

Earnings differences between immigrants and the Canadian-born – The role of literacy skills

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According to the 2006 Census, one in five Canadians was born outside Canada – the highest proportion since 1931. The source countries for new immigrants have also changed over time. Among the more than 1.1 million immigrants who arrived between 2001 and 2006, almost 6 in 10 were born in Asian countries, including the Middle East. In 1971, 61.6% of newcomers to Canada were from Europe. As a result of the changing immigrant source countries, the proportion of the foreign-born population who was born in Asia and the Middle East (40.8%) surpassed the proportion born in Europe (36.8%) for the first time in 2006.¹ One implication is that new immigrants are much less likely to have English or French as their mother tongue than previous generations of immigrants and large numbers have completed their schooling in their home countries, often in a language other than English or French.

The successful integration of immigrants into the Canadian labour market is of interest to Canadian public policy and to current and potential immigrants, alike. Statistics Canada analysts recently reported that the proportion of long-term immigrants with a university degree found in jobs with low educational requirements, such as clerks, truck drivers, salespeople, cashiers and taxi drivers, rose steadily between 1991 and 2006.² The 2006 Census report on earnings and incomes of Canadians noted that during the past quarter century, the earnings gap between recent immigrants and Canadian-born workers widened significantly. In 1980, recent-immigrant men who had some employment income earned 85 cents for each dollar received by Canadian-born men. By 2005, the ratio had dropped to 63 cents. The corresponding numbers for recent-immigrant women were 85 cents and 56 cents, respectively. These gaps widened even though the educational attainment of recent-immigrant earners rose much faster than that of their Canadian-born counterparts during this period.³

Considerable research effort has been devoted to understanding the earnings differences between immigrant and Canadian-born workers. Those studies have established that immigrants typically earn less than Canadian-born workers with the same amount of education and work experience. The low earnings of immigrants are often attributed to the specificity of human capital to the country from which it originates, the argument being that skills generated through education or work experience in the source country cannot be directly transferred to the host country, resulting in apparently well-qualified immigrants holding low-paying jobs. Another argument is, more simply, that employers in the host country discriminate against immigrants, that is, pay immigrant workers less than equally-productive Canadian-born workers.

Recent analysis by Bonikoska, Green and Riddell looks into this issue more closely by using data from the Canadian component of the International Adult Literacy and Skills Survey (IALSS) to measure the literacy skills of immigrants and the Canadian-born and to relate these to earnings outcomes.⁴ The analysis also takes into account standard demographic information, along with information on where education was obtained and age of migration, to further refine their analysis of immigrant/Canadian-born earnings differentials.

The primary goal of the analysis was to provide answers to four questions related to immigrants' skills. First, do the cognitive skills of immigrants differ from those of the Canadian-born and, if so, in what way? Second, do immigrant/Canadian-born skill differences depend on where immigrant human capital was acquired? Third, do immigrants receive different returns to these skills in the labour market than similar Canadian-born workers? Fourth, can differences in skill levels and returns to these skills explain differences in earnings between immigrant and Canadian-born workers?

Box 1:

The International Adult Literacy and Skills Survey

The analysis reported here is based on data from the [2003 International Adult Literacy and Skills Survey \(IALSS\)](#), the Canadian component of the Adult Literacy and Life Skills Survey (ALL). Statistics Canada carried out this survey in 2003 to study the skills of Canadians age 16 and over.

The main objective of the International Adult Literacy and Skills Survey (IALSS) is to provide measures of skills in four domains: prose literacy, document literacy, numeracy and problem solving. Tests in each of these domains were administered in either English or French. Information was also collected on labour market variables such as income, education and labour force status. Individuals were identified as having completed part or all of their education in Canada versus having completed it abroad. Students were excluded in order to focus on the relationship between the effect of completed schooling and skills. The Aboriginal population was also excluded, being the subject of a separate report.

