International Report Card on Public Education:

Key Facts on Canadian Achievement and Equity

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Abstract

The comparative performance of education systems is attracting more attention than ever before. In Canada, questions have been raised about whether we are keeping pace with the world's leading education systems, and whether our performance has been eroding over time. There are also concerns about whether too many students from less advantaged backgrounds are being left behind. This report reviews the latest international evidence regarding achievement and equity in education. It shows that, in terms of achievement, Canada consistently places among an elite group of high performing countries and economies.

Moreover, Canada continues to be a leader in terms of equity: public schools in Canada are among the best in the world at helping to level the playing field between rich and poor children, and Canada is one of only a very few high-immigration countries that show no significant achievement gap between immigrants and non-immigrants. In fact, Canada distinguishes itself by its ability to combine high levels of achievement and high degrees of equity in education.

At the same time, Canada is not without its challenges. There has been a modest decline in Canada's performance over time, and Canada's relative advantage is diminishing as a number of other rapidly modernizing countries are catching up. And while the education attainment of Aboriginal peoples in Canada is increasing, the achievement gap between Aboriginal and non-Aboriginal peoples at the higher end of the education attainment spectrum is still getting wider. No matter how well Canada may have performed to date in any given international study, there is will always be a need to strive for improvement.

List of Acronyms

CMEC	Council of Ministers of Education, Canada
ICILS	International Computer and Information Literacy Study
OECD	Organisation for Economic Co-operation and Development
PIAAC	Program for the International Assessment of Adult Competencies
PIRLS	Progress in International Reading Literacy Study
PISA	Program for International Student Assessment

Executive Summary

As countries across the world battle to put the years of recession behind them and establish the right conditions for a sustained economic recovery, attention invariably turns to the role of education. In this context, it is no surprise that the comparative performance of education systems is attracting more attention than ever before.

In Canada, questions are being raised about whether we are keeping pace with the world's leading education systems, and whether our performance has been eroding over time. There are also concerns about whether too many students from less advantaged backgrounds are being left behind. This report addresses these questions and concerns by reviewing the latest international evidence regarding achievement and equity in education in Canada and other jurisdictions. For purposes of context, Canada's system of education is in fact 13 distinct systems (10 provinces and 3 territories). Unlike almost every other country, Canada has no national department of education or federal education policy.

The results of this analysis are encouraging. Canada continues to lead the world in terms of educational attainment (that is, the number of years or levels of education completed). And in terms of educational achievement (proficiency in core subjects), Canada consistently places among an elite group of high performing countries and economies. Based on a variety of international assessments across OECD countries, only Korea, Japan, and the Asian city-regions of Hong Kong, Shanghai and Singapore consistently perform better than Canada. No country outside of east Asia performs better than Canada on a regular basis. This performance is remarkable given that most of east Asia (especially Korea and Japan) are relatively homogeneous societies that do not face the challenges of educating significant numbers of students whose language and culture are different from the host country.

It is the case that the performance of Canadian students on some achievement measures has declined over time, but the nature and extent of this trend has been exaggerated, and has not eroded Canada's position as an overall high achieving country in education.

Alarm bells also have been rung about the state of education in this country in terms of Canada's investment in early childhood education, the quality of its postsecondary graduates, and the performance of boys relative to girls. In each case, however, the available evidence suggests that Canada continues to perform well in comparison with other countries.

At first glance, the skills of Canadian adults are less impressive than those of children in school. A recent assessment of the performance of adult literacy, numeracy, and problem solving on computers places Canada in the middle of the pack, rather than near the top. But such measures need to differentiate between those adults who obtained their education in Canada and those whose credential is from somewhere else. The performance of adults with a Canadian education are much more encouraging than the overall comparative ranking of countries would suggest.

Canada distinguishes itself internationally in education not only by virtue of its comparatively high ranking, but more notably by its ability to combine high levels of achievement and high degrees of equity. One of the main reasons for Canada's strong overall performance in education is its success in ensuring the educational achievement of children with immigrant backgrounds. In fact, Canada is one of just a small handful of high-immigration countries that shows no significant achievement gap between immigrants and non-immigrants.

As well, public schools in Canada are among the best in the world at helping to level the playing field between rich and poor children. Among high-performing OECD countries, only one (Estonia) has a weaker relationship between educational performance and socio-economic status than does Canada.

Finally, international comparisons suggest that Canada does a good job of distributing resources within the education system, supporting a professionalized teaching workforce and minimizing resource disparities across schools and regions. This achievement, combined with the results on achievement and equity, place Canada in an almost unique position. A recent study that examined the performance of countries in terms of educational achievement, equity and system efficiency (that is, spending that is efficient as opposed to high) found that only three – Finland, Estonia, and Canada – combine high rankings in all three categories.

Canada's system of education is not without its challenges. Canada deserves its reputation as a world leader in equity in education, but this reputation is tarnished once the situation of Aboriginal peoples is considered. The educational

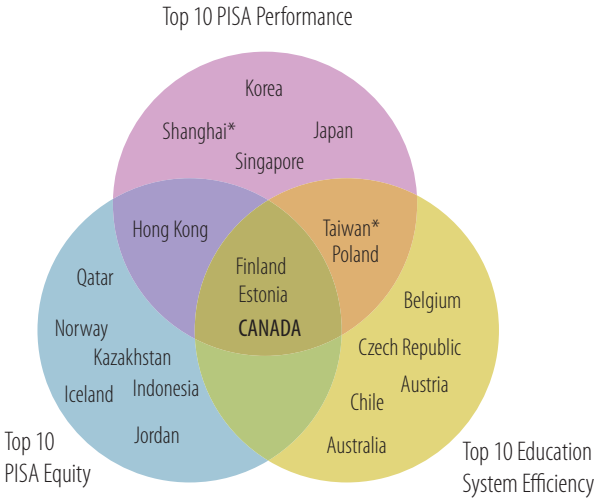
attainment of Aboriginal peoples in Canada is increasing, but the achievement gap between Aboriginal and non-Aboriginal peoples at the higher end of the education attainment spectrum continues to widen.

More generally, Canada's relative advantage internationally is diminishing as a number of other rapidly modernizing countries are catching up. In terms of attainment, for instance, Canada's top position overall reflects in part the fact that its postsecondary education system expanded somewhat earlier in the postwar period than did that of many European or Asian countries. This means that older Canadians (many of whom had opportunities for college or university education) enjoy a significant educational advantage over their OECD counterparts that no longer holds for younger generations. In education, as in so many other things, the world is increasingly competitive; as many industrialized countries make rapid gains, the comparative advantage enjoyed by older generations of Canadians erodes.

No matter how well Canada may have performed to date in any given international study, there is will always be a need to strive for improvement. Canada, however, approaches this challenge from an enviable position of strength.

Performance, Equity and Efficiency in Educational Outcomes

Top 10 Countries in Each Dimension*



*Comparable spending data unavailable for Shanghai and Hong Kong

Reprinted from the Centre on International Education Benchmarking (CIBE):
http://www.ncee.org/2015/01/statistic-of-the-month-education-performance-equity-and-efficiency/

Sources: OECD PISA 2012, OECD Education at a Glance 2014, and Singapore Ministry of Education

Introduction

As countries across the world battle to put the years of recession behind them and establish the right conditions for a sustained economic recovery, attention invariably turns to the role of education. Education drives economic development and social progress by equipping graduates with the skills and aptitudes they need to succeed as citizens, entrepreneurs, innovators and employees in an ever more complex and information-rich world. In this context, it is no surprise that the comparative performance of education systems is attracting more attention than ever before.

Fifteen years have passed since the publication of the first results from the OECD's Programme for International Student Assessment (PISA). During that time, Canadians have become accustomed to hearing that their provincially run education systems are among the world's best. But some have raised important questions. Are we really as good as the government press releases say we are? Is our performance eroding over time? Are too many students still being left behind? Do high levels of student achievement at the high school level carry over into postsecondary education or into the world of work? What factors explain our past success, and where can we improve?

These are important questions to raise. The greatest danger of past success – as all too many businesses and sports teams know – is that it engenders complacency, complacency that presages decline. Past leaders frequently get out-hustled by hungrier and more innovative competitors. No matter how well Canada may have performed to date in any given international study, there is a need to scrutinize, to adopt an attitude of healthy skepticism, and demand continual improvement.

At the same time, it is equally important that public dialogue about the performance of Canada's education systems be grounded in evidence. There is a need to return to some key facts, not to forestall criticism, but to inform it. Efforts to make our education systems even better will not be advanced if policy makers have to spend too much of their time correcting misconceptions. And the better we know ourselves, the more effective our efforts to push ourselves to do better will be.

The goal of this paper is to inform ongoing discussions about education in Canada by reviewing some key facts about our comparative performance. The paper concerns itself with international comparisons, and focuses in most cases on the Canadian average rather than the separate scores for each of the ten provinces (or three territories[1]). Understanding interprovincial differences is important – especially in a decentralized federation where the policy levers lie out of the hands of the national government. At the same time, these differences are not so important as to take away from the attributes that all the provincial/territorial systems in Canada share, which is what this paper trying to capture (inter-provincial differences are also fully analyzed elsewhere[2]).

The paper is organized around ten key questions about student achievement and equity. Certainly these are not the only questions that could be addressed, but they are designed to cover each of the major pillars of education and to tackle the main issues that have captured the public's attention. In each case, the purpose is to provide an overview of key facts, rather than explore these issues in depth; the discussion of each question therefore is kept as succinct as possible. This is especially evident in the case of the last question on the factors accounting for Canada's success; the discussion presented here is meant to highlight a limited number of key points, and does not pretend to be exhaustive. A list of sources and reports cited is included at the back of this report.

