

Investments and Achievements: Canadian K-12 Education in a Comparative Context

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Introduction

Federalism, as a system of government, is intended to foster conditions of shared-rule and self-rule. The formal division of powers between a central government and constituent units affords territorially based groups the room for autonomous decision-making, while providing an institutional context to enable the pooling of resources and interdependent decision-making overseen by a national government. A keystone of federalism is therefore the preservation of diversity by allowing distinct populations with unique identities to pursue alternative pathways from a homogenous agenda. A fundamental objective of the welfare state is to enhance equal social rights for all citizens. Manifested under the logic of social citizenship, the welfare state should provide similar access to comparable programs and benefits to all citizens within a given state. In other words, uniformity and equality are underlying principles of the welfare state. “Federalism and the welfare state,” write Obinger, Castles, and Leibfried, “thus seem to be at opposite ends of the diversity-uniformity continuum.”¹

The tension between federalism and the welfare state is straightforward. According to Keith Banting, the “promise of social citizenship is the equality of treatment of citizens, to be achieved through common social benefits,” but “the promise of federalism is regional diversity in public policies, reflecting the preferences of regional communities and cultures.”² The risk is that the logic of diversity will overpower the logic of social citizenship and compromise the achievement of inter-regional equality in a federation with constituent governments pursuing divergent policy pathways that undermine social cohesion in the state. Put starkly, for federal pessimists, the image is one of systematic regional inequalities perpetuated by the division of powers and responsibilities in various areas of social policy. Moreover, there is a concern that social policy will suffer from chronic under funding as the institutional fragmentation retards substantive investments.

When assessing the impact of federalism on the welfare state, scholars have focused extensively on certain dimensions of social policy; namely income security and health policy.³ To draw upon Banting’s lexicon, much of the research finds that the logic

¹ Herbert Obinger et al, “Introduction: Federalism and the Welfare State.” *Federalism and the Welfare State* Herbert Obinger et al. eds (New York: Cambridge University Press, 2005) p. 2.

² Keith Banting, “Social Citizenship and Federalism: Is a Federal Welfare State a Contradiction in Terms” *Territory, Democracy, and Justice: Regionalism and Federalism in Western Democracies*. Scott L. Greer, Ed. (New York: Palgrave Macmillan, 2006) p. 44.

³ Keith Banting, *The Welfare State and Canadian Federalism*. Second edition. (Kingston: Institute of Intergovernmental Relations/McGill-Queen’s University Press, 1987); Gerald Boychuk, *Patchworks of Purpose: The Development of Social Assistance Policy in Canada*. (Montreal: McGill-Queen’s University Press); Antonia Maioni, “Parting the Crossroads: The Development of Health Insurance in Canada and the

of social citizenship frequently overwhelms the logic of federalism and that federalism is not inimical to equality.⁴ But do these patterns and trends hold up in other areas of social policy?

To answer this question I enter the largely uncharted territory of elementary and secondary education. Extensively examined by education scholars and sociologists, the education arena has remained curiously unexplored in political science and is rarely included in studies of the welfare state.⁵ Education plays a number of critical roles in the modern state that make it both an important and interesting sector. First, education acts as an agent of political socialization helping to integrate a population together by transmitting a shared history and collective values. In relation to the economic state, education prepares individuals to participate in the labour market and provides them with the necessary training to enter the workforce. Finally, scholars have identified education as an important tool to enhance equality among a population by providing similar learning opportunities to all citizens regardless of wealth, gender, or place of residence. If an education system were systematically unequal across different areas of a country, the abilities of the system to accomplish these goals would be compromised. Education therefore provides an excellent focus to assess how federalism may compromise or undermine the abilities of a state to achieve inter-regional equality across a national polity.

To reconcile the tension between federalism and the welfare state, scholars and practitioners often implicate the central state (or supracentral state) as a necessary condition to achieve comprehensive inter-regional equality in social policy.⁶ National governments, endowed with coercive authority to mandate common standards, are seen as the critical agent to create and maintain the conditions for social citizenship. Through instruments such as regulatory and spending powers, the central state can uphold the logic of social citizenship to ensure that all citizens, regardless of residence, receive comparable levels of programming and benefits. The national government can thus provide strong incentives and supports to encourage the constituent governments to adopt common

United States,” *Comparative Politics*, 29,4: 411-431; Mark C. Rom, “How much variation is there in the current system of AFDC benefits and eligibility?” *Looking Before We Leap: Social Science and Welfare Reform*, R. Kent Weaver and William T. Dickens (eds.) (Brookings Occasional Paper, Washington, the Brookings Institution, 1995).