Differences in skill levels between immigrants and the Canadian-born

In terms of educational attainment, clear differences are apparent, with immigrants, especially males, being more likely to have completed a university degree – 31% in the case of male immigrants compared to 18% of Canadian-born men. Similarly, a larger proportion of immigrant women had a university degree (21%) than was the case for Canadian-born women (17%).

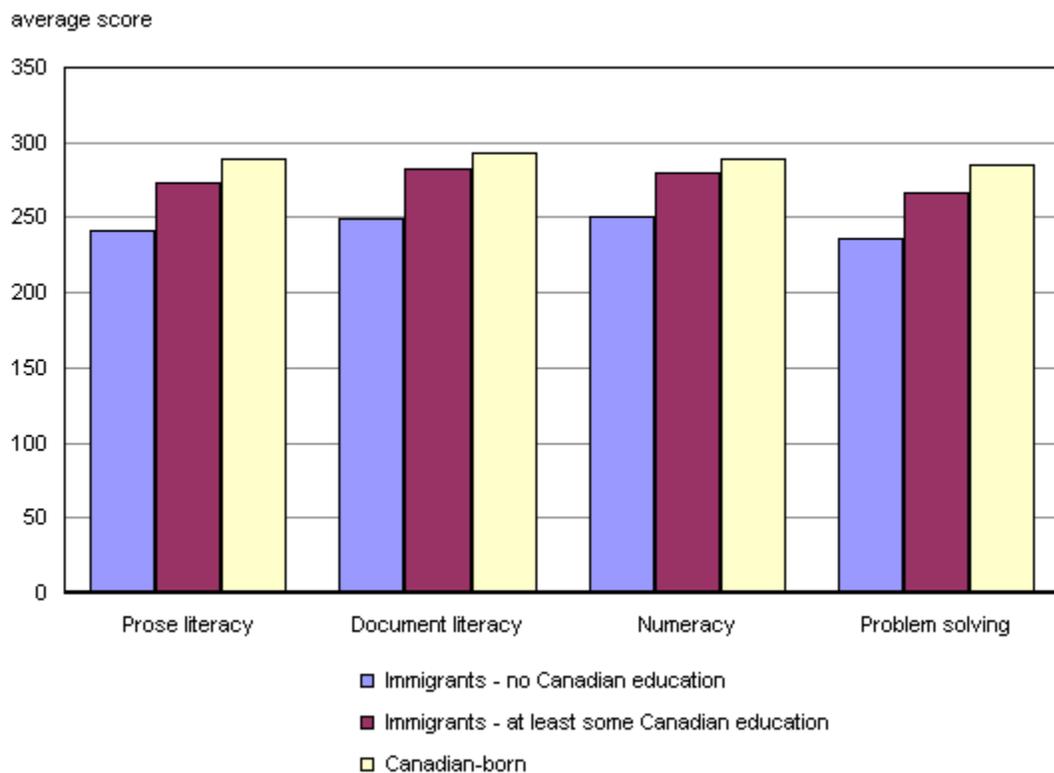
Nevertheless, Canadian-born men and women scored significantly higher than their immigrant counterparts in prose literacy, document literacy, numeracy and problem-solving. Large differences are apparent when immigrants who received part or all of their education in Canada are compared to those who received all of their education abroad.

The average scores of Canadian-born men ranged between 285 on problem-solving skills and 293 on document literacy, compared to average scores of between 236 on problem-solving skills and 250 on numeracy for immigrant males with no Canadian education (Chart 1). The scores of immigrant males who had completed some or all of their education in Canada ranged between these averages. The largest gaps between immigrants educated abroad and Canadian-born men were in prose literacy and problem-solving skills, while the smallest were in numeracy, which the authors observe are less dependent on language of the test.

Chart 1

Average scores in prose literacy, document literacy, numeracy and problem-solving skills, for immigrants and the Canadian-born, male workers, Canada, 2003

[Description for Chart 1](#)



Source: Bonikowska, Aneta, David A. Green and W. Craig Riddell. 2008. [Literacy and the Labour Market: Cognitive Skills and Immigrant Earnings](#). International Adult Literacy Survey. Statistics Canada Catalogue Number 89-552-M Number 020, Table 3.3.