Note: Not all participating jurisdictions in the international studies cited in this report are countries. Several Chinese city-regions now participate. Additionally, in some cases, only certain regions within countries participate. The OECD and other agencies now refer to participating jurisdictions as "countries and economies" rather than just "countries." This terminology is used here as well, although in some cases the term "countries" is preferred for the sake of concision.

[1] Canada's three territories do not participate in international assessments of primary or secondary students, but did participate in the Program for the International Assessment of Adult Competencies (PIAAC).

[2] Data for provinces and territories are regularly reported by the Council of Ministers of Education, Canada (CMEC). See www.cmec.ca.

1. Is Canada's performance in education really among the best in the world?

Yes. Canada may not be the world's top performer, but it consistently places among an elite group of high performing countries and economies. Canada's relative advantage is diminishing over time, however, because a number of other rapidly modernizing countries are catching up.

Considerations of performance in education can focus on two distinct measures: educational attainment (the number of years or levels of education completed), and educational achievement (the outcomes of education as measured through learning assessments).

Educational attainment

Canada leads the world in terms of educational attainment. A greater proportion (53 percent) of adult Canadians have a tertiary (i.e. college or university) degree than is the case in any other OECD country. On this basis, Canada can claim to be the world's most educated country.[3]

Critics argue that this interpretation of the figures inflates Canada's advantage, for two reasons.

- First, Canada may be in top spot when considering the educational attainment of all adults, but falls to third place when considering only younger adults (25-34 years). This suggests that a number of countries are catching up with and overtaking Canada, as they make gains in education at a faster pace.[4]

Table 1
Education Attainment, OECD
(Top 20 countries in each category)

COUNTRY	Percent with Tertiary Degree (25 to 64 years of age)
Canada	**52.6**
Japan	46.6
Israel	46.4
United States	43.1
Korea	41.7
Australia	41.3
United Kingdom	41.0
New Zealand	40.6
Ireland	39.7
Finland	39.7
Luxembourg	39.1
Norway	38.6
Estonia	37.3
Switzerland	36.6
Sweden	35.7
Belgium	35.3
Iceland	35.2
Denmark	34.8
Netherlands	34.4
Spain	32.3

COUNTRY	Percent with Tertiary Degree (25 to 34 years of age)
Korea	65.7
Japan	58.6
Canada	**57.3**
Luxembourg	49.9
Ireland	49.2
United Kingdom	47.9
Australia	47.2
New Zealand	46.9
Norway	45.0
Israel	44.5
United States	44.0
Sweden	43.5
Netherlands	43.0
Belgium	43.0
France	42.9
Poland	40.8
Switzerland	40.6
Denmark	40.2
Estonia	39.8
Finland	39.7

COUNTRY	Percent with University Degree (25 to 64 years of age)
Norway	36.2
United States	32.6
Israel	32.5
Netherlands	31.6
Iceland	31.1
United Kingdom	31.0
Australia	29.8
Denmark	29.2
Korea	28.4
Canada	**27.7**
Sweden	26.6
Japan	26.4
Finland	26.2
Luxembourg	26.1
Switzerland	25.8
New Zealand	25.3
Ireland	24.9
Estonia	24.6
Poland	24.5
Spain	22.7

COUNTRY	Percent with University Degree (25 to 34 years of age)
Norway	44.2
Poland	40.8
Netherlands	40.5
United Kingdom	40.1
Korea	39.9
Finland	38.9
Australia	36.7
Iceland	35.8
Luxembourg	35.7
Japan	35.2
Denmark	34.9
United States	34.1
Sweden	34.1
Ireland	33.2
New Zealand	32.8
Israel	32.8
Canada	**31.8**
Switzerland	31.7
Hungary	29.0
Portugal	28.3

Source: OECD, Education at a Glance 2014, tables accessed at http://www.oecd.org/edu/education-at-a-glance-2014-indicators-by-chapter.htm.

[3] Some non-OECD countries, such as the Russian Federation, may in some categories have better results than Canada, but the data may not be as comparable or reliable.

- Second, Canada's top ranking in terms of tertiary education attainment is a product of its unusually large college sector, which masks more mediocre outcomes in the university sector. One in four adult Canadians has a college degree, compared with the OECD average of one in ten. While Canada leads the OECD in attainment at the college level, it is only in tenth spot for university degrees – and this falls to 17th spot when considering university degrees among the younger 25-34 year old age group[5]

Educational achievement

Educational achievement is measured through a variety of international assessments of the abilities of students in key subjects such as reading, math and science. While the results of each study are important, the best portrait of any country's performance emerges from a consideration of the pattern of results across several studies over time. This section will review the main findings from the most recent studies before examining the general pattern – a pattern that is largely positive.

An international study of the reading abilities of grade four students published in 2011 (the Progress for International Reading Literacy Study) placed Canada well above average, though not quite in the highest performing group of countries and economies.[6]

- Of the 45 countries and economies participating in PIRLS 2011, seven[7] outperformed Canada: Hong Kong, the Russian Federation, Finland, Singapore, Northern Ireland, the United States, and Denmark. Six other countries and economies performed at the same level as Canada (Croatia, Chinese Taipei, Ireland, England, the Netherlands, and the Czech Republic). Canada performed better than the remaining 31 participating countries.

Similarly, in the latest round of the more widely known PISA study (Programme for International Student Assessment) of 15-year old students, Canada also performed well above average, if slightly below the very top cluster of high-achieving countries.

- In PISA 2012, Canada was outperformed by only three other OECD countries and economies in math, four in science and two in reading.
- Taking all PISA participants into account (and not just OECD member countries), Canada was outperformed by nine of 65 countries and economies in math, five in reading and seven in science.[8]
- Canada did even better on the additional PISA computer-based test that focused on problem solving. Among OECD countries, only Korea and Japan performed better than Canada; five additional non-OECD members also outperformed Canada, namely Singapore, Macao-China, Hong Kong-China, Shanghai-China, and Chinese Taipei.[9]

[4] In many ways, Canada's top position overall simply reflects the fact that its postsecondary education system expanded somewhat earlier in the postwar period than did that of many European or Asian countries; thus older Canadians – many of whom had the opportunity to obtain a college or university education – enjoy a significant educational advantage over their OECD counterparts that no longer holds for younger generations.

[5] It should be noted that this last objection is valid only if one concedes that a university degree is "higher" than or superior to a college diploma, and therefore that Canada's overall performance in terms of tertiary education attainment is not as good as it looks because it is so heavily weighted to the college side. A viable counter-argument is that Canada's dominant college sector gives the country a competitive advantage in terms of the practical and technical skills in demand in the contemporary labour market.

[6] Council of Ministers of Education, Canada (CMEC), PIRLS 2011 - Canada in Context: Canadian Results from the Progress in International Reading Literacy Study (Toronto: CMEC, 2012), accessed at http://cmec.ca/Publications/Lists/Publications/Attachments/294/PIRLS_2011_EN.pdf ; highlights available at http://www.cmec.ca/docs/pirls/PIRLS_2011_Highlights_EN.pdf.

[7] These results take into account the margins of error; countries and economies outperforming Canada have average scores that are higher than Canada's in a statistically significant way. Countries and economies performing at the same level have scores whose difference from Canada's (whether higher or lower) is not statistically significant.

[8] See the OECD's snapshot of performance in the three domains at http://www.oecd.org/pisa/keyfindings/PISA-2012-results-snapshot-Volume-I-ENG.pdf.

[9] CMEC, "How Good are Canadian 15-year-olds at Solving Problems? Further Results from PISA 2012," Assessment Matters, No. 6 (2014); see: http://cmec.ca/Publications/Lists/Publications/Attachments/324/AMatters_No6_EN_Web.pdf.

The same picture emerged from a lesser known study of computer skills – the International Computer and Information Literacy Study (ICILS) – published late last year. ICILS placed Ontario's grade eight students at the very top, alongside the Czech Republic and Australia, and ahead of the 17 other participating countries including Korea and Germany.[10] (Newfoundland and Labrador, the only other Canadian province to participate, didn't do quite as well as Ontario, but still scored above average, and did as well as countries such as Germany.)

How can Canada's performance across these various different studies best be summarized? Canada does not place at the very top of any one study, but consistently performs well – certainly well above the international average – and tends to be surpassed by a relatively small number of other countries or economies. Indeed, what is notable is that there are very few countries or economies that regularly do better than Canada (see Table 2). Among OECD countries, only Korea and Japan almost always do better than Canada. Canada is also consistently out-performed by the Asian city-regions of Hong-Kong, Shanghai and Singapore. But no country outside of east Asia performs better than Canada on a consistent basis.

- While it is certainly true that Canadian students are being outclassed by students in east Asia, the same is true of students throughout the west. The new benchmark in education that these Asian economies have set must be taken seriously. The point here is that no western country is currently better positioned in education relative to these "Asian tigers" than Canada.

