Catalogue no. 75-001-X

PERSPECTIVES

ON LABOUR AND INCOME

December 2008
Vol. 9, No. 12

- Immigrants' education and required job skills

Statistics Canada Statistique Canada

Canada

At Your Service...

How to obtain more information

Specific inquiries about this product should be directed to: *Perspectives on Labour and Income*, 9 A-6 Jean Talon, 170 Tunney's Pasture Driveway, Statistics Canada, Ottawa, Ontario, K1A 0T6 (telephone: 613-951-4628; e-mail: perspectives@statcan.gc.ca).

For information about the wide range of services and data available from Statistics Canada, visit our website at www.statcan.gc.ca or contact us by e-mail at infostats@statcan.gc.ca or by telephone from 8:30 a.m. to 4:30 p.m. Monday to Friday:

Statistics Canada National Contact Centre

Toll-free telephone (Canada and the United States):

Inquiries line	1-800-263-1136
National telecommunications device for the hearing impaired	1-800-363-7629
Fax line	1-877-287-4369

Local or international calls:

Inquiries line	1-613-951-8116
Fax line	1-613-951-0581

Depository Services Program

Inquiries line	1-800-635-7943
Fax line	1-800-565-7757

Information to access the product

This product, catalogue no. 75-001-X, is available for free in electronic format. To obtain a single issue, visit our website at www.statcan.gc.ca and select "Publications" >"Free Internet publications."

Standards of service to the public

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

Perspectives on Labour and Income

(Catalogue no. 75-001-X; aussi disponible en français: *L'emploi et le revenu en perspective*, nº 75-001-X au catalogue) is published monthly by authority of the Minister responsible for Statistics Canada. ©Minister of Industry 2008.
ISSN: 1492-496X.

Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where a meaningful distinction exists between true zero and the value rounded
p	preliminary
r	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
E	use with caution
F	too unreliable to be published

Highlights

In this issue

Immigrants' education and required job skills

Between 1991 and 2006, the proportion of male immigrants with a university degree in jobs with low educational requirements such as clerks, truck drivers, cashiers and taxi drivers increased from 12% to 21% for established immigrants, while the proportion remained stable at about 10% for native-born men.

From 1991 to 2006, the proportion of established female immigrants with a degree in jobs with low educational requirements increased more modestly from 24% to 29%, while remaining stable at around 12% for native-born women.

For recent immigrants, the proportion of university graduates in low-skill jobs increased between 1991 and 2006, but it remained within the levels measured for the period. These proportions were nearly 25% for men and a little under 40% for women.

In 1991, established immigrant men with a degree in a field of study leading to a regulated profession such as medicine, nursing, engineering, law and accounting had low-skill job rates comparable to those of native-born Canadian men. By 2006, these rates had increased sharply for both men and women, particularly for those trained in medicine and engineering.

Perspectives

Immigrants' education and required job skills

Diane Galarneau and René Morissette

In 2006, the proportion of recent immigrants with a university degree was twice as high as among native-born Canadians. Despite this high level of schooling, several indicators reflect difficulties that recent immigrants entering the Canadian labour market encounter. Their employment and unemployment rates and their earnings are, in general, substantially different from those of native-born Canadians (Frenette and Morissette 2003, Picot et al. 2007, and Statistics Canada 2008).

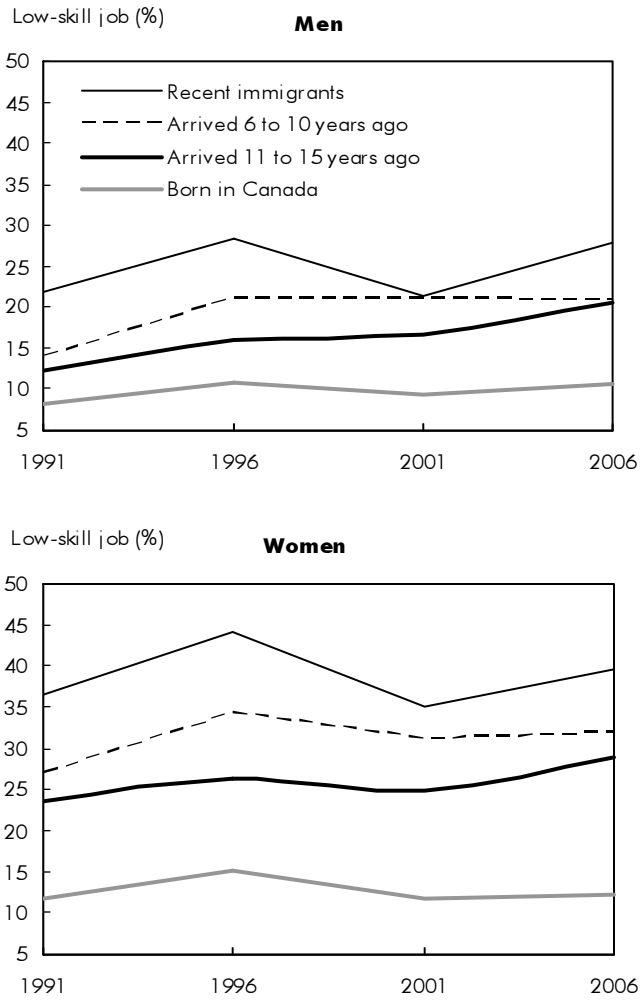
The difficulties faced by immigrants have been attributed to several factors. One is the low rate of recognition of their credentials (Ferrer and Riddell 2004, and Green and Worswick 2004), which is partly reflected in the large proportion with university degrees in jobs with low educational requirements, such as retail sales clerks, truck drivers, office clerks, cashiers and taxi drivers. In 2006, 28% of recent immigrant men and 40% of women held this kind of employment (Chart A) compared with 10% and 12% of native-born Canadians.

This form of underemployment among new immigrants could be attributed to their recent arrival, their lack of information about the Canadian labour market, and their lack of contacts, but the differences would be expected to disappear over time.

This idea seemed plausible in 1991, since the chances of established immigrants with a university degree being in jobs with low educational requirements appeared to be very similar to those of native-born Canadians. In 1991, the rate for male immigrants who had arrived in Canada between 1975 and 1979 was 12%, slightly higher than the 8% for their native-born

Diane Galarneau is with the Labour and Household Surveys Analysis Division. She can be reached at 613-951-4626 or perspectives@statcan.gc.ca. René Morissette is currently working abroad.