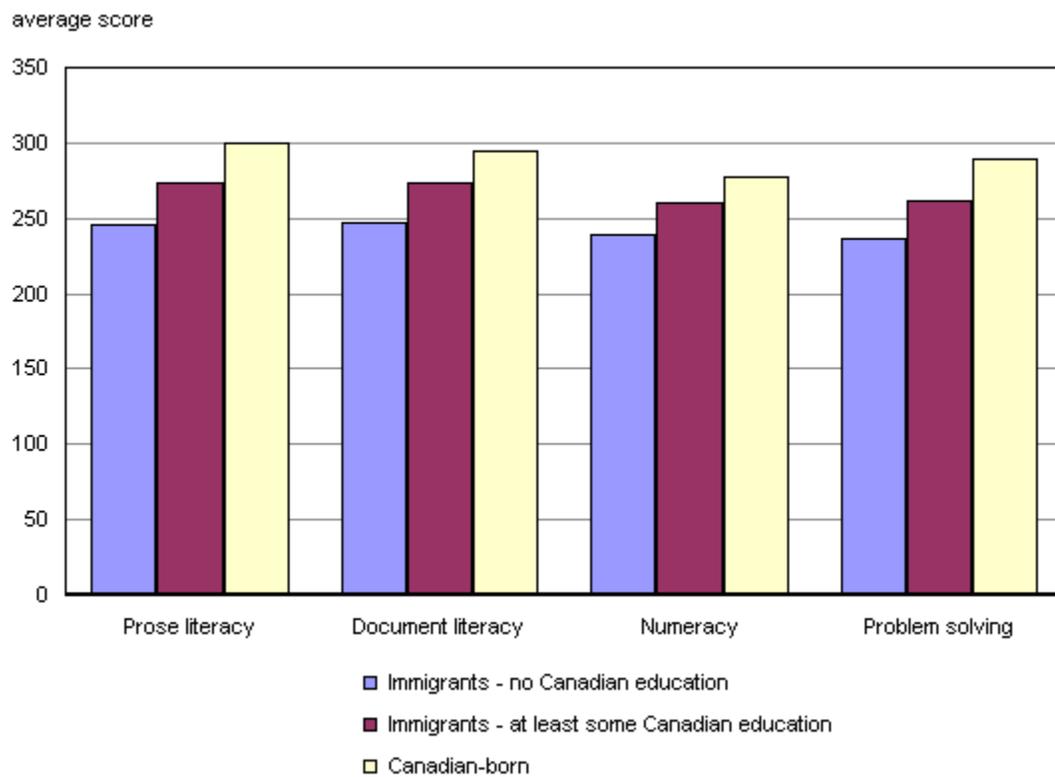
The immigrant/Canadian-born skill gaps were generally slightly larger for females educated abroad, ranging from a gap of 39 score points on numeracy to 54 score points on prose literacy (Chart 2). Like men, the largest gaps for women with no Canadian education compared to Canadian-born women were in prose literacy and problem-solving skills, and the smallest was in numeracy. Also as in the case of men, immigrants with Canadian education had skill levels that

were somewhat below those of the Canadian-born, but which were much higher than those of immigrants without Canadian education.

Chart 2

Average scores in prose literacy, document literacy, numeracy and problem-solving skills, for immigrants and the Canadian-born, female workers, Canada, 2003

Description for Chart 2



Source: Bonikowska, Aneta, David A. Green and W. Craig Riddell. 2008. [Literacy and the Labour Market: Cognitive Skills and Immigrant Earnings](#). International Adult Literacy Survey. Statistics Canada Catalogue Number 89-552-M Number 020, Table 3.4.

Finally, the analysis shows that larger shares of both immigrant groups scored at the bottom of the skills distribution (scores below 200) than was the case for the Canadian-born. This concentration in the lower end of the distribution was especially pronounced for immigrants who had completed their education prior to arriving in Canada.