Table 2
Canada's Performance in Comparative Perspective

Country (or "Economy")	Reading - Grade 4 (PIRLS)	Reading - 15 year olds (PISA)	Math - 15 year olds (PISA)	Science - 15 year olds (PISA)	Problem-Solving - 15 year olds (PISA)	Computer Literacy - Grade 8 (ICILS)
Those performing better than Canada*	**Hong Kong SAR** Russian Federation *Finland* **Singapore** *Northern Ireland* *United States* Denmark	**Shanghai-China** **Hong Kong-China** **Singapore** ***Japan*** ***Korea***	**Shanghai-China** **Singapore** **Hong Kong- China** Chinese Taipei ***Korea*** Macao-China ***Japan*** Liechtenstein *Switzerland*	**Shanghai-China,** **Hong Kong-China,** **Singapore** ***Japan*** *Finland* *Estonia* ***Korea***	**Singapore** ***Korea*** ***Japan*** Macao-China, **Hong Kong-China** **Shanghai-China** Chinese Taipei	–
Those performing as well as Canada*	Croatia, Chinese Taipei *Ireland* *England* *Netherlands* *Czech Republic*	*Finland* *Ireland* Chinese Taipei *Poland* Liechtenstein	*Netherlands* *Estonia* *Finland* *Poland* *Belgium* *Germany* Vietnam	Vietnam *Poland* Liechtenstein *Germany* Chinese Taipei *Netherlands* *Ireland* *Australia*	*Australia* *Finland* *United Kingdom*	*Czech Republic* *Australia*

* for ICILS, the table shows countries or economies performing better than or the same as Ontario. OECD countries shown in italics. Countries performing better than Canada in three or more assessment domains are shown in bold.

[10] Mélanie Labrecque and Jessica Dionne, ICILS 2013 - Preparing for Life in a Digital Age: Results for Ontario and Newfoundland and Labrador (Toronto: CMEC, 2014); see http://www.cmec.ca/Publications/Lists/Publications/Attachments/340/ICILS2013_CdnReport_EN.pdf

2. Has Canada's performance in education been declining over time?

Yes, although the nature and extent of the decline has tended to be exaggerated, and has not eroded Canada's position as an overall high achieving country in education.

Canada's PISA scores in all three domains (reading, math and science) have been declining since the original study was published in 2000. While the trend is noticeable in all three domains, it is only statistically significant in the domains of mathematics and science (see Chart 1).

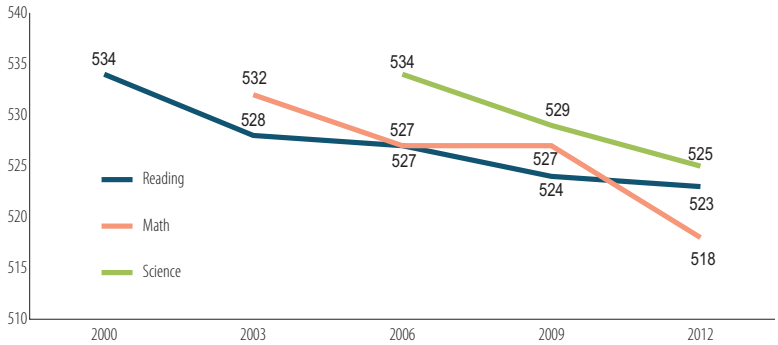
- In math, the proportion of Canadian students performing at the highest levels slipped from 20 to 16 percent between 2003 and 2012, while the proportion performing below the lowest level rose from 10 to 14 percent.[11]

It is important not to confuse the decline in Canada's scores over time with the apparent decline in Canada's placement in the so-called PISA "rankings" – that is, its placement relative to other participants in the study. Canada has indeed fallen in its rank: for instance, in 2000, Canada placed second in reading, compared with ninth place in 2012; similarly, Canada placed seventh in math in 2003, but only 13th in 2012. This comparison of rankings over time, however, is misleading for two reasons.

- First, a number of new economies have joined the PISA study in each cycle; there were 32 participating economies in 2000 and 45 in 2003; this grew to 65 in 2012. Thus it is not clear whether Canada's relative placement of 13th out of 65 economies in math in 2012 is actually worse than its 7th place out of 45 economies in 2003.
- Second, the rankings do not take into account the margins of error associated with the mean scores; many of the differences between the scores of participating economies are not statistically significant.

Once these nuances are taken into account, Canada's decline in rankings appears less dramatic. In reading, Canada was surpassed in a statistically significant way by only one economy in 2000 (Finland); excluding economies that joined the PISA study after 2000, Canada was surpassed in a statistically significant way in 2012 by only two economies (Japan and Korea) – hardly a dramatic change. In math, Canada was out-ranked (again, in a statistically significant way) by two economies in 2003, and by six in 2012 (excluding newcomers to the study).

Chart 1
Trends in PISA Mean Scores
Canada (2000-2012)

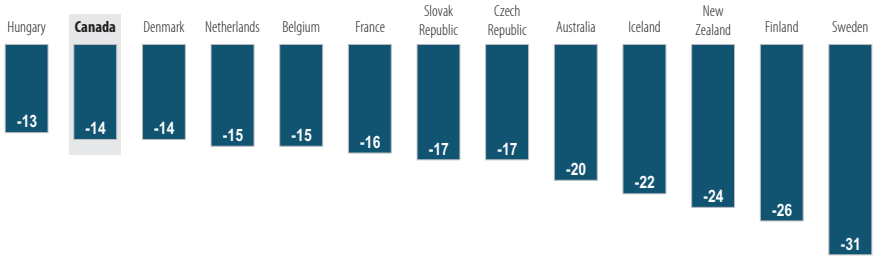


Source: Pierre Brochu, Marie-Anne Deussing, Koffi Houme, and Maria Chuy, Measuring Up: Canadian Results of the OECD PISA Study (Toronto: CMEC, 2013).

[11] Pierre Brochu, Marie-Anne Deussing, Koffi Houme, and Maria Chuy, Measuring Up: Canadian Results of the OECD PISA Study (Toronto: CMEC, 2013), Table B.1.18, p. 72. See: http://cmec.ca/Publications/Lists/Publications/Attachments/318/PISA2012_CanadianReport_EN_Web.pdf

It is also worth noting that Canada is not the only high achieving country to experience a decline in PISA scores. In fact, several often celebrated PISA performers, such as Finland and the Netherlands, have see a greater drop in math scores than has Canada (see Chart 2). This doesn't mean that the decline in Canada's scores is not a cause for concern; but it does mean that Canada is neither a special nor a relatively alarming case.

Chart 2
Change in PISA Math Scores
(2003-2012)



Source: OECD, PISA 2012 Results: What Students Know and Can Do – Student Performance In Mathematics, Reading and Science (Volume I) (Paris: OECD, 2013), Table I.2.3.b (page 306); Chart only includes figures for OECD countries whose declines are statistically significant.

3. Does Canada truly rank last in the OECD in early childhood education?

No.

The OECD regularly reports two measures of performance in early childhood education: enrollment, and spending. Until recently, Canada was shown to rank last in each measure.[12] These findings have been quoted repeatedly by commentators and organizations seeking to sound the alarm about Canada's apparently dismal performance in the vital area of early childhood education.[13]

Unfortunately, the OECD's comparisons were not valid, and as a result Canada's data has been withdrawn from more recent publications. The problem lies not with the OECD – which publishes in good faith the data that its members submit to them – but with the way data in this sector is collected and collated in Canada. The responsibility for programs for pre-school age children rests with the provinces and territories and varies across the country: in some provinces the programs are run by education departments, in others they are run by social or family services departments, and in some provinces the responsibility is shared between different departments.

There is nothing wrong with this approach. National-level data, however, is collected on a sector-by-sector basis - thus there is one count for spending through education departments, one count for spending through social services departments, but as yet no integrated count for spending on similar programs that are managed by different departments in different provinces. For this reason, existing national-level data in early childhood education programs are inevitably incomplete - education statistics exclude information about social services programs, and social service statistics exclude education ones.

Given the number of different players involved in early childhood education in Canada - different departments across 13 jurisdictions, with a federal department of social development and a national statistics agency added into the mix, it is taking some time for governments in Canada to come to terms with the challenge of reporting data in this area. Collaborative efforts are now underway to collect more comprehensive data and to resume reporting to the OECD.

In the meantime, the previously published OECD charts will continue to be circulated, and some commentators will insist that Canada should be embarrassed to find itself in last place. These assertions, however, are simply inaccurate.

Of course, the absence of data cuts both ways: while we cannot say that Canada is really among the worst performers in this area, there is also no basis upon which to claim that we compare favourably with other developed countries. It is the case, however, that this is a growing area of investment in Canada. Across the provinces, new initiatives are being launched in early childhood education, and an increasing number of education departments are being given more explicit mandates to focus not only primary and secondary schools but on early childhood learning and development as well.

[12] See for instance Chart C.2.1 in the 2012 edition of the OECD's Education at a Glance: http://www.keepeek.com/Digital-Asset-Management/oecd/education/education-at-a-glance-2012/indicator-c2-how-do-early-childhood-education-systems-differ-around-the-world_eag-2012-24-en#page3.

[13] Examples include: https://www.td.com/document/PDF/economics/special/di1112_EarlyChildhoodEducation_pr.pdf; http://timeforpreschool.ca/en/weblog/2014/11/09/early-childhood-education-report-2014-released/.

4. Do we know how "smart" our university and college graduates are?

Not really; at the same time, there is no convincing empirical evidence to call the quality of Canadian graduates into question.

The main measure of Canada's performance in postsecondary education is educational attainment – the percentage of the population with a college or university degree. This, however, is often dismissed as a measure of "output" and not "outcome." There is no postsecondary equivalent to PISA that measures what college or university students or graduates actually know or can do.

Responding to growing pressures to measure quality and demonstrate more convincingly the return on the both students' and taxpayers' investment in postsecondary education, a number of countries have begun to explore possible ways to measure postsecondary learning outcomes. Institutions in the United States are further ahead in this exercise than those elsewhere, with many employing instruments such as the Collegiate Learning Assessment to measure the value of the education they provide.