Chart A Even after 15 years, immigrants with a university degree are still more likely than the native-born to be in low-skilled jobs



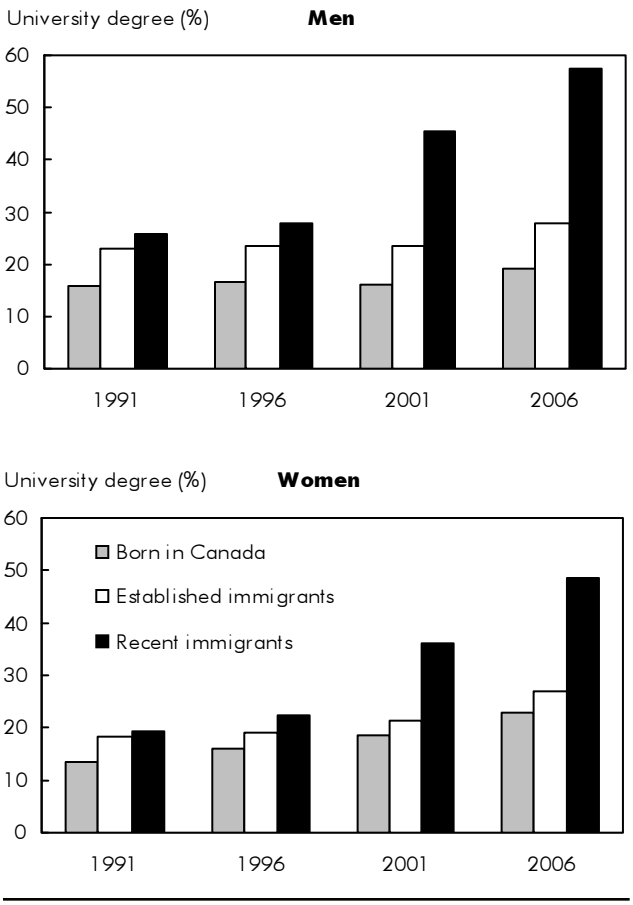
Source: Statistics Canada, Census of Population.

counterparts. By 2006, however, the situation had changed. The rate for male immigrants who had arrived between 1990 and 1994 was 21%, 10 percentage points higher than for native-born men. For established female immigrants, the proportion in 1991 was already twice as high as for native-born women, and by 2006 the gap had widened.

This increase suggests that established immigrants had more difficulty finding jobs reflecting their educational attainment in 2006 than in 1991. This form of underemployment of immigrants reduces their contribution to Canada's economic prosperity and constitutes a loss of well-being for them because it affects their earnings (Galarneau and Morissette 2004). Such persistent gaps relative to native-born Canadians, especially if they extend to established immigrants, may also undermine Canada's ability to attract skilled immigrants.

A previous study (Galarneau and Morissette 2004), found a correlation between the high proportion of recent immigrants with a university degree in jobs with low educational requirements and their country of origin, mother tongue, visible minority status and field of study. Little is known, however, about the situation for established immigrants. This article therefore focuses on this sub-group to determine the extent to which the increase in the proportion of established immigrants working in jobs with low educational requirements is related to the change in their sociodemographic profile (see *Data source and definitions*). The increase for recent immigrants was also examined, even though the 2006 proportions fell within the range observed since 1991.

Chart B Recent immigrants are better educated than ever



Source: Statistics Canada, Census of Population.

Highly educated immigrants

Since 1991, educational attainment has increased across the board. The proportion of native-born Canadians with a university degree rose from 16% for men and 13% for women in 1991 to 19% and 23% in 2006 (Chart B). Among recent immigrants, the increase was much larger. In 2006, 58% of recent male immigrants and 49% of recent female immigrants had at least a bachelor's degree. The increase for immigrants who arrived 11 to 15 years ago was comparable to the increase for native-born Canadians. In 2006, the former had a slightly higher proportion with university degrees: around 28% of men and women.

More people with a university degree expanded the pool of candidates with degrees and likely increased competition for highly skilled jobs. That introduced upward pressure on recent immigrants' chances of being underemployed.[1] The favourable labour market conditions of recent years should have generated opposite pressures (Chart C).

The new face of immigration

The typical immigrant with a university degree changed over the 15-year period (Table 1). Compared with 1991, recent immigrants in 2006 were, on average, older, more likely not to have English or French as their mother tongue, and more likely to be from South or East Asia.[2] In 1991, despite the relative predominance of those areas of origin, immigrants with a university degree tended to be from a more diverse set of countries. Today's immigrants are also more likely to be members of a visible minority.

Table 1 Characteristics of employed immigrants, age 25 to 54 with a university degree

	Men				Women			
	Recent immigrants		Established immigrants		Recent immigrants		Established immigrants	
	1991	2006	1991	2006	1991	2006	1991	2006
Total	**28,600**	**108,100**	**27,700**	**54,000**	**17,600**	**75,900**	**19,300**	**50,800**
					%			
Age								
25 to 34	41	30	21	20	52	41	24	23
35 to 44	44	50	50	41	39	44	56	43
45 to 54	16	20	29	40	9	15	20	34
Education								
Bachelor's	66	64	71	71	75	72	79	78
Master's	25	30	21	22	21	25	18	18
Doctorate	9	6	8	7	4	4	3	3
Mother tongue								
English	23	12	37	16	28	14	36	18
French	4	4	4	4	3	4	5	4
Other	73	84	58	80	69	81	59	78
Category of worker								
Employee	91	92	89	91	94	93	92	93
Self-employed	9	8	11	9	6	7	8	7
Field of study								
Non applied	48	35	48	43	71	61	71	66
Teaching and fine arts	5	3	6	5	15	10	19	13
Humanities and social sciences	19	11	20	17	28	24	30	27
Administration	20	17	18	16	21	22	15	21
Other[1]	5	4	5	5	7	5	6	6
Applied	52	65	52	57	29	39	29	34
Engineering	26	41	26	32	4	14	3	9
Mathematics, applied sciences and technology	11	8	12	9	7	7	7	7
Computer science	5	10	5	9	3	5	3	5
Health	8	5	9	7	14	12	16	13
Region of origin								
North America	6	2	9	3	12	3	15	4
Central America, South America and Caribbean	7	6	8	6	5	7	8	7
Northern and Western Europe	10	6	19	6	9	6	14	6
Southern and Eastern Europe	13	15	8	17	13	16	7	19
Africa	10	9	10	11	6	7	7	8
Southern Asia	10	24	11	14	10	21	14	11
Southeast Asia	11	8	14	10	21	13	17	18
Eastern Asia	23	24	15	20	17	23	15	19
Western Asia	10	6	5	8	5	4	3	6
Oceania and other	1	1	1	3	1	1	1	2
Visible minority								
Yes	68	73	59	67	64	72	59	66
No	32	27	41	33	36	28	41	34
Metropolitan region								
Montréal	12	13	14	12	10	12	13	11
Ottawa-Gatineau	5	4	5	6	4	4	5	5
Toronto	46	47	36	42	48	46	37	43
Calgary	3	6	6	4	4	6	5	4
Vancouver	13	14	11	17	12	14	14	17
Other	21	17	27	18	23	18	27	19

1. Includes agriculture and all other fields of study not classified elsewhere.
Source: Statistics Canada, Census of Population.