Box 2:

Interpreting test scores as indicators of proficiency levels

International Adult Literacy and Skills Survey (IALSS) test scores have been grouped into levels, indicating progressively higher levels of proficiency.⁵ Five levels of proficiency were defined for scores on prose literacy, document literacy and numeracy:

Level 1: scores up to 225;
Level 2: scores of 226 to 275;
Level 3: scores of 276 to 325;
Level 4: scores of 326 to 375; and
Level 5: scores of 376 to 500.

For the problem-solving domain, four levels of proficiency have been defined:

Level 1: scores up to 250;
Level 2: scores of 251 to 300;
Level 3: scores of 301 to 350; and
Level 4: scores of 351 to 500.

Conceptually, it is important to define a “desired level” of competence for coping with the increasing skill demands of the emerging knowledge and information economy. Level 3 performance is generally chosen as a benchmark in the prose literacy, document literacy and numeracy domains because in developed countries, performance at or above Level 3 is generally associated with a number of positive outcomes. These include increased civic participation, increased economic success and independence, and enhanced opportunities for lifelong learning. Individuals at proficiency Levels 1 and 2 typically have not yet mastered the minimum foundation of literacy needed to attain higher levels of performance.

In contrast to the prose literacy, document literacy and numeracy domains, no single “desirable” threshold has been set for problem-solving skills.

When interpreted in terms of proficiency levels, these differences in average test scores point to important distinctions across these three groups. In the case of male workers, immigrants with no Canadian education had average scores below Level 3 on prose literacy, document literacy and numeracy (Table 1). Level 3 is the minimum considered to be adequate for full participation in Canadian society and in the labour market. This was the case for immigrants with at least some Canadian education on the prose literacy scale, as well. The average scores for Canadian-born male workers, on the other hand, placed them at Level 3 in all three domains.

The contrasts were even greater in the case of female workers. Both immigrant groups had average scores below Level 3 on prose literacy, document literacy and numeracy, whereas Canadian-born women workers, like their male counterparts, scored at Level 3 in all three domains.

Finally, both male and female immigrants who completed all of their education abroad scored, on average, at Level 1 on problem-solving. This is at the bottom of the problem-solving proficiency scale and one proficiency level below the Canadian-born and immigrants with at least some Canadian education.

Table 1

Average proficiency levels, prose literacy, document literacy, numeracy and problem-solving skills, for immigrants and the Canadian-born, male workers, Canada, 2003

	Canadian-born	Immigrants - At least some Canadian education	Immigrants - No Canadian education
Men			
Prose literacy	3	2	2
Document literacy	3	3	2
Numeracy	3	3	2
Problem-solving	2	2	1
Women			
Prose literacy	3	2	2
Document literacy	3	2	2
Numeracy	3	2	2
Problem-solving	2	2	1

Source: Bonikowska, Aneta, David A. Green and W. Craig Riddell. 2008. [Literacy and the Labour Market: Cognitive Skills and Immigrant Earnings](#). International Adult Literacy Survey. Statistics Canada Catalogue Number. 89-552-M Number 020, Table 3.4.

Literacy skills and proficiency in English or French

Respondents to the International Adult Literacy and Skills Survey (IALSS) tests in Canada had a choice between taking the test in either English or French. A key question, then, is whether having a language other than English or French as a mother tongue is associated with literacy performance.

Previous analysis of data from the International Adult Literacy and Skills Survey (IALSS) results showed that immigrants whose mother tongue was different than the test language had lower average scores in all four domains than did immigrants whose mother tongue was the same as language of the test.⁶ About 43% of immigrants whose mother tongue was different than the test language scored at the lowest level on the prose literacy scale. This was about twice the proportion of immigrants whose mother tongue was the same as the test language (21%) and almost three times that of the Canadian-born population (15%). In contrast, about 30% of immigrants with a mother tongue other than English or French performed at or above Level 3 in prose literacy compared to 47% of immigrants whose mother tongue was the same as the test language and 57% of the Canadian-born.