Picking up on this trend, the OECD over the past decade spent considerable effort trying to develop a viable international study of postsecondary learning outcomes. This took the form of the Assessment of Higher Education Learning Outcomes (AHELO), which materialized as a feasibility study involving 17 countries or regions, including Ontario.[14] Most participants and observers concluded from the feasibility study that the project was not viable, for a combination of reasons relating to: the challenge of developing an assessment instrument that can be used to obtain meaningful comparative data across countries, institutions and disciplines; sampling difficulties; and excessive costs. It is not clear, however, whether the OECD has abandoned the AHELO project completely.

In the meantime, the main measures of the quality of postsecondary graduates remains indirect. In Canada, as countless studies have made clear[15],[16], postsecondary graduates continue to have very positive labour market outcomes in terms of employment and earnings.[17] Of particular importance in the context of recent economic recession is the fact that workers with a postsecondary education are less vulnerable in times of rising unemployment than are those who did not continue their formal education past high school.[18]

Canadians between the ages for 25 and 54 with a university degree experienced more stable employment rates and a far less significant increase in unemployment rates during the recent recession than did workers with lower levels of education attainment (see Chart 3). Moreover, the absolute number of jobs fell significantly for those with no education beyond high school, but rose for those with a university degree. In fact, the economy added jobs for university graduates in this age group in every year during and after the recession period, including the years when the overall unemployment rate increased.

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[14] The report on the feasibility study is available here: http://www.oecd.org/site/ahelo/backgrounddocumentsfortheahelofeasibilitystudyconference.htm

[15] For a review of evidence, see Joseph Berger and Andrew Parkin, "The Value of a Degree," in Joseph Berger, Anne Motte and Andrew Parkin, eds., The Price of Knowledge: Access and Student Finance in Canada, fourth edition (Montreal: Canada Millennium Scholarship Foundation, 2009); available at: http://www.yorku.ca/pathways/literature/Access/The%20Price%20of%20Knowledge%202009.pdf.

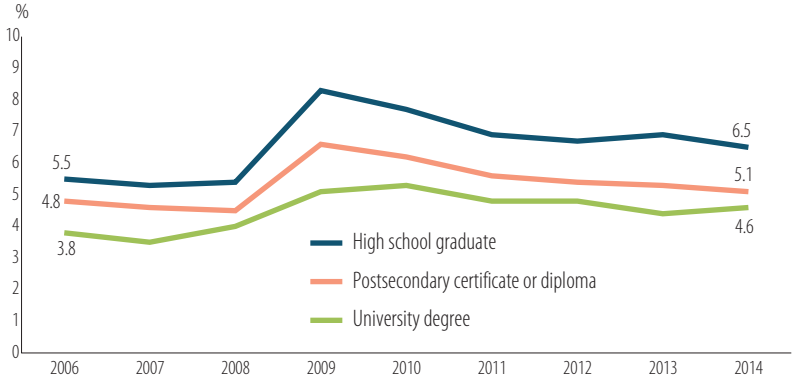
[16] For a more recent and in-depth study, see: Marc Frenette, "An Investment of a Lifetime? The Long-term Labour Market Premiums Associated with a Postsecondary Education," (Ottawa: Statistics Canada, February 2014), p. 26; see: http://www.statcan.gc.ca/pub/11f0019m/11f0019m2014359-eng.pdf. Frenette tracks outcomes for a cohort of Canadians workers over a 20 year period up to 2010, finding that: "individuals who have a bachelor's degree or a college certificate have more favourable labour market outcomes over their working lives than individuals who have only a high school diploma. More specifically, the earnings premium associated with a bachelor's degree over the 20-year period ranges, on average, from $728,000 for men to $442,000 for women. For a college certificate, the premium is $248,000 for men and $180,000 for women, on average."

[17] It is sometimes reported that the earnings premium associated with postsecondary education in Canada – that is, the relative gap between earnings of those with and without PSE – is lower in Canada than elsewhere. However, this is because the earnings of some workers with less education in Canada are unusually high, largely because of the effect of regional resource economies. It is not an indication that earnings of Canadian postsecondary graduates are unusually low.

[18] Similarly, Frenette's tracking of workers over the 20 years between 1991 and 2010 shows that workers with college or universities credentials are less likely to experience either temporary or permanent layoffs. See Frenette, "An Investment of a Lifetime?"

In view of these trends, and in the absence of any evidence to the contrary, there is no compelling reason to call the quality of Canadian graduates, relative to those elsewhere, into question. (Other measures of the skills of Canada's graduates once they have left the education system are discussed in the following section.)

Chart 3
Unemployment Rate for Canadians aged 25-54
By Education Attainment (2006-2014)



Source: CANSIM Table 282-0004

5. Are the skills of Canadians adults only "average" by international standards?

Yes, but it is important to understand why.

High achievement in elementary, secondary and postsecondary education should translate into high performance on skills tests for adults. Yet the results of the Programme for the International Assessment of Adult Competencies (PIAAC) released in 2013 - which measured the performance of adults in literacy, numeracy, and problem solving on computers - placed Canada in the middle of the pack rather than near the top.[19]

- Canada placed slightly higher than the international average in terms of "problem solving in technology rich environments," at the international average in literacy, and below average in numeracy.
- In literacy, a third of the countries and economies participating in the study scored higher than Canada (in a statistically significant way): Japan, Finland, Netherlands, Australia, Sweden, Norway, Estonia, and Flanders (Belgium).

Even more puzzling, given the reputation of Canada's education systems, is that a breakdown of results by education level shows Canada lagging in each category (see the first four rows of Table 3).[20] If Canada has a high-performing education system, why do its graduates not out-perform the international norm?

Table 3
Literacy Scores by Education Level and Immigration Status

	CANADA	OECD AVERAGE
Less than high school	234	246
High school	267	271
College	276	284
University	300	302
University - Non-Immigrants	313	307
University - Immigrants	279	277

Source: CMEC and author's calculations; see http://www.conferenceboard.ca/Libraries/CONF_PRES_PUBLIC/13-0067_presentation_Andrew_2.sflb

Some of the answers to this riddle lie in the distinctive nature of the Canadian population. In comparing Canadian adults to adults elsewhere, three points in particular need to be taken into account. Canada has:

1) higher rates of education attainment;

2) a higher than average proportion of immigrants;

3) a higher than average proportion of adults whose first language is different from an official language.

Consider how these points affect literacy scores by educational attainment.

First, ironic as it may sound, Canada's lower scores for each education category is a reflection of its success.

- As education systems provide more opportunities for advancement, they become less exclusive: the higher echelons of the system are less likely to be reserved for a very high performing elite. The inclusion in Canada of 25 percent more of the population in the category of university graduates than the OECD average should naturally have a negative impact on the average literacy scores of these graduates, not because the postsecondary system has performed poorly, but because the population of students and graduates in Canada is more heterogeneous than those of most other OECD countries. (Put another way, Canada could easily raise the literacy scores of its university graduates by eliminating 25 percent of seats in university classrooms, thereby making the system more selective and elitist).
- Interestingly, the literacy scores for those who are at the lower end of the education spectrum also should be lower, and for the same reason. The more opportunities for accessing higher education there are, the more likely it is that those who do not do so are those who in fact face serious academic barriers. In countries with more exclusive higher education systems, by contrast, many academically proficient youth never have the opportunity to progress past high school, which has the effect of raising the average literacy scores of those who fall in lower educated categories.

[19] Canada's results for PIAAC are available in various materials at www.piaac.ca. The OECD's international report (Skills Outlook 2013) is available at http://www.oecd.org/site/piaac/Skills%20volume%201%20(eng)–full%20v12–eBook%20(04%2011%202013).pdf.

[20] See http://www.piaac.ca/docs/PIAAC2013/web_deck_of_findings.EN.pdf

Second, there is the impact of immigration. In all countries, there is a gap in PIAAC scores between immigrants and non-immigrants.[21] The gap is lower than average in Canada – in fact Canada is one of only a select group of countries that combine above average levels of immigration with above average scores for immigrants. That said, the high proportion of immigrants in the Canadian population (second highest in the PIAAC group of countries), and in particular the very high proportion of immigrants whose first language is other than an official language of the host country (the highest in the study) have an effect on overall scores. Mathematically, the above-average scores for Canadian immigrants can still serve to lower the overall score for Canadian adults as a whole more so than in most OECD countries, simply because of the numerical weight of the immigrant population.

- This is illustrated in Table 4. Canada ranks sixth in terms of the literacy scores of immigrants and seventh in terms of the scores of non-immigrants; the scores of the two groups combine nonetheless places Canada in 11th spot overall.

Furthermore, it is no surprise that the literacy scores for Canadians with a university degree, for example, are only average, given the relatively large proportion of our university graduates who either arrived in Canada with their degree in hand, or who face language barriers, or both.[22] Measures of the skills of adult Canadians do not differentiate between those who obtained their education in Canada and those who brought their credential with them. If we compare the scores for university graduates born in Canada with those of domestically born university graduates in other countries, Canada once again performs well above average (see the last two rows of Table 3, above).[23]

To be clear, the point here is not that Canada's PIAAC scores are not accurate or are somehow distorted by the effect of immigration. The point is simply that the scores cannot be taken simply as a reflection of Canada's education system. In countries with few immigrants, human capital is a product of education; but in Canada (and in similar countries such as Australia), it is a product of education and immigration combined. And importantly for the purposes of this discussion, the results for Canadian adults who received their education in Canada are much more encouraging than the headline PIAAC ranking of countries would suggest.