Data source and definitions

From 1991 to 2006, workers covered by the census could be assigned to one of more than 500 occupational groups based on the nature of their work and their duties. An estimated skill level (derived from the National Occupational Classification) was attributed to each occupational group. The skill level reflects the educational attainment usually required to work in the occupation, along with the level of responsibility (supervisory duties, health occupations) and the associated level of risk (police officer, firefighter). The skill levels can be divided into occupations referred to as 'professions' that usually require a university education, occupations that usually require a college diploma, a certificate or an apprenticeship, and occupations that require no more than a high school diploma (low-skill jobs).

In this classification, no skill level was assigned to managers as an occupational group because of their wide range of experience and educational attainment. This study was interested in determining the proportion of university graduates in unskilled occupations (requiring high school level V or less). It therefore needed to identify only the occupations with the lowest skill level. Since managers have supervisory duties and hence some level of responsibility, managerial occupations were excluded from the low-skill group.

This article focused on employed people with *at least* a bachelor's degree but in an occupation requiring *at most* a high school education. Focusing on those cases avoids overestimating the *changes* in representation rates between 1991 and 2006. Occupations requiring a high school education or less in 1991 are unlikely to require a bachelor's degree or higher today. Hence, it is reasonable to assume that, in both 1991 and 2006, recent immigrants with a university degree but working as taxi drivers, bartenders or manual labourers in a primary industry, for example, are in jobs that require less education than they have. This conservative measure of representation in jobs with low educational requirements thus excludes all other cases.

This current study is based on census microdata files representing 20% of the Canadian population. The sample consists of persons age 25 to 54 with a university degree (bachelor's degree, master's degree or doctorate) and working (as an employee or self-employed) during census week.

Representation in jobs with low education requirements is the ratio of employed university graduates age 25 to 54 in occupations requiring *at most* a high school education to all employed university graduates age 25 to 54.

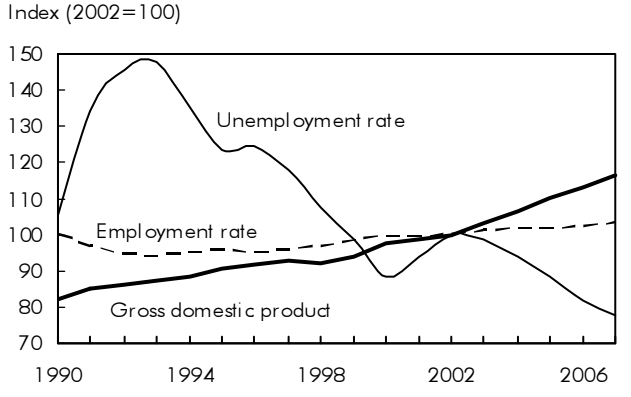
Recent immigrants are those who came to Canada between one and five years before the census reference year: in 2006, persons arriving between 2000 and 2004; in 2001, between 1995 and 1999; and in 1991, between 1985 and 1989. Immigrants arriving in the census year or the year immediately before were excluded to facilitate comparison with previous studies (Grant 1999, and Frenette and Morissette 2003).

Established immigrants are those who came to Canada between 11 and 15 years before the census reference year: in 1991, persons arriving between 1975 and 1979; in 2006, between 1990 and 1994.

In general, these new characteristics lower immigrants' chances of finding a job matching their education. Experience acquired in foreign countries is not always recognized in the Canadian labour market (Green and Worswick 2004, Ferrer and Riddell 2004, Picot and Sweetman 2005, Ferrer et al. 2004, and Aydemir and Skuterud 2004). Arriving in Canada at an older age usually increases immigrants' years of experience in other countries, which could, other things being equal, reduce their chances of finding a job consistent with their level of schooling.

Moreover, knowledge of an official language is a key aspect of skill level. The census does not measure language skills, but it does ask about mother tongue. A recent study (Ferrer et al. 2004) based on literacy and numeracy tests found a clear difference in language proficiency between native-born Canadians and immigrants. The increasing numbers of immigrants arriving in Canada with a mother tongue other than English or French may be less comfortable communi-

Chart C Favourable conditions recently should have enabled better access to jobs reflecting education



Note: Gross domestic product at market prices, implicit price indexes.
Sources: Statistics Canada, Labour Force Survey, and Income and Expenditure Accounts.

cating in an official language, which could increase their chances of working in a job with low educational requirements.

Similarly, the increasing numbers of immigrants from Asian countries, for which little information is available about education quality, may engender some mistrust among employers, thus preventing such recent immigrants from exploiting their credentials or finding a job commensurate with their educational attainment (Green and Worswick 2004, and Ferrer and Riddell 2004). Language, country of origin and visible minority status are difficult to separate from one another, but they generally account for a significant portion of the observed difference between the labour market outcomes of native-born Canadians and immigrants (Picot and Sweetman 2005).

A comparison of immigrants in 1991 who had been living in Canada for 11 to 15 years—in other words, arriving between 1975 and 1979—and the 2006 immigrants who arrived between 1990 and 1994 found differences similar to those observed for recent immigrants. In 2006, the more established immigrants were also older, more likely to be members of a visible minority, less likely to have French or English as their mother tongue, and also natives of a greater variety of countries.

Information and communications technology graduates

In general, the demand for applied science skills such as engineering, computer science and health sciences benefits immigrants with degrees in those fields (Galarneau and Morissette 2004). Compared with 1991, recent immigrants were even more likely to be applied sciences graduates in 2006, as the proportion of male immigrants in that field rose from 52% to 65%, primarily from an increase in engineering degrees. This growth was mainly at the expense of the humanities and social sciences. For women, the patterns were similar but much less pronounced.

Immigrants who arrived 11 to 15 years ago also showed an increase in the proportion of applied science graduates (from 52% to 57%), again mainly attributable to engineering. However, the increase was more modest than for more recent immigrants. A greater proportion of female established immigrants is in non-applied sciences, but that trend has been weakening since 1991 because of declining interest in teaching and fine arts.