The effect of work experience and education on earnings

In order to measure the effect that skill levels has on earnings, Bonikowska, Green and Riddell first determined the relationship between earnings and a number of other factors that are known to affect earnings levels. These other factors include years of work experience, educational attainment, immigrant status, years since entering Canada (for immigrants) and having a first language other than English or French.

The analysis found that male immigrants received weekly earnings that were over 50% less than the earnings of Canadian-born workers with the same level of total experience and education. For female immigrants, the size of this effect was somewhat lower, but the gap was still substantial, at approximately 44%. In the years following immigration, immigrant earnings rose at rates of about 2.5% (males) and 2.8% (females) more per year compared to similar Canadian-born workers, though this rate of catch-up to the Canadian-born diminished over time.

Part of the explanation for these differences is that immigrants' earnings upon entry to the Canadian labour market reflected low, or even zero, returns to their foreign work experience. When only their Canadian work experience is taken into account, immigrants' earnings were more similar to those of the Canadian-born with the same years of experience. Thus, the authors conclude, a major source of lower earnings levels among recent immigrants, especially males, is an inability to transfer human capital acquired in their country of origin to the Canadian labour market. Later, the earnings gap with the Canadian-born begins to narrow as they gain Canadian work experience.

Another part of the explanation lies in differences in skill levels, especially between foreign-educated immigrants and those who received some or all of their education in Canada.

The relationship between skills and earnings

For the analysis, individuals' scores in each of the prose literacy, document literacy, numeracy and problem-solving skills domains were combined into a single skills measure. Overall, for both men and women, the direct impact of skill levels on earnings is substantial, with a 100-point increase in skill scores raising earnings by almost 30%. Furthermore, the estimated returns to education for the Canadian-born and for Canadian-educated immigrants declined to a significant extent once skill levels were taken into account, indicating that an important component of the returns to schooling arises from the impact of education on skills and the value placed on those skills in the labour market. Once skill levels are taken into account, the estimated returns to foreign-educated immigrants declined even more than was the case for the Canadian-born. For foreign-educated men, the returns to education fell by about 50%; for women, the decline was even greater and, after controlling for skill levels, the remaining returns to education were no longer significantly different from zero. Thus, literacy, numeracy and problem-solving skills, rather than simply a diploma or degree, constitute a significant component of what education seems to deliver – at least in terms of the skills that are valued in the Canadian labour market.

An important question is whether immigrants receive lower returns in the labour market for their skills than do the Canadian-born. The evidence is that this is not the case. In fact, male immigrants received a higher rate of return to their skills, with earnings gains for immigrant men of 37% associated with a 100-point increase in skill levels, compared to a gain of 24% for native-born men. Furthermore, the gains associated with skills were highest for male immigrants who had received their education abroad. For women, the gains associated with an increase of 100 points in skill levels were equal to those of Canadian-born women, at 28%.

Overall, then, immigrants who finished their education prior to arrival in Canada received substantially greater returns to skills than did native-born Canadians, but lower returns to formal education when controlling for skills. The implication is that it is when education acquired abroad also produces literacy, numeracy and problem-solving skills that can be applied in the Canadian labour market that immigrants to Canada fare well in terms of earnings.

The authors note that this result refers to the notion of skills that can be applied in the Canadian labour market. Immigrants may well have higher skill scores if tested in their native language. However, the analysis also indicates that immigrants are receiving returns to skills - as measured in English or French - that are no worse than those obtained by Canadian-born workers. Finally, the authors find evidence of an interaction between skills and experience. Returns to work experience are largest for immigrant men and for both Canadian-born men and women who have stronger literacy, numeracy and problem-solving skills.

Conclusion

To return to the four questions posed at the outset of this article, the following conclusions are reached.

First, do the literacy, numeracy and problem-solving skills of immigrants differ from those of the Canadian born? The answer is yes. The skills distribution is higher for the Canadian-born than it is for immigrants. These differences in measured skills partly reflect proficiency in either English or French.