These points notwithstanding, there remains one genuinely concerning aspect of the PIAAC results for Canada, and that is the comparatively lower scores for the youngest cohort of Canadians.

- While the literacy scores of older Canadians are at or above the international average, this is not the case for those age 16 to 24 (see Table 5). Canadian young adults are outscored by twice as many countries (12) than are middle-aged Canadians (six).
- Another way of representing this is to consider the gaps between the scores of the older and younger age cohorts for different countries (see the final column of Table 5). The gap in Canada is relatively modest compared to that of most of the countries in the PIAAC study.

The story that these figures tell in one of a world that is increasingly competitive; as many industrialized countries make rapid gains in education and skills, the comparative advantage enjoyed by older generations of Canadians erodes (the same development was seen earlier in the discussion of education attainment). When framed in terms of a consideration of the comparative skills of the age cohorts exiting and entering the labour force, the implications for Canada's position in the world is clear.

Thus while the overall picture of Canada's performance in PIAAC remains positive, for the reasons discussed above, the below average performance of young adults in Canada gives pause.

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[21] OECD, Skills Outlook 2013, pp. 126 ff.

[22] As will be discussed below, Canada public school system does a remarkable job of ensuring the educational success of the children of immigrants. Immigrants who arrive in Canada as adults, however, do not have the benefit of a complete Canadian educational experience. In some cases, this may simply mean that they are less proficient in one of Canada's two official language than are those who are born or at least educated in Canada. In other cases, it may mean that they face a skills disadvantage relative to domestically educated Canadians with a similar credential.

[23] See the author's presentation to the Conference Board of Canada: http://www.conferenceboard.ca/Libraries/CONF_PRES_PUBLIC/13-0067_presentation_Andrew_2.sflb. As noted above, this does not mean that our immigrants are not doing well; to the contrary, their scores are also well above average. Indeed, there are two success stories here: that of our education systems, which produce competitive graduates, and our immigration system, which attracts newcomers who are more highly skilled that immigrants elsewhere. Again, these successes are washed out when the numbers are mushed together, in an average for the population as a whole that masks more that it reveals.

Table 4
PIAAC Literacy Scores

By Immigration Status, (Top 18 countries in each category)

JURISDICTION	LITERACY AVERAGE
Japan	296
Finland	288
Netherlands	284
Australia	280
Sweden	279
Norway	278
Estonia	276
Flanders (Belgium)	275
Czech Republic	274
Slovak Republic	274
Canada	**273**
OECD Average	**273**
Republic of Korea	273
England & N. Ireland (UK)	272
Denmark	271
Germany	270
United States	270
Austria	269
Poland	267

JURISDICTION	LITERACY AVERAGE BORN IN COUNTRY
Japan	296
Finland	291
Netherlands	290
Sweden	289
Australia	284
Norway	284
Canada	**280**
Estonia	279
Flanders (Belgium)	278
OECD Average	**276**
England & N. Ireland (UK)	276
Denmark	275
United States	275
Germany	275
Czech Republic	274
Slovak Republic	274
Austria	274
Republic of Korea	273
Ireland	268

JURISDICTION	LITERACY AVERAGE IMMIGRANTS
Australia	271
Slovak Republic	268
Czech Republic	268
Ireland	263
Estonia	256
Canada	**256**
England & N. Ireland (UK)	255
Austria	248
OECD Average	**247**
Netherlands	247
Norway	245
Flanders (Belgium)	242
Germany	241
Finland	240
United States	239
Denmark	238
Republic of Korea	235
Sweden	235
Spain	232

Table shows only OECD countries (or regions) and Ontario

Source: Author's calculations using the PIAAC international data explorer: http://piaacdataexplorer.oecd.org/ide/idepiaac/

Table 5
PIAAC Literacy Scores
By Age Group, (Top 20 countries in each category)

COUNTRY	24 OR LESS	COUNTRY	25-34	COUNTRY	35-44	COUNTRY	45-54	COUNTRY	55 PLUS	COUNTRY	GAP: 24 OR LESS MINUS 55 PLUS
Japan	299	Japan	309	Japan	307	Japan	297	Russian Fed.	275	Rep. Korea	49
Finland	297	Finland	309	Finland	299	Finland	284	Japan	273	Spain	37
Netherlands	295	Netherlands	298	Netherlands	294	Norway	277	Slovak Rep	266	Finland	37
Rep. Korea	293	Flanders (Belg.)	291	Australia	289	Netherlands	277	Eng & NI (UK)	265	Netherlands	34
Estonia	287	Sweden	290	Norway	288	Russian Fed.	277	United States	263	France	33
Flanders (Belg.)	285	Rep. Korea	290	Sweden	287	Australia	277	Australia	263	Poland	32
Australia	284	Norway	289	Flanders (Belg.)	282	Sweden	276	Czech Republic	262	Flanders (Belg.)	30
Sweden	283	Australia	287	Denmark	281	Flanders (Belg.)	272	Sweden	262	Austria	28
Poland	281	Czech Republic	287	**Canada**	**280**	Eng & NI (UK)	271	Norway	262	Italy	27
Czech Republic	281	Estonia	286	Eng & NI (UK)	279	Slovak Rep	270	Netherlands	261	Estonia	26
OECD Average	**280**	**Canada**	**285**	**OECD Average**	**279**	Estonia	269	Estonia	261	Japan	26
Germany	279	**OECD Average**	**284**	Slovak Rep	278	**Canada**	**268**	**Canada**	**260**	Germany	25
Austria	278	Denmark	282	Estonia	278	**OECD Average**	**268**	Finland	260	**OECD Average**	**24**
Denmark	276	Germany	281	Russian Fed.	278	Austria	266	**OECD Average**	**255**	Denmark	24
Slovak Rep	276	Eng & NI (UK)	280	Rep. Korea	278	United States	266	Flanders (Belgium)	255	Australia	21
Canada	**276**	Austria	280	Germany	275	Czech Republic	266	Germany	254	Sweden	20
Norway	275	Slovak Rep	278	Czech Republic	275	Denmark	266	Denmark	252	Ireland	20
France	275	France	278	Austria	275	Germany	264	Ireland	251	Czech Republic	18
Russian Fed.	274	Poland	277	United States	273	Ireland	259	Austria	250	**Canada**	**15**
United States	272	Ireland	276	Ireland	271	Poland	259	Poland	249	Norway	13
Ireland	271	United States	275	Poland	268	Rep. Korea	259	Rep. Korea	244	Slovak Rep	10

Source: Author's calculations using the PIAAC international data explorer: http://piaacdataexplorer.oecd.org/ide/idepiaac/

6. Are boys in Canada being left behind?

Yes and no - but mostly no.

In terms of educational attainment, girls in Canada have been making gains relative to boys for some time (see Chart 4).24

- Women overtook men to become a majority of university undergraduates in the early 1990s and in 2012-13 comprised 57 percent of the undergraduate student population.[25]
- Women have comprised a majority of master's students since 1994-95 and of all graduate students since 1998-99. However, men still predominate in doctoral programs – although the proportion of males at that level has fallen from 62 to 53 percent over the past 15 years.

Viewed in these terms, boys' traditional educational advantage relative to girls has been reversed.

But this does not mean boys are actually doing worse than they were before. In fact, the opposite is case: boys have never been as successful in completing both high school and university than they are today. Over the two decades between 1990s and 2009, the proportion of men aged 25-34 who had completed high school rose from 77.5 percent to 90.5 percent, while the proportion with a university degree rose from 15.6 percent to 26.0 percent.26

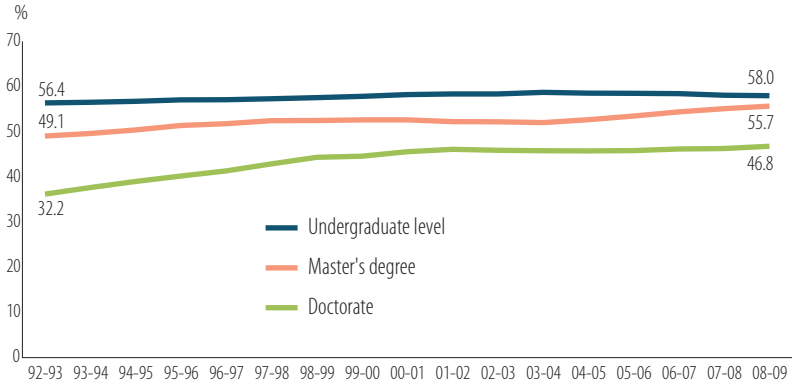
The growing advantage that girls have over boys in terms of graduation rates, therefore, is explained not by the fact that boys are doing worse, but rather by the fact that the educational attainment of girls is improving more rapidly.[27]

In terms of educational achievement, there is also no compelling evidence to suggest that boys are falling behind.

It is well known, of course, that girls perform better in reading assessments than do boys.

- In the Grade 4 international reading literacy study (PIRLS), Canadian girls (average score of 555) scored better than boys (average score of 542); however the 12 point difference was smaller than the international average (16 point score difference in favour of girls).[28]

Chart 4
Proportion of Female University Students
By Level of Study (1992-2009)



Source: CANSIM Table 477-0013

[24] Note that the data series reported in Chart 4 was discontinued after 2008-09; data from CANSIM series 447-003 indicate no significant change in the years after 2008-09, with women continuing to comprise about 57 percent of university undergraduates, 56 percent of masters' students and 47 percent of doctoral students.