Evolution of immigrants in occupations with low educational requirements

Representation in occupations with low educational requirements increased for all immigrant groups considered (Table 2). For male recent immigrants, representation generally fluctuated about 6 percentage points from census to census. The increase from 1991 to 2006, from 22% to 28%, is within the range observed since 1991. The representation by various characteristics shows the increase to be fairly widespread, but slightly larger for older immigrants and graduates in fields such as health, engineering, humanities and social sciences. Immigrants from Africa and East Asia had the largest increases between 1991 and 2006, as their representation climbed 8 percentage points. Nevertheless, male recent immigrants from South Asia and Southeast Asia still had the highest representation: 38% and 42% respectively.

Male established immigrants saw strong growth in their representation in positions with low education requirements, going from 12% to 21% between 1991 and 2006. For those immigrants, being unable to speak English or French and being from South Asia, Southeast Asia or Central America seemed to be associated with a sharper increase in their representation in occupations with low education requirements. Engineering, humanities and social science graduates were notable for an increase of more than 10 percentage points in their representation. The gap between established male immigrants and native-born Canadians widened over the 15-year period. This increase did not appear to be attributable to changes in the distribution by age and educational attainment between the two groups.[3] In other words, the increase did not appear to be linked to Canadians in a particular age group increasing their educational attainment more rapidly than established immigrants of the same age.

Women had much higher representation rates than men, in both 1991 and 2006. The gap was partly because female immigrants tended to specialize in non-applied fields of study and they were not as highly educated as their male counterparts.[4]

Probably because of already high rates, their representation rose much more modestly during the observation period (4 percentage points for recent female immigrants and 5 points for those who arrived 11 to 15 years earlier). In both cases, the increase was more pronounced for women age 45 to 54 and for certain

Table 2 Immigrants' representation in occupations with low educational requirements

	Men				Women			
	Recent immigrants		Established immigrants		Recent immigrants		Established immigrants	
	1991	2006	1991	2006	1991	2006	1991	2006
					%			
Total	**22**	**28**	**12**	**21**	**36**	**40**	**24**	**29**
Age								
25 to 34	24	27	13	17	37	38	24	23
35 to 44	20	27	12	21	36	39	24	29
45 to 54	21	32	13	22	36	45	23	33
Education								
Bachelor's	26	32	15	24	41	44	27	32
Master's	17	22	6	15	25	32	14	20
Doctorate	2	8	1	4	9	8	3	7
Mother tongue								
English	14	20	9	15	25	31	18	23
French	13	20	7	16	18	26	16	18
Other	25	29	15	22	42	42	28	31
Category of worker								
Employee	23	28	13	21	38	41	25	30
Self-employed	14	25	9	21	15	23	9	15
Field of study								
Non applied	28	35	18	27	41	44	28	33
Teaching and fine arts	29	32	17	23	38	37	25	26
Humanities and social sciences	26	37	19	30	42	46	29	35
Administration	29	33	16	23	44	46	30	35
Other[1]	30	38	16	29	39	40	27	31
Applied	17	24	8	17	24	34	18	22
Engineering	16	25	7	18	24	34	8	19
Mathematics, applied sciences and technology	20	27	12	20	29	35	26	31
Computer science	11	16	8	11	13	31	11	15
Health	13	24	4	13	25	30	9	20
Region of origin								
North America	7	10	8	11	12	17	15	14
Central America, South America and Caribbean	28	25	14	24	40	35	22	26
Northern and Western Europe	6	9	5	6	17	18	13	16
Southern and Eastern Europe	22	25	12	17	32	36	16	22
Africa	18	26	9	16	25	31	21	22
Southern Asia	37	38	24	35	62	56	45	43
Southeast Asia	41	42	21	37	55	52	29	47
Eastern Asia	16	24	10	14	31	34	24	23
Western Asia	26	20	14	19	37	32	23	29
Oceania and other	13	18	7	18	20	25	12	27
Visible minority								
Yes	26	31	16	24	45	44	29	34
No	13	19	7	13	21	29	15	20
Metropolitan region								
Montréal	19	28	10	21	34	33	19	26
Ottawa-Gatineau	17	19	6	12	33	26	15	23
Toronto	24	31	15	22	40	43	26	29
Calgary	20	21	9	17	40	38	27	33
Vancouver	25	29	15	24	39	42	26	33
Other	17	22	11	17	29	35	22	29

1. Includes agriculture and all other fields of study not classifed elsewhere.
Source: Statistics Canada, Census of Population.

fields of study, such as engineering and computer science. Women from Southeast Asia arriving 11 to 15 years earlier had an 18-point increase in their representation, narrowing the gap relative to their more recently arrived counterparts. Women from South Asia and Southeast Asia had high representation rates, above 50% for recent immigrants and slightly below 50% for established female immigrants.

A regression analysis was used to determine whether variables such as age, education, visible minority status, country of origin, field of study and region of residence were important in explaining the increase in the representation in occupations with low educational requirements between 1991 and 2006 (Table 3).[5]

In the case of male immigrants, country of origin and knowledge of a language other than English or French accounted for more than half of the 6-point increase in representation for recent immigrants and nearly a quarter of the 8-point increase for established immigrants. In other words, if 2006 male immigrants had had the same country-of-origin and mother-tongue distribution as 1991 male immigrants, the rate would have been less than 3 points higher for recent immigrants and only about 6 points for established immigrants.

On the other hand, field of study lowered an immigrant's chances of having a job with low educational requirements. Thus, it would appear that having a degree in an applied field still provides some protection against being in a job with low educational requirements, despite the less favourable situation in the information technology (IT) sector in recent years. The sector suffered employment losses between 2000 and 2005, and because of the high proportion of recent immigrants educated in IT, the sector's downturn had a significant effect on the earnings of recent immigrants (Frenette et al. 2008) and the proportion of highly educated immigrants with low incomes (Picot et al. 2007).

The correlation between field of study and the probability of having a job with low educational requirements was weaker for the period from 2001 to 2006 than for the period from 1991 to 2006. The protection effect still seemed to be there, but to a lesser extent than in the past,[6] which reflects the sector's difficulties.

