- A master's degree in nursing, or a nursing program or other advanced nurse practitioner diploma program is required.
- Registration with a regulatory body is required in all provinces and territories.
- In Ontario, successful completion of the Extended Class Registration Examination (ECRE) is required for registration as Registered Nurse in the Extended Class RN(EC).

Registered psychiatric nurses:

- Completion of a university or college registered psychiatric nursing program is required.
- Registration with a regulatory body is required in Manitoba, Saskatchewan, Alberta and British Columbia.

Additional information:

- Nurses trained exclusively as registered psychiatric nurses (RPN) are regulated in

Manitoba, Saskatchewan, Alberta and British Columbia. In all other provinces and territories, registered nurses (RN) may work as psychiatric nurses without separate registration.

- Registered nurses may progress to supervisory and managerial positions with experience.

Teachers

Secondary school teachers:

- Teachers of academic subjects require a bachelor's degree in education which is often preceded by a bachelor's degree in the arts or sciences.
- Teachers of vocational or technical subjects require a bachelor's degree in education which is usually preceded by specialized training or experience in the subject.
- Instructors of trades in Quebec require completion of an apprenticeship training program and industry or trade certification.
- Department heads usually require several years of teaching experience.
- To specialize in special education or English or French as a second language, additional training is required.
- A provincial teaching certificate is required.

Elementary school teachers:

- A bachelor's degree in education is required.
- Additional training is required to specialize in special education or second- language instruction.
- A provincial teaching certificate is required. Additional certification is required to teach English or French as a second language.

Veterinarians

- Two to four years of pre-veterinary university studies or, in Quebec, completion of a college program in health science and a four-year university degree in veterinary medicine and completion of national certification examinations are required.
- Provincial licensing is required.
- Entry into research positions may require postgraduate study.

1. HRSDC National Occupational Classification (NOC) manual.

Appendix II Criteria for 'match,' National Occupational Classification (NOC) code and field of study (Classification of Instructional Programs [CIP] code) concordance

Occupations	NOC	CIP CODE(S)
Architects	2151, 2152	81, 85
Certified General Accountants	1111	1187-1192
Certified Management Accountants	1111	
Chartered Accountants	1111	
Chiropractors	3122	971
Dentists	3113	977-989
Dieticians/Nutritionists	3132	1148, 1149
Civil, electric and electronics, mechanical, chemical, industrial and manufacturing, metallurgical and materials, geological, petroleum, aerospace, computer, and other professional engineers	2131-2134, 2141-2148	310-351
Lawyers	4112	524-536
Occupational therapists	3143	1120
Optometrists	3121	1089
Pharmacists	3131	1096
Physicians	3111, 3112	1059
Physiotherapists	3142	1122
Registered Nurses	3151, 3152	1071-1083, 1085-1088
Elementary school and kindergarten teachers	4142	216-302
Secondary school teachers	4141	
Veterinarians	3114	1128-1140