Second, do immigrant/Canadian-born skill differences depend on where immigrant human capital was acquired? The answer to this question also is yes. There are substantial differences in outcomes for immigrants who obtained their education prior to arrival in Canada compared to those who obtained some or all of their education in Canada. Foreign-educated immigrants had much lower average skill levels, and earnings, than immigrants with Canadian education. Indeed, the latter group is, in many respects, more similar to the Canadian-born than to foreign-educated immigrants. This again raises the question of the extent to which language proficiency plays a role in determining these differences in returns to education which is completed abroad.

Third, do immigrants receive different returns to skills than Canadian-born workers? The answer to this question is no. There is no evidence that immigrants receive lower returns to the types of skills measured in International Adult Literacy Survey (IALSS) than otherwise-equivalent Canadian-born workers. If the notion of discrimination in the labour market is that equally

productive workers are paid unequally, this indicates that immigrant/Canadian-born earnings differentials cannot be explained by discrimination, at least not based on these skill measures.

Fourth, can differences in skill levels and the way in which these are recognized in the labour market help explain differences in earnings between immigrant and Canadian-born workers? Again, the answer is yes - literacy, numeracy and problem-solving skills have a significant impact on earnings. A 100-point increase in the literacy score raises earnings of men and women by almost 30%. When average skill scores are taken into account, the positive impact of education on earnings is reduced by 10% to 20% for the Canadian-born, and by substantially more for foreign-educated immigrants.

The finding that skills have a significant impact on earnings suggests that lower immigrant skill levels may help in understanding immigrant/Canadian-born earnings differentials. If immigrants had the same average skills as the Canadian-born, the earnings differential between high school-educated immigrants and native-born Canadians would narrow by about 13 to 16 percentage points. This change would turn the 11% earnings disadvantage of immigrant men with high school education into a 5% advantage and would raise the advantage of high school-educated female immigrants over their Canadian-born counterparts to almost three times that magnitude. Similarly, this change would reduce the immigrant earnings disadvantage among university-educated men by half and would eliminate the 19 percentage-point disadvantage among university-educated women.

Finally, it is important to note that taking literacy, numeracy and problem-solving skills into account does not affect the patterns of returns to foreign- and Canadian-acquired work experience. Analysis of the International Adult Literacy Survey (IALSS) data indicates that returns in the Canadian labour market to foreign work experience are very low, and quite possibly, zero. It is work experience in Canada that counts toward earnings growth. This is especially the case for immigrant males. When only their Canadian work experience is taken into account, immigrants' earnings are more similar to those of the Canadian-born with the same years of experience. In fact, the authors conclude that low returns to foreign work experience plays an even larger role in explaining differences between the earnings of immigrant and Canadian-born males than do differences in skill levels.

Notes

1. Statistics Canada. 2008. [Immigration in Canada: A Portrait of the Foreign-born Population, 2006 Census](#). Statistics Canada Catalogue number 97-557-X.
2. Galarneau, Diane and Rene Morrisette. 2008. [Immigrants' education and required job skills](#). Perspectives on Labour and Income. Vol. 9 no. 12. Statistics Canada Catalogue number 75-001-X.
3. Statistics Canada. 2008. [Earnings and Incomes of Canadians Over the Past Quarter Century, 2006 Census](#). Statistics Canada Catalogue number 97-563-X.
4. Bonikowska, Aneta, David A. Green and W. Craig Riddell. 2008. [Literacy and the Labour Market: Cognitive Skills and Immigrant Earnings](#). International Adult Literacy Survey. Statistics Canada Catalogue number 89-552-M No. 020.

5. For a comprehensive description of the methodology used to convert test results into test scores and proficiency levels, see Human Resources and Skills Development Canada and Statistics Canada. 2003. [Building on Our Competencies: Canadian Results of the International Adult Literacy and Skills Survey](#). Statistics Canada Catalogue number 89-617-X.
6. Ibid