For women, language and country of origin alone explained all of the 3-point increase for recent immigrants and one-third of the 5-point increase for

Table 3 Accounting for the change in representation of university graduates in occupations with low educational requirements between 1991 and 2006

	Men				Women			
	Recent immigrants		Established immigrants		Recent immigrants		Established immigrants	
Weighting method[1]	One	Two	One	Two	One	Two	One	Two
	percentage points							
Change	**6.0**	**6.0**	**8.3**	**8.3**	**3.0**	**3.0**	**5.3**	**5.3**
Explainable	**2.9**	**1.2**	**2.7**	**2.6**	**4.7**	**3.4**	**2.4**	**1.8**
Visible minority	0.4	0.2	0.4	0.4	0.3	0.5	0.2	0.1
Educational attainment	0.0	0.1	0.0	0.0	-0.3	-0.4	-0.1	-0.1
Age	0.3	-0.5	0.4	0.1	0.3	-0.2	0.7	0.5
Mother tongue	1.0	0.6	1.4	0.3	1.3	0.5	1.1	0.6
Country	3.1	2.5	0.5	2.0	3.5	4.2	0.8	1.0
Field of study	-2.1	-1.8	-0.6	-0.7	-0.5	-1.4	-0.2	-0.5
Region of residence	0.1	0.2	0.5	0.4	0.1	0.2	-0.1	0.1

1. In the context of this study, the Oaxaca-Blinder decomposition can be used to answer the 2 following questions: What would be the representation rate of immigrants in low skill jobs in 2006 if they had the same characteristics as immigrants in 1991 (weighting method one). What would be the representation rate of immigrants in low skil jobs in 1991 if they had the same characteristics as immigrants in 2006 (weighting method two).

Source: Statistics Canada, Census of Population.

others. Field of study and educational attainment also slowed the upward movement of their representation in jobs with low educational requirements.

These results are consistent with the findings of similar studies on the subject (Picot and Sweetman 2005, Galarneau and Morissette 2004, and Aydemir and Skuterud 2004). In general, mother tongue and country of origin—which are also associated with the quality of education received and the lack of recognition of foreign experience—explain a large portion of the deterioration in immigrants' labour market situation. Class of immigrant may also be a factor. Some immigrants come to Canada as skilled workers, others for family reunification, and some as refugees. Skilled workers are generally expected to perform best in the labour market since they are accepted because of their qualifications. While that was true in the past (Chui 2003, and Chui and Zietsma 2003), it appears to be less so for immigrants arriving in the early 2000s. For example, belonging to the skilled worker class did not seem to help early 2000s immigrants escape low-income situations (Picot et al. 2007).

Nevertheless, an important dimension, which cannot be measured with census data, is the international mobility of immigrants. In other words, people who immigrate to Canada do not necessarily stay. Among immigrants arriving between 1980 and 1996, skilled workers, entrepreneurs and those from the United States or Hong Kong were more likely to leave the country (Aydemir and Robinson 2006). Four in 10 of these immigrants left within 10 years, on average. Economic downturns also increased the probability of leaving the country. It is therefore possible that some of the immigrants who arrived around the 1990s subsequently left Canada, and so the study results are based on a subset of that cohort. If skilled workers left the country, particularly if they arrived during an economic slowdown—as was the case for immigrants who arrived in the early 1990s—it might partly explain the persistently high proportion of immigrants arriving around the 1990s who were in occupations with low educational requirements in 2006.

Entering the labour market during a recession may also have a negative effect for several years on the salaries that people earn (Oreopoulos et al. 2008). The effect would be greater early in their career and would tend to disappear within 8 to 10 years. Hence, the recession of the early 1990s and the slow growth of employment during the subsequent recovery may also have affected new immigrants of that period. However, established immigrants in 1996 also arrived during a time when unemployment rates were relatively high (between 1980 and 1984), but their low skill rate increased more modestly (from 12% to 16%). The recessionary effect therefore appears to vary from one recession to another and from one group to another.

Regulated occupations

When occupations are regulated by professional associations, candidates often have to take examinations and prove that they have work experience in Canada and

Table 4 University graduates from fields of study leading to regulated occupations in jobs with low education levels

	Canadian born			Immigrants					
				Established			Recent		
	1991	2001	2006[1]	1991	2001	2006[1]	1991	2001	2006[1]
	%								
Men									
Law	2	3	4*	18	25	21	28	35	40*
Accounting	6	6	5	17	24	20*	31	33	34*
Engineering	4	4	5*	7	11	18*	17	17	25*
Medicine	0	1	0	1	1	13*	10	19	16*
Nursing	6	6	6	..	..	..	..	..	..
Women									
Law	3	5	6*	9	11	26*	43	33	36
Accounting	12	9	8	32	30	31	49	47	48
Engineering	5	6	7*	9	18	19*	24	26	34*
Medicine	1	1	1	8	4	14*	15	15	24*
Nursing	4	4	3	7	22	21*	30	46	23

* The gap between the 1991 and 2006 rates is statistically significant at a threshold of 5%.
1. Between 2001 and 2006, the field of study classification changed. Statistics Canada will conduct empirical matching between the 2001 and 2006 classifications by coding all of the fields of study of 2006 respondents according to the old classification. This empirical matching could provide slightly different results.
Source: Statistics Canada, Census of Population.

Extending the analysis back to 1981

The analysis covers the period from 1991 to 2006 because the occupational classification used to assign skill levels was not available before 1991. To extend the analysis back to 1981, an attempt was made to assign skill levels to the 1981 classification codes using Statistics Canada's equivalency tables.

Because the 1981 classification was structured quite differently from the 1991 classification, each 1981 occupation is associated with more than one occupation in the 1991 classification. Some 1981 codes are associated not only with more than one occupation in the 1991 classification but also with more than one skill level.

Of the total of 595 occupation codes in the 1981 classification, 206 were associated with occupations that had a non-low skill level in the 1991 classification, and 146 were associated with occupations that had a low skill level. Those occupations presented no difficulty, since the aim was simply to assign a skill level (low or non-low) to each 1981 code and not to establish an exact equivalency between 1981 and 1991 occupations. The remaining codes were associated with occupations with more than one skill level (low and non-low).

Accordingly, two rates were established for 1981: a minimum rate if all codes that could not be associated with a single skill level are assumed to be non-low skill level, and a maximum rate for the opposite assumption, that all codes not associated with any skill level are low skill level (Table 5). The two rates are the upper and lower bounds of the range for the 1981 rates. Since the bounds have little meaning per se, it was decided to use a rate gap between immigrants and native-born Canadians.

In 1981, no gap was seen between native-born Canadians and immigrants who arrived 11 to 15 years earlier, no matter whether the minimum or the maximum rate for each subgroup was used (Table 6).