⁴ Banting, 2006.

⁵ Notable exceptions include: Hartmut Kaelble, “Educational Opportunities and Government Policies in Europe in the Period of Industrialization.” *The Development of Welfare States in Europe and America*. Peter Flora and Arnold J. Heidenheimer (eds.) New Brunswick and London: Transaction Books, 1981 (239-268); Mark Carl Rom, “Policy Races in the American States.” *Racing to the Bottom: Provincial Interdependence in the Canadian Federation*. (Vancouver: UBC Press, 2006); Celine Mulhurn, “Globalization and the Selective Permeability of Public Policy-Making: The Case of K-12 Education in Ontario, 1990-2008.” PHD Thesis, University of Toronto, 2008. In addition, scholars such as Andy Green and Ronald Manzer have examined the development of the education sector in Europe and Canada, but their analysis remained largely disconnected from the welfare state literature.

⁶ Andrew Coyne “The Case for Strengthening Federal Powers,” *Policy Options*, (vol. 18, no 3:1997) pp. 19-23; Robert Howse, “Federalism, Democracy, and Regulatory Reform: A Sceptical View of the Case for Decentralization.” *Rethinking Federalism: Citizens, Markets, and Governments in a Changing World*. Karen Knop, Sylvia Ostry, Richard Simeon and Katherine Swinton (eds.) (Vancouver: University of British Columbia Press, 1995); M. McLaughlin, (1987) “Learning from experience: lessons from policy implementation.” *Educational Management and Administration*. 9, pp. 139-150; Anthony Haigh, *A Ministry of Education for Europe*. (London: George G. Harrap and Company Limited, 1970).

policies, provide comparable fiscal resources, and similar levels of benefits to standardize the welfare state in a federal country.

However, this favouritism towards the central state begs the question: Is a national authority a necessary condition for equality in social policy in a federal state? To answer this question I take a closer look at the Canadian K-12 education arena. The structure and organization of Canadian education is unique in the world as the subnational governments maintain the complete legal, fiscal, and administrative responsibility in the field. What is more, unlike other federal countries, Canada lacks a national department of education capable of developing and enforcing certain basic minimum standards applicable to all provinces. It therefore provides a crucial case to interrogate the traditional assumption that national authority and degrees of centralization are the critical means to achieve equitable standardization in the welfare state.

The findings presented here are both unexpected and interesting. To start, while Canada seems to invest slightly less in education its educational attainments are strong with high marks on international tests and elevated rates of completing secondary and tertiary education. Without national coercive authority, moreover, the Canadian provinces have fashioned a highly equitable K-12 education arena supported by comparable levels of investment and achieving high scores on inter-regional equality in educational outcomes. It therefore confirms that even in an alternative policy arena, the fragmentation of federalism does not necessarily translate into ineffective or inequitable policy inputs and outcomes. Moreover, these findings demonstrate that national coercion is not a necessary condition for substantive inter-regional equality in an area of social policy.

This paper proceeds in four sections. In the first section, I set the context by briefly reviewing the federalism literature and describe the political and constitutional structure of Canadian K-12 education to give the reader an appreciation for the uniqueness of the arena. Through this discussion, I distil two propositions regarding the impact of shared rule and self-rule for education in Canada to guide the subsequent empirical inquiry. The second section examines the impact of federalism on the investments made in public education, assessing the level of education spending in Canada compared to other countries, the student-teacher ratios, and the interjurisdictional equality in education spending compared with one selected case. In the third section, attention shifts to outcomes in education and assesses the educational achievements of the Canadian provinces. Specifically, I examine graduation rates, tertiary education attainment, and results from the PISA international tests compared with other OECD and non-OECD countries. The fourth section offers an explanation for these findings, drawing upon a society-centered approach, economic theories of federalism and sociological institutionalism. By combining insights from these three approaches, we can better understand how the potential for systematic inequalities can be overcome in a critical area of social policy.