[25] The 2012-13 figure is from Statistic's Canada's CANSIM database No. 4770033. The CANSIM database used as source for Chart 4 was discontinued after 2008-09.

[26] The corresponding figures for women age 25 to 34 are: from 80.6 to 93.4 for high school completion, and from 15.0 to 34.3 percent for university. Data from Statistics Canada (Labour Force Survey) as reported at: http://www.statcan.gc.ca/pub/89-503-x/2010001/article/11542/tbl/tbl001-eng.htm

- Similarly, in the past round of PISA , girls in Canada scored an average of 35 points higher than boys – slightly less than the average 38 point gap across the OECD as a whole.[29]

In math, however, boys retain an advantage over girls: Canadian boys had a ten point edge over girls in the 2012 PISA math component (the average difference in favour of boys in the OECD was 11 points). And in science, boys and girls performed similarly, with Canadian boys enjoying a slim 3 point edge.

Note that in all three PISA domains, the gender gaps have remained relatively stable over time; thus is no evidence that the performance of boys is in decline relative to that of girls.

In short, then, girls do better than boys in some subjects, and vice versa, and this situation seems relatively stable over time. Gender gaps in Canada also are in line with international norms.

The OECD has also argued convincingly that the early advantage that girls have over boys in some subjects does not translate into an edge in careers, especially in science related fields, as cultural norms limit girls' aspirations, confidence and the encouragement they receive as they age.[30]

Finally, it is not yet clear whether the introduction of new information and computer technologies into the classroom will have any impact on gender differences in performance. A computer-based component of the PISA 2012 reading assessment found that girls still perform better than boys, but by a smaller margin than is the case for the conventional paper-based assessment.[31] At the same time, however, the ICILS study of overall computer and information literacy found that girls actually score higher than boys, both in Canada and internationally.[32]

[27] And much of this trend has less to do with the obstacles that boys face at school but with the relative advantages that men with lower levels of education have in the labour market compared to similarly educated women.

[28] I.V.S. Mullis, M.O. Martin, P. Foy and K.T. Drucker, PIRLS 2011: International Results in Reading (Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College, 2012), p. 52; see http://timssandpirls.bc.edu/pirls2011/international-results-pirls.html

[29] Data obtained from various tables in the OECD 2012 PISA report (Volume I); see http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2012-results-what-students-know-and-can-do-volume-i-revised-edition-february-2014/pisa-2012-data_9789264208780-12-en#, p.102

[30] See: OECD, "What Lies Behind Gender Inequality in Education." PISA In Focus No. 49, available at http://www.oecd-ilibrary.org/docserver/download/5js4xffhhc30.pdf?expires=1426015474&id=id&accname=guest&checksum=B6FF0646492C65BD505F8B91DC9508C7

[31] Brochu, Deussing, Houme, and Chuy, Measuring Up, pp. 41-43

[32] Labrecque and Dionne, ICILS 2013, pp. 18-19

7. Is the education achievement gap between Aboriginal and non-Aboriginal Canadians closing?

Unfortunately not. The education attainment of Aboriginal peoples in Canada is increasing, but since the attainment of non-Aboriginal peoples is also increasing, the gap at the higher end of the education attainment spectrum is getting wider.

The existence of an educational achievement gap between Aboriginal and non-Aboriginal Canadians is well documented. According to the 2011 National Household Survey :

- 29 percent of Aboriginal peoples (age 25 to 64) had not completed high school, compared with 12 percent of non-Aboriginal peoples;
- 48 percent of Aboriginal peoples had attained a postsecondary credential (certificate, diploma or degree), compared with 65 percent of non-Aboriginal peoples
- 10 percent of Aboriginal peoples had attained a university degree, compared with 27 percent of non- Aboriginal peoples.

Those identifying as Métis do comparatively better than First Nations people (and particularly First Nations people living on-reserve) and Inuit (for instance, 12 percent of Métis had a university degree, compared with five percent for both Inuit and First Nations people living on-reserve).

The key question, however, is not whether or not a gap exists, but whether this gap is closing.

At the local level, it is clear that there are a number of success stories – that is, cases where the results for Aboriginal students in individual schools and communities have shown improvement.

At the nation-wide level, the picture is more mixed.

Variations in the methodology of the census over the last decade have made the production of comparative data over time more difficult. The available data, however, show improvements in the education attainment of Aboriginal peoples over time.

The 2011 NHS, for instance, shows that education attainment Aboriginal peoples aged 35-44 year was better than those in the older age group – a clear indication of progress. For instance, 68 percent of those aged 35 to 44 had at least a high school diploma, compared with 59 percent of the older 55 to 64 age group. That said, it is notable that all the progress was made by Aboriginal women; there was virtually no difference between the educational attainment between males in the two age cohorts.

Comparisons of the results of different censuses over time (however dubious they may be given methodological inconsistencies) also suggest that progress is being made.

- For instance, as noted above, the 2011 NHS reported that 29 percent of Aboriginal peoples (aged 25 to 64) had not completed high school; the figure as reported in the 2006 census was 34 percent.
- The 2011 NHS reported that 48 percent of Aboriginal peoples (aged 25 to 64) had a PSE qualification; the figure as reported in the 2006 census was 44 percent. Figures for university degree attainment for Aboriginal peoples are six percent in 2001, eight percent in 2006, and 10 percent in 2011.

The problem is that, despite this progress, the position of Aboriginal peoples relative to non-Aboriginal peoples in Canada is not changing. In fact, because the educational attainment of non-Aboriginal Canadians continues to improve at a faster rate, the gap between Aboriginal and non-Aboriginal peoples at the higher end of the education attainment spectrum is widening.[34]

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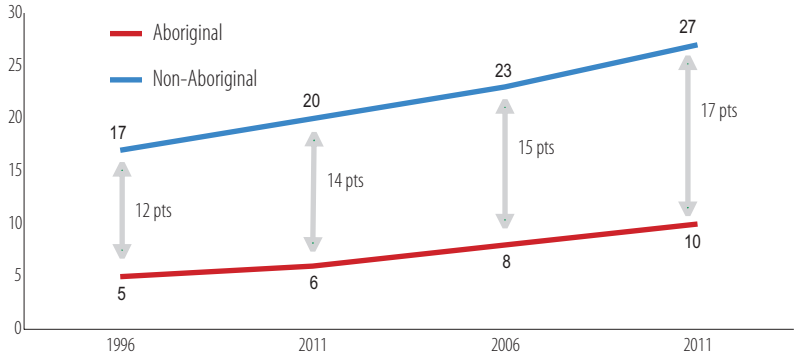
[33] Statistics Canada, The Educational Attainment of Aboriginal Peoples in Canada – National Household Survey (NHS), 2011; available at: http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-012-x/99-012-x2011003_3-eng.pdf

[34] Previous analyses by both John Richards and the Canada Millennium Scholarship Foundation have noted a lack of progress in closing the education gap between Aboriginal peoples and non-Aboriginal peoples in Canada, despite the gains being made in Aboriginal education attainment over time. See the discussion of this issues in Joseph Berger, Anne Motte and Andrew Parkin, eds., The Price of Knowledge: Access and Student Finance in Canada, fourth edition (Montreal: Canada Millennium Scholarship Foundation, 2009), pp. 52-54; available at: http://www.yorku.ca/pathways/literature/Access/The%20Price%20of%20Knowledge%202009.pdf. These findings have been reconfirmed in a newer analysis by Catherine Gordon and Jerry White; see: Catherine E. Gordon and Jerry P. White, "Indigenous Educational Attainment in Canada," The International Indigenous Policy Journal Vol. 5, Issue 3 (June 2014), pp. 12-14.

- In terms of high school completion, the gap is narrowing. In 2006, the proportion of adults who had not completed high school among Aboriginal peoples was 19 points higher than the average fo non-Aboriginals; in 2011, the gap was 17 points. In terms of the proportion with any form of postsecondary qualification, the gap fell from 17 points in 2006 to 16 points in 2011.

- However, in 2006, the proportion of non-Aboriginal Canadians with a university degree was 23 percent, which was 15 points higher than the proportion for Aboriginal Canadians. In 2011, according to the NHS, the proportion for non-Aboriginal Canadians was 17 points higher than that for Aboriginal Canadians. Measured in this way, the education attainment gap is widening (see Chart 5).

Chart 5
University Attainment by Canadians aged 25-54
By Aboriginal Status (1996-2011)



Source: Statistics Canada 2011 NHS and census reports, with additional data from Catherine E. Gordon and Jerry P. While, "indigenous Educational Attainment in Canada," The International Indigenous Policy Journal, Vol. 5, Issue 3 (June 2014).

8. Do students with immigrant backgrounds in Canada do as well in educational achievement as non-immigrants students?

Yes; Canada is one of only a very few countries that combines overall high achievement, a larger than average immigrant population, and no significant achievement gap between immigrants and non-immigrants.

One of the main reasons that explains Canada's good overall performance in education is that it is successful in ensuring the educational achievement of children with immigrant backgrounds. Given the comparatively large proportion of students in Canadian schools, colleges and universities that are first and second generation immigrants, the country simply could not post high overall achievements scores if there was a significant gap between these students and non-immigrants.

The PIRLS study of Grade Four students does not report data regarding immigrant students, but does examine results for those who did not speak the language of the test prior to starting school (in Canada, this would be those whose spoke a language other than English or French). While internationally the average gap between students who did and did not speak the language of the test prior to starting school was 37 points, Hong Kong, Australia and Canada all had gaps of 5 points or less (and in each case, the gap was not statistically significant). This demonstrates the ability of schools in high immigration countries such as Australia and Canada to quickly integrate students from immigrant families in the early years of schooling.