The focus was on the non-existent difference in representation for established immigrants in occupations with low educational requirements in 1981 because the assumption that recent immigrants and people just entering the labour market encountered similar difficulties seemed plausible at that time. In 1981, after living in Canada for 11 to 15 years, immigrants with a university degree seemed as likely as native-born Canadians to be in a job with low educational requirements. The gap widened as the number of years of residence in Canada shrank. For example, for recent immigrants—those who arrived between one and five years prior to 1981—the gap relative to native-born Canadians was 9 percentage points for the minimum rate and 11 for the maximum rate. For immigrants who arrived between six and ten years before 1981, the gap was 6 to 8 points.

In 1991, however, the gap was 4 points for native-born Canadians and, in 2006, it was 10 points.

Relative changes in country of origin, language and visible minority status are even more notable between 1981 and 2006 than between 1991 and 2006. In 1981, immigrants who arrived in Canada 11 to 15 years earlier (between 1965 and 1969) were much more likely to be from North America or Northern Europe. In addition, immigrants were much more likely to have English as their mother tongue, they were younger and they were much less likely to belong to a visible minority group (Table 7). However, all demographic characteristics combined explained only a small part of the increase between 1981 and 2006 in the representation of recent immigrants in occupations with low educational requirements (about 13%).[7]

Table 6 Gap in representation rates between Canadian-born and different immigrant groups in occupations with low educational requirements

	Immigrants arrived		
	11 to15 years ago	6 to10 years ago	1 to 5 years ago
	percentage points		
Men			
1981 minimum	0	6	9
1981 maximum	0	8	11
1991	4	6	14
1996	5	10	17
2001	7	12	12
2006	10	10	17
Women			
1981 minimum	4	18	22
1981 maximum	5	19	26
1991	12	15	25
1996	11	19	29
2001	13	19	23
2006	17	19	27

Source: Statistics Canada, Census of Population.

Table 5 Canadians and immigrants in each skills group after skill levels assigned, 1981

	Men			Women		
	Canadian	Recent immigrants	Established immigrants	Canadian	Recent immigrants	Established immigrants
	%					
Skill level						
Non low	88	77	88	83	58	78
Low (lower bound)	5	14	5	10	33	15
Multi level	8	9	7	7	10	7
Low (upper bound)	12	23	12	17	42	22

Source: Statistics Canada, Census of Population.

Table 7 Working immigrants age 25 to 54 with a university degree who arrived 11 to 15 years ago

	Men			Women		
	1981	1991	2006	1981	1991	2006
Total	**28,500**	**27,700**	**54,000**	**11,300**	**19,300**	**50,800**
				%		
Age						
25 to 34	18	21	20	25	24	23
35 to 44	56	50	41	59	56	43
45 to 54	26	29	40	16	20	34
Education						
Bachelor's	58	71	71	74	79	78
Master's	18	21	22	7	18	18
Doctorate	24	8	7	19	3	3
Mother tongue						
English	47	37	16	48	36	18
French	7	4	4	8	5	4
Other	46	58	80	45	59	78
Category of worker						
Employee	91	89	91	93	92	93
Self-employed	9	11	9	7	8	7
Region of origin						
North America	12	9	3	18	15	4
Central America, South America and Caribbean	6	8	6	8	8	7
Northern and Western Europe	30	19	6	22	14	6
Southern and Eastern Europe	12	8	17	10	7	19
Africa	8	10	11	5	7	8
Southern Asia	12	11	14	8	14	11
Southeast Asia	5	14	10	15	17	18
Eastern Asia	11	15	20	11	15	19
Western Asia	3	5	8	2	3	6
Oceania and other	2	1	3	1	1	2
Visible minority						
Yes	40	59	67	45	59	66
No	60	41	33	55	41	34
Metropolitan region						
Montréal	16	14	12	17	13	11
Ottawa-Gatineau	7	5	6	7	5	5
Toronto	31	36	42	36	37	43
Calgary	5	6	4	4	5	4
Vancouver	2	11	17	2	14	17
Other	39	27	18	34	27	19

Source: Statistics Canada, Census of Population.

proficiency in English or French to be accredited under provincial law (Boyd 2000). This process may have an impact on immigrants' chances of finding a job consistent with their level of schooling.

Efforts are being made at the federal and provincial levels to address this problem and make it easier for immigrants to get into regulated occupations. For example, several programs offer language classes and remedial courses in specific subjects. Sometimes concerted efforts are being made by the provincial governments, colleges and universities, employers and regulatory organizations.[8] The impact of these activities is difficult to measure, but it is interesting to examine the extent to which immigrants with a field of study leading to a regulated occupation are working in occupations with low educational requirements. For the purposes of this exercise, a subset of fields of study leading to regulated occupations was selected (Table 4).

Compared with native-born Canadians, the representation of immigrants with degrees in medicine (general and specialized), nursing, engineering, accounting and law in occupations with low educational requirements is generally higher, especially for recent immigrants. The representation of native-born Canadians was below 10% throughout the period for all of the occupations selected, with the exception of women in accounting in 1991. Moreover, in general there was little variation for native-born Canadians.[9]

In 1991, the representation of established male immigrants was similar to the representation of the native-born for medicine and engineering. Those are among the fields that saw the fastest growth for established immigrants between 1991 and 2006, especially medicine, where the representation rose from virtually zero to 13%. For the medical field, most of the

increase took place between 2001 and 2006, despite the persistent evidence of the shortage of physicians. For engineering as well, representation was substantially higher in 2006 (18% compared with 7%), and the increase was more pronounced between 2001 and 2006.[10] That deterioration was likely related to the major employment losses in the IT sector. In 2006, established immigrants in medicine still barely had an advantage over more recent immigrants.

Even in 1991, representation rates were considerably higher for recent male immigrants than for native-born Canadians, and the gap has widened over the years.

Rates for established female immigrants in 1991 were slightly higher than those of their Canadian-born counterparts—accounting still being the exception, with much higher rates for established female immigrants. By 2006, representation was appreciably higher, particularly in law and nursing, whose rates tripled. Engineering and medicine also saw significant increases. Rates for recent female immigrants were already high in 1991 and they remained high in 2006, with medicine and engineering seeing the highest rates of growth.

In 2006, established immigrants still enjoyed an advantage over recent immigrants in that their representation was generally lower. But the advantage has eroded over the years.