Before beginning an important caveat needs to be made on the issue of research design. Ideally, provincial level data from Canada would be systematically compared with other subnational level data from other countries. These comparisons would permit an effective demonstration of whether or not Canada demonstrates elevated inter-regional inequalities compared with its other more centralized counterparts. Unfortunately, a series of data limitations have restricted the potential universe of cases and undermined

any attempt at systematic comparison. Obtaining clearly comparable data at the national level is in itself a challenge, despite notable advances made by the OECD and the UN. Gathering consistent data at the regional level is compromised by the fact that every country adheres to its own methods of data collection and publication. Therefore, the comparison of internal results within Canada to those of other countries is relatively unstructured here. Despite the limitations, the unstructured comparisons do provide certain benchmarks by which to assess internal inter-provincial equalities and inequalities in education investments and achievements in Canada.

I. Setting the Context

Federalism and Social Policy

Scanning the federalism literature, there are numerous debates regarding the impact of shared-rule and self-rule on investments and achievements in social policy. However, as Richard Simeon writes, “If there is any consensus in the literature on the policy consequences of federalism it is this: that the size of government, and the commitment to social spending is lower in federal countries than in non-federal countries.”⁷ Researchers from all the primary explanatory theories agree that social spending is depressed in federal countries.⁸ Through the macro-quantitative assessments, evidence demonstrates that federations delayed introducing numerous policy components of the welfare state and recorded chronic under-funding of the initiatives once they were launched.⁹ David Cameron, for example, determined that federalism was the key explanatory factor to account for variations in welfare spending,¹⁰ and Duane Swank asserts that federalism, combined with bicameralism, have an undeniable negative impact on state investments in social policy.¹¹

Systematic underinvestment in social policy does not necessarily translate into embedded inequalities within federations. If all constituent governments under-invest equally in a policy arena, no portion of the population will receive unequal treatment. The problem is that resources are not distributed equally across a state’s territory. Therefore, some governments that have superior resources at their disposal may choose to invest more than others and provide a greater range of policies than those of their neighbours. “The critical issue,” according to Keith Banting, “is whether social benefits are available to all citizens on equal terms.”¹² In his study of K-12 education in the US, for example, Mark Carl Rom determined that the more wealthy states were recording increasing investments in a race to the top, while the less wealthy states were becoming increasingly miserly in a race to the bottom.¹³ As a result, citizens of economically

⁷ Richard Simeon, “Federalism and Social Justice.” *Territory, Democracy, and Justice: Regionalism and Federalism in Western Democracies*. Scott L. Greer, Ed. (New York: Palgrave Macmillan, 2006) p. 23.

⁸ Francis G. Castles, *Comparative Public Policy: Patterns of Post-War Transformation*. (Cheltenham: Edward Elgar, 1999)

⁹ Obringer et al. 2005, p. 4.

¹⁰ David Cameron, “The Expansion of the Public Economy: A Comparative Analysis.” *American Political Science Review* 72: 1243-61.

¹¹ Duane Swank, “Political Institutions and Welfare State Restructuring: The Impact of Institutions on Social Policy Change in Developed Democracies,” *The New Politics of the Welfare State*. Ed. Paul Pierson (Oxford: Oxford University Press, 2001) pp. 197-236.

¹² Banting 2006, p. 45.

¹³ Rom 2006, p. 229.

weaker states receive inequitable treatment in the educational investments made by their respective governments.

Tangentially related to policy inputs are the policy outcomes in federal countries. The underlying concern of federal critics is that inequalities in investment will lead to inequalities in policy outcomes, thus compromising the logic of social citizenship and undermining the achievement of social cohesion throughout the national population. If certain subnational governments are unable or unwilling to provide effective programs, those portions of the population will not receive comparable benefits and may suffer from, among other things, greater health care problems, lower educational advancements, and poorer economic performances. It is therefore important to consider not only the levels of investments made to social programs but also the subsequent achievements that result from government policies.

To reconcile the tension between federalism-diversity and social policy-equality, scholars and practitioners frequently turn to the power of the central state. There is a clear bias favouring national level intervention in key policy areas to facilitate uniformity and equality. Indeed, arguments supporting national involvement in education have frequently resonated in Canada. J.A. Corry once argued:

If there is indeed a nation to be spoken for and protected, then the federal government must speak for the nation, take steps to ensure its survival, and nourish its growth . . . if there are national needs and objectives that require concerted educational in two, several or all provinces, no provincial legislature is itself competent in the matter, and judicial interpretation on