There is extensive data from PISA regarding students with immigrant backgrounds. The proportion of students with immigrant backgrounds in Canada is much higher than average, and indeed higher than in almost all other OECD countries.

- 29 percent of Canadian 15-year old students have an immigrant background (meaning they are either first or second generation immigrants), compared to the OECD average of 11 percent. Among OECD countries, only Luxembourg (46 percent) has a higher proportion. New Zealand (26 percent), Switzerland (24 percent), Australia (23 percent), and the US (22 percent) are the other OECD countries where the proportion of students with immigrant backgrounds is greater that one in five.
- 13 percent of Canadians students are first-generation immigrants, compared with the OECD average of 5 percent. Among OECD countries, only Luxembourg and New Zealand (17 percent each) have a higher proportion.
- Among OECD countries, Canada (14 percent) has the second highest proportion of students who have an immigrant background (first or second generation) and who speak a language at home that is different from the language of the PISA assessment, after Luxembourg (32 percent). The average for the OECD is 6 percent.

There is no significant gap between the academic achievement of immigrant (first and second generation) and non-immigrant students in Canada, as measured by PISA 2012 (mean math scores).

- The two point gap in favour of non-immigrant students in Canada is not statistically significant, and compares with an average gap for all OECD countries of 34 points. New Zealand and Ireland resemble Canada in having no gap between immigrant and non-immigrant students, while in Australia there is a significant gap in favour of immigrant students.
- There is also no noticeable gap between students in Canada who are first-generation immigrants and non-immigrant students (in fact, the former group has a slight 6 point edge).
- Similarly, students in Canada who have both an immigrant background (first or second generation) and who speak a language at home that is different from the language of the PISA assessment perform about as well as non-immigrants with the same language as the assessment (again, the former group has a slight 7 point edge).

In fact, Canada is one of only a few OECD countries that combine a number of important attributes: high overall performance, a high proportion of students from immigrant

[35] See Mullis et al., PIRLS 2011, Exhibit 4.3, p. 188.

[36] Data is this section is taken from the tables for Volume II of the OECD's 2102 PISA report. See: http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-ii.htm

families, and a low or non-existent performance gap between immigrants and non-immigrants. This is illustrated in Table 6.[37]

Canada's success in this area is also evident by the fact that even those first generation immigrant students who arrived in Canada after age 12 perform relatively well: in fact, the PISA math scores for this group are no different than those of non-immigrant students. As Chart 6 illustrates, there is no significant drop-off in scores for immigrants students based on how long they have been in the country, in marked contrast to the international average.

Immigrants in Canada have also been successful in postsecondary education.

- Of course, data on educational attainment for first-generation immigrants generally reflects the educational backgrounds that immigrants had before arriving in Canada rather than their education experience in this country (immigrants to Canada on the whole are more likely to have a university degree than domestically born Canadians).
- The experience of second generation immigrants is more revealing. 84 percent of second generation immigrants in Canada enroll in a postsecondary education course by the age of 21, including 54 percent who pursue a university degree, compared with 72 percent for non-immigrants (38 percent for university).[38]
- Not all immigrant groups are equally successful, however. While over 80 percent of second generation immigrants whose parents came from Africa or China pursue university studies by the age of 21, only 36 percent of those from central and southern America and the Caribbean do.[39]

Table 6
Performance of Students from Immigrant Backgrounds in High Performing, High Immigration Countries And Economies

	PERCENT OF STUDENTS WITH IMMIGRANT BACKGROUNDS	PISA MATH SCORE – STUDENTS WITH IMMIGRANT BACKGROUNDS	DIFFERENCE IN MATHEMATICS PERFORMANCE BETWEEN NON-IMMIGRANT AND IMMIGRANT STUDENTS
Macao-China	65	545	-16
Hong Kong-China	35	559	8
Liechtenstein	33	504	50
Canada	**29**	**520**	**2**
New Zealand	26	503	0
Switzerland	24	484	63
Australia	23	528	-26
Singapore	18	596	-26
United Kingdom	13	489	9
Germany	13	475	54
OECD average	11	462	34

Table includes only those countries and economies whose mean math score for all students and proportion of students with immigrant backgrounds are both above the OECD average; countries and economies in italics are not OECD members; "immigrant background" includes both first and second generation immigrants. Source: OECD, PISA 2012 Results, Volume II, accessed at http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-ii.htm

[37] "In Canada, New Zealand and Australia the size of the immigrant student population is well above the OECD average (29%, 26% and 23%), and both immigrant and non-immigrant students perform, on average, well above the OECD mean (more than 500 score points). In Australia immigrant students outperform non-immigrants by 29 score points, even after accounting for socio-economic differences. In Canada and New Zealand, both groups perform equally well. The same is true in Ireland, but the proportion of immigrant students (10%) in the country is closer to the OECD average (11%)." OECD, PISA 2012 Results: Excellence Through Equity: Giving Every Students the Change to Succeed (Volume II) (Paris: OECD, 2013), p. 72; see http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-II.pdf.

[38] See Berger et al., The Price of Knowledge, pp. 55-56.

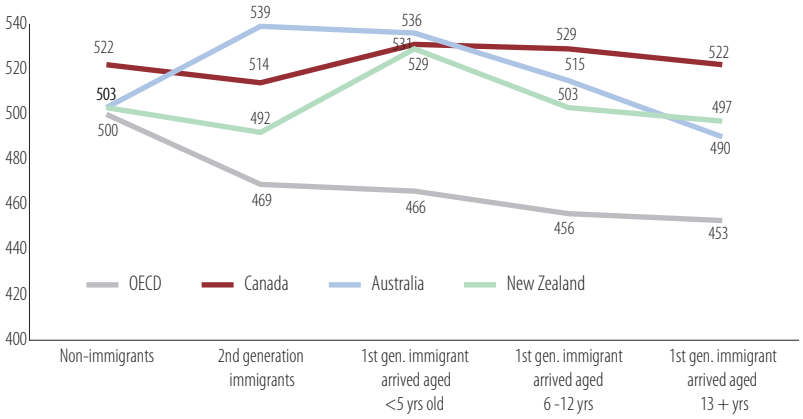
[39] See Berger et al., The Price of Knowledge, p. 56, Figure 2.VI.13.

The impact of Canada's public education systems on the success of immigrants is perhaps best illustrated by the PIAAC data regarding adult competencies.[40]

- The first result of note is that the literacy scores of second generation immigrants in Canada are above the average for all Canadians and, indeed above the score of those whose parents were born in Canada (whereas across the OECD as a whole, second generation immigrants do better than first generation immigrants, but worse than the average for the whole population or for those with no immigrant background). This suggests that, at the very least, children of immigrants are not disadvantaged by their educational experience in Canada.
- Second, first generation immigrants who arrive in Canada at a young age[41] – before or during primary school – have literacy scores as adults that are either at or above the average for the whole population; what's more, this situation holds even for those who arrive speaking a language at home other than English or French. Again, this is contrary to the trend internationally, where adults who arrive in the country as school-age children have lower than average scores. The implication is the same: that children of immigrants are not disadvantaged by their educational experience in Canada (as they are in most industrialized countries).

Chart 6
PISA Math Scores

By Immigration Status and Age of Arrival in Host Country (1996-2011)



OECD, PISA 2012 Results: Excellence Through Equity: Giving Every Students the Change to Succeed, Volume II (Paris: OECD, 2013), Chapter 3, Tables II.3.4a, II.3.5, II.3.6a, II.3.8; accessed at http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-ii.htm.

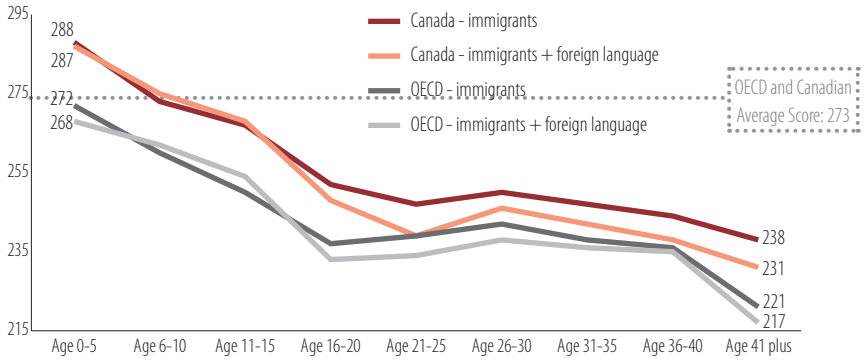
[40] As noted above, Canada has one of the most diverse populations in the OECD; among countries participating in the PIAAC study, Canada has the second highest proportion of adults (aged 16 to 65) who are foreign born, and the highest who are foreign born and whose first language is different from the language of the assessment.

[41] This group of immigrants is often referred to as the 1.5 generation.

- This is illustrated in more detail in Chart 7. In both Canada and the OECD, the literacy scores of adult immigrants who arrived in the host country as children are much better than those who arrived after high school, suggesting that school systems everywhere help with integration. But while in the OECD, first generation immigrants never "catch up" to the national average, regardless of their age of arrival, in Canada those who arrive at primary school age either end up performing as well as, or even better than, the average. Again, this holds even for those for whom English or French is a second language.