Conclusion

During the 1991 to 2006 period, the proportion of immigrants with a university degree in jobs with low educational requirements (such as clerks, truck drivers, salespersons, cashiers and taxi drivers) increased. For recent immigrants, the proportions varied between 22% and 28% for men and between 36% and 44% for women. For established male immigrants, the trend was quite pronounced, as their proportion rose from 12% to 21%, while their female counterparts posted a more modest advance, climbing from 24% to 29%. Those proportions contrasted sharply with the stable proportion for native-born Canadians, about 10% for both men and women.

The increases for established immigrants suggest that the difficulties, which have long plagued recent immigrants, are today affecting established immigrants, which also suggests that difficulties experienced by recent immigrants are not necessarily temporary.

To understand the deterioration, the profiles of the two groups of immigrants were examined. However, the changes found in the profile of established immigrants—particularly language and country of origin—accounted for only a quarter of the deterioration for established immigrants. Furthermore, their field of study, usually applied sciences, slowed the upward movement of their representation in jobs with low educational requirements. That protection effect has weakened recently, though, as job losses occurred in the information technology sector. These findings applied to both men and women. Thus, if the profile of male immigrants arriving between 1990 and 1994 had remained the same as the profile of male immigrants arriving between 1975 and 1979, the proportion in occupations with low educational requirements in 2006 would have been 18% rather than 21%. For women, the proportion would have been about 27% instead of 29%.

Among recent male immigrants, profile changes explained just a fifth of the increase, while for recent female immigrants, they accounted for virtually 100% of the increase.

Hence a large share of the increase seems to be attributable to factors other than demographic characteristics. The remaining portion might be due to factors such as language skills, non-recognition of credentials, schooling or foreign experience (Green and Worswick 2004, Picot and Sweetman 2005, Ferrer et al. 2004, and Aydemir and Skuterud 2004) and the quality of education for nationals of relatively young countries of origin (Sweetman 2004). Moreover, immigrants arriving between 1990 and 1994 entered the labour market during a particularly harsh recession or the subsequent recovery characterized by slow employment growth. Launching a career when unemployment rates are high can have longer-term effects on earnings (Oreopoulos et al. 2008). It is therefore possible that recessions also affected immigrants' chances of having a job with low educational requirements. The skills of well-educated immigrants could easily erode over time, which might play a role in preventing them from remedying their situation as the years go by. In addition, well-educated immigrants are more likely to leave Canada, especially during recessions (Aydemir and Robinson 2006). That might also explain the observed increase in established immigrants' propensity to be in jobs with low educational requirements.

The accreditation process for regulated occupations may also have an impact on recent immigrants' chances of finding a job commensurate with their educational attainment. In general, the rates for established immigrants (men and women) with a degree in a field of

study leading to a regulated profession such as medicine, nursing, engineering, law or accounting but working in occupations with low educational requirements were comparable to those of native-born Canadians in 1991, but increased sharply thereafter. Medicine had the largest increase (despite persistent evidence of a doctor shortage), although engineering also saw appreciable increases, coinciding with the decline of the information technology sector in recent years.

In 2006, established immigrants still had an advantage over recent immigrants, as the proportion in jobs with low educational requirements was generally lower, but the proportions have been converging over time and the gap relative to native-born Canadians has widened.

Notes

1. In this article, 'underemployment' and 'underemployed' are used for persons who have a university degree but are in jobs that require no more than a high school diploma.
2. South Asia comprises India, Bangladesh, Maldives, Nepal, Pakistan, Sri Lanka and East Timor; East Asia, the People's Republic of China, Hong Kong, Japan, North and South Korea, Macao, Mongolia and Taiwan.
3. To verify this, two regressions were estimated (one for 1991 and one for 2006) for established male immigrants and native-born Canadians. The dependent variable was a dichotomous variable whose value was 1 if the person was in a job with low educational requirements and 0 otherwise. The independent variables were age, age squared, educational attainment and a dichotomous variable whose value was 1 for established immigrants and 0 otherwise. The coefficient of the last variable increased as much as the gap rate between the two groups, suggesting that the gap increase is not due to changes in the age and educational attainment structure of these two groups.
4. These findings are derived from an Oaxaca-Blinder decomposition model. First, ordinary least square regressions were estimated. The dependent variable was a dichotomous variable whose value was 1 if the person was in a job with low educational requirements and 0 otherwise. Even though the dependent variable was dichotomous, an OLS estimation was performed because the probability of being in a job with low educational requirements was not close to 0 or 1 (see Moffitt 1999). The independent variables were age, age squared, educational attainment (to separate bachelor's degrees from master's degrees and doctorates), field of study, visible minority status, region of residence and country of origin. Female immigrants' field of study and educational attainment accounted for at least a quarter of the difference between men and women. Also, women tend to come to Canada as spouses or for family reunification, whereas men come as economic immigrants. The latter usually have higher employment rates and generally fare better in the labour market than other classes of immigrants. While the census provides no information on class of immigrant, that may also have some impact on the strong prevalence of women in occupations with low educational requirements.
5. Regression models were estimated for four different groups: recent male immigrants, established male immigrants, recent female immigrants and established female immigrants. The dependent variable was the probability that a person with a university degree was in a job with low educational requirements. The independent variables were age, age squared, educational attainment (to separate bachelor's degrees from master's degrees and doctorates), visible minority status, country of origin, field of study and region of residence. After estimating an OLS model (see Note 5) for the four different groups and for 1991 and 2006, an Oaxaca-Blinder decomposition was carried out to determine which variables explained the increase in representation between 1991 and 2006. Certain factors may be associated with a strong representation in occupations with low educational requirements, but if neither the factor level nor the representation has changed, it cannot be concluded that they are associated with an increase.
6. This result is derived from an Oaxaca-Blinder decomposition of the same variables used previously, but for the period from 2001 to 2006.
7. These findings are derived from an Oaxaca-Blinder decomposition in which the results for immigrants who arrived in Canada 11 to 15 years earlier in 1981 and 2006 were compared using age, sex, education, visible minority status, country of origin and region of residence. The decompositions were calculated for the 1981 minimum and maximum rates. For the minimum rate, the decomposition explained between 2 and 9 points of the 16-point gap, and for the maximum rate, it explained between 3 and 8 points of the 8-point gap. A dynamic decomposition taking into account the changes for both native-born Canadians and immigrants during the 1981 to 1991 period was also attempted. For that decomposition, identical variables were needed for the two subpopulations. Country of origin was therefore dropped from the list of explanatory variables, since all Canadians are from Canada. However, these decompositions proved inconclusive because of the small number of variables available for analysis.