In reflecting on these achievements, it should be recalled that Canada's immigrant population is not only comparatively large, but also comparatively diverse. To illustrate, immigrants to Australia are twice as likely to originate from the the anglophone countries of UK, the US or New Zealand as are immigrants to Canada; but despite Australia's geographic proximity to Asia, its immigrants are less likely to originate from major Asian source countries such as China, India and the Philippines than are immigrants to Canada.[42]

Chart 7
PIAAC Literacy Scores of Immigrants/Immigrants with a Foreign Language
By Age of Arrival in Host Country (1996-2011)



Source: Author's calculations using the PIACC international data explorer: http://piaccdataexplorer.oecd.org/ide/idepiacc

[42] See, for example, the statistics reported by the Migration Policy Institute at: http://www.migrationpolicy.org/programs/data-hub/top-sending-countries-immigrants-australia-canada-and-united-states

9. Do public schools level the playing field between rich and poor children?

Nothing can erase the effects of socio-economic background, but public schools in Canada are among the best in the world at helping to level the playing field between rich and poor children.

In all countries, including Canada, education achievement is affected by socio-economic status: on average, students from wealthier families perform better than students from poorer ones, and students who attend schools located in richer neighbourhoods do better than students who attend schools in poorer ones. In Canada, however, the relationship between socio-economic status and performance is weaker than in almost all other OECD member countries. Canada's public schools do a better job than those of almost all other countries in equalizing opportunities between economically advantaged and disadvantaged students.[43]

- Canada is one of only ten "high achievement / high equity" countries: countries that combine higher than average PISA math scores with a weaker than average relationship between performance and socio-economic status.[44] In fact, among OECD members with above average math scores, only one country (Estonia) has a weaker relationship between performance and socio-economic status than does Canada.
- Canada has a higher than average proportion of "resilient" students within its student population; resilient students are those who combine low socio-economic status with high achievement.[45]
- Canada is one of only six high achieving countries whose PISA ranking is significantly higher for economically disadvantaged students than it is for advantaged students (Canada "ranks" 13th overall for math performance, but 12th when the performance of disadvantaged students is compared, and only 17th when the performance of advantaged students is compared).[46] In other words, Canada is one of a small group of countries that do particularly well in terms of the performance of disadvantaged students and whose high overall performance is combined with a lesser degree of socio-economic polarization. (The other countries/economies in this group are Denmark, Estonia, Finland, Ireland and Macao-China.)
- Canada stands out as having the second most equitable education system in the OECD – behind only Finland – measured by assessing the proportion of variation in students' PISA math scores that is explained by socio-economic differences between schools. This means that in every OECD country except Finland, the socio-economic status of the neighbourhood a student is born in and of the local school they attend has more of an impact on their academic performance than in Canada.[47]

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[43] The results in this section are taken from Chapter 2 of OECD, PISA 2012 Results, Volume II; see: http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-ii.htm

[44] Socio-economic status is measured by means of an index taking into account factors such as parental education and occupation, household possessions and educational resources available at home.

[45] See Figure II.2.4, p. 41 (http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2012-results-excellence-through-equity-volume-ii/equity-in-outcomes_9789264201132-7-en#page11); a student is defined as resilient if they are in the in bottom socio-economic quartile in their country and perform in the top quarter of students from all countries after accounting for socio-economic status.

[46] See Figure II.2.6, p. 43; http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2012-results-excellence-through-equity-volume-ii/equity-in-outcomes_9789264201132-7-en#page13

[47] See Figure II.2.8, p. 48; http://www.keepeek.com/Digital-Asset-Management/oecd/education/pisa-2012-results-excellence-through-equity-volume-ii/equity-in-outcomes_9789264201132-7-en#page18

10. What explains Canada's success in education?

As a developed country, Canada is able to devote considerable public resources to education. But Canada does not necessarily spend more on education than other developed countries. Money matters, but mostly in terms of how it is distributed throughout the system.

What makes Canada so successful in education? Clearly many factors contribute to the positive results reviewed above; a comprehensive discussion of each plausible explanation is well beyond the scope of this brief overview. Such a discussion would need to take into account historical and cultural factors shaping the development not only of public education systems in Canada but also of Canadian society more generally, particularly its class structure. The objective here is more modest. As well as recalling some of the points made above, this section focuses on a limited number of additional elements that help to distinguish education in Canada.

Education spending and teacher salaries

Canada's spending on primary and secondary education, whether measured on a per student basis or as a percentage of GDP, is above the OECD average.[48] At the same time, however, Canada does not stand out as a leader in this area; it also is surpassed in spending by a number of countries that it consistently out-performs, notably the United States. (The OECD has emphasized that there is not a deterministic relationship between spending and performance.)

Canada does stand out somewhat more in terms of spending on teaching salaries. Teaching salaries in Canada are not only above average, but are among the best (in 2014, only five countries had higher starting salaries for primary school teachers). The salaries of Canadian teachers are also higher than the average salary for all workers in Canada with a tertiary education, which is not the case in most other OECD countries.[49]

- "Findings from the 2012 OECD Programme for International Students Assessment (PISA) suggest that high- performing systems tend to prioritize higher salaries for teachers, especially in high-income countries. Among countries and economies whose per capita GDP is more that USD 20 000, including most OECD countries, systems that pay teachers more (i.e. higher teachers' salaries relative to national income per capita) tend to perform better in mathematics."[50]

The issue of teacher salary is important because it can be read as an indicator of the degree of professionalization of the teaching workforce. Countries with higher teaching salaries tend to both attract higher quality candidates to the profession and require more of them in terms of training and professional development. Teachers' associations that are successful at bargaining for better working conditions are also strong enough to encourage professional development, leadership training and innovative practices within their membership.

Federalism and Equalization

A very different aspect of education spending in Canada relates to the variation in spending across the federation, which in turn concerns the issue of equity. It is often remarked that Canada is one of the most decentralized federal countries, a point which is especially germane to discussions of education, which in Canada is a domain that falls exclusively under provincial jurisdiction (with the exception of education on First Nations reserves). The division of powers as they relate to law-making in education in Canada, however, risks giving the misleading impression that the federal government plays no role. On the contrary, the federal government plays a crucial role in education in Canada, albeit an indirect one, through the redistribution of wealth across the federation in the form of intergovernmental transfers (notably the Canada Social Transfer and equalization). These transfers have the intent and the effect of ensuring a significant degree of equality across provinces in their ability to deliver social services such as education.

[48] A variety of indicators covering education expenditure are reported in Chapter B of the OECD's Education at a Glance 2014 (http://www.oecd.org/edu/Education-at-a-Glance-2014.pdf).

[49] A variety of indicators covering teachers salaries are reported in Chapter D, Section 3 of the OECD's Education at a Glance 2014 (http://www.oecd.org/edu/Education-at-a-Glance-2014.pdf).

[50] OECD, Education at a Glance 2014, Box D3.1, p. 457.

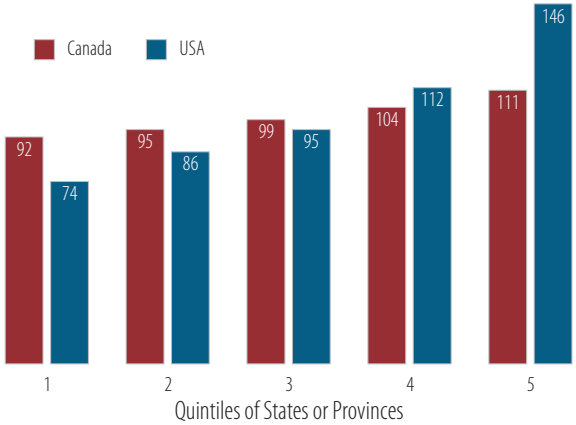
- (A secondary element to consider is the fact that, while education is decentralized in Canada in terms of the federal-provincial division of powers, it is quite centralized within each province in terms of the power of the provincial government over local authorities (school boards and districts). This means that, while the federal government can equalize the resources across provinces in the federation, the provincial education departments can do the same across regions, municipalities and neighbourhoods within each province. This contrasts with the situation in the US, for instance, where education remains subject to a much greater degree of local control.)

The importance of the redistribution of wealth across the federation can be illustrated by comparing the variation in education spending per student across provinces in Canada with that across states in the US. In no Canadian province does spending per student fall below 90 percent of the national average, or rise above 120 percent. In contrast, spending in the US falls below 90 percent of the national average in 22 states, and below 80 percent in eight states; it also rises above 120 percent in 11 states and above 130 percent in nine states. This is shown in summary form in Chart 8, which displays per student spending averages (as a percent of the national average) for provinces and states grouped by spending quintiles (two provinces and ten states per quintile).

Putting it All Together: Achievement, Equity and Efficiency

The above points on spending point to an effective distribution of resources within Canada's education systems, a factor recently highlighted by the Center on International Education Benchmarking (CIBE). The Center examined the performance of countries in terms of educational achievement, equity and system efficiency (that is, spending that is efficient as opposed to high) and found that only three – Finland, Estonia, and Canada – combine high ranking in all three categories. In other word, Canada is one of only three countries in the world whose education systems "are able to offer their students a quality education regardless of socio-economic background at a low cost and still come out at the top of the international league tables for overall student performance." (See graphic on page 2). [51]

Chart 8
School Spending as a Percent of the National Average
School Spending per Student, by Quintile



Source: author's calculations using data from the Canadian Education Statistics Council (Canada, 2009-10) and the National Centre for Education Statistics (US, 2010-11); excludes postsecondary education.

[51] See: http://www.ncee.org/2015/01/statistic-of-the-month-education-performance-equity-and-efficiency/

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