8. See, among others, www.settlement.org and www.citizenship.gov.on.ca, as well as *Measures to Facilitate Access to Regulated Professions and Trades*, implemented by the ministère de l'Immigration et des Communautés culturelles and its partners (http:/ www.micc.gouv.qc.ca/publications/en/dossiers/AccessProfessionsTrades-MeasuresFebruary2008.pdf).

9. The classification of fields of study changed between the 2001 Census and the 2006 Census. To make the fields of study selected from 1991 and 2001 compatible with those from 2006, a preliminary matching file was used. However, rates could be slightly different if the final matching file had been used.

10. The difference between the 1991 and 2006 values was significant at the 5% level.

References

Aydemir, Abdurrahman and Chris Robinson. 2006. *Return and Onward Migration Among Working Age Men*. Statistics Canada Catalogue no. 11F0019MIE – No. 273. Analytical Studies Branch Research Paper Series. Ottawa. 49 p. http://www.statcan.gc.ca/pub/11f0019m/11f0019m2006273-eng.pdf (accessed December 10, 2008).

Aydemir, Abdurrahman and Mikal Skuterud. 2004. *Explaining the Deteriorating Entry Earnings of Canada's Immigrant Cohorts: 1966-2000*. Statistics Canada Catalogue no. 11F0019MIE – No. 225. Analytical Studies Branch Research Paper Series. Ottawa. 31 p. http://www.statcan.gc.ca/pub/11f0019m/11f0019m2004225-eng.pdf (accessed December 9, 2008). Also published in *Canadian Journal of Economics*.

Boyd, Monica. 2000. *Matching Workers to Work: The Case of Asian Immigrant Engineers in Canada*. Working Paper No. 14. The Center for Comparative Immigration Studies. University of California–San Diego. http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1100&context=ccis (accessed December 10, 2008).

Chui, Tina. 2003. "Labour market entry." *Longitudinal Survey of Immigrants to Canada: Process, Progress and Prospects*. Statistics Canada Catalogue no. 89-611-XIE. Ottawa. http://www.statcan.gc.ca/pub/89-611-x/4152884-eng.htm (accessed December 9, 2008).

Chui, Tina and Danielle Zietsma. 2003. "Earnings of Immigrants in the 1990s." *Canadian Social Trends*. Autumn. Statistics Canada Catalogue no. 11-008-XIE. p. 24-28. http://www.statcan.gc.ca/pub/11-008-x/2003002/article/6633-eng.pdf (accessed December 9, 2008).

Ferrer, Ana, David A. Green and W. Craig Riddell. 2004. *The Effect of Literacy on Immigrant Earnings*. Statistics Canada Catalogue no. 89-552-MIE, no. 12. International Adult Literacy Survey. Ottawa. Statistics Canada and Human Resources and Skills Development Canada. 45 p. http://www.statcan.gc.ca/pub/89-552-m/89-552-m2004012-eng.pdf (accessed December 8, 2008).

Ferrer, Ana and W. Craig Riddell. 2004. *Education, Credentials and Immigrant Earnings*. Department of Economics, University of British Columbia. 35 p. http://www.econ.ubc.ca/ine/papers/wp020.pdf (accessed December 8, 2008).

Frenette, Marc, Feng Hou, René Morissette, Ted Wannell and Maryanne Webber. 2008. *Earnings and Incomes of Canadians Over the Past Quarter Century, 2006 Census: Census Year 2006*. Statistics Canada Catalogue no. 97-563-XIE, no. 1. Ottawa. 51 p. http://www12.statcan.ca/english/census06/analysis/income/pdf/97-563-XIE2006001.pdf (accessed December 9, 2008).

Frenette, Marc and René Morissette. 2003. *Will They ever Converge? Earnings of Immigrant and Canadian-born Workers over the Last Two Decades*. Statistics Canada Catalogue no. 11F0019MIE – No. 215. Analytical Studies Branch Research Paper Series. Ottawa. 20 p. http://www.statcan.gc.ca/pub/11f0019m/11f0019m2003215-eng.pdf (accessed December 8, 2008). Also published in *International Migration Review*.

Galarneau, Diane and René Morissette. 2004. "Immigrants: Settling for less?" *Perspectives on Labour and Income*. Vol. 5, no. 6. June. Statistics Canada Catalogue no. 75-001-XIE. p. 5-16. http://www.statcan.gc.ca/pub/75-001-x/10604/6921-eng.pdf (accessed December 3, 2008).

Grant, Mary L. 1999. "Evidence of new immigrant assimilation in Canada." *Canadian Journal of Economics*. Vol. 32, no. 4. August. p. 930-955.

Green, David A. and Christopher Worswick. 2004. *Immigrant Earnings Profiles in the Presence of Human Capital Investment: Measuring Cohort and Macro Effects*. University of British Columbia and Carleton University. http://www.econ.ubc.ca/green/chrcoh9.pdf (accessed December 10, 2008).

Moffitt, Robert A. 1999. "New developments in econometric methods for labor market analysis." *Handbook of Labor Economics*. O. Ashenfelter and D. Card (eds.). Vol. 3. Chapter 24. Elsevier. p. 1367-1397.

Oreopoulos, Philip, Till von Wachter and Andrew Heisz. 2008. *The Short- and Long-term Career Effects of Graduating in a Recession: Hysteresis and Heterogeneity in the Market for College Graduates*. IZA Discussion Paper Series No. 3578. Bonn, Germany. Institute for the Study of Labor.

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 December 8, 2008).

Picot, Garnett and Arthur Sweetman. 2005. *The Deteriorating Economic Welfare of Immigrants and Possible Causes: Update 2005*. Statistics Canada Catalogue no. 11F0019MIE – No. 262. Analytical Studies Branch Research Paper Series. Ottawa. 26 p. http://www.statcan.gc.ca/pub/11f0019m/11f0019m2005262-eng.pdf (accessed December 8, 2008).

Statistics Canada. 2008. *Canada's Changing Labour Force, 2006 Census: Census Year 2006*. Statistics Canada Catalogue no. 97-559-XIE. Ottawa. 34 p. http://www12.statcan.ca/english/census06/analysis/labour/pdf/97-559-XIE2006001.pdf (accessed December 8, 2008).

Sweetman, Arthur. 2004. *Immigrant Source Country Educational Quality and Canadian Labour Market Outcomes*. Statistics Canada Catalogue no. 11F0019MIE – No. 234. Analytical Studies Branch Research Paper Series. Ottawa. 45 p. http://www.statcan.gc.ca/pub/11f0019m/11f0019m2004234-eng.pdf (accessed December 10, 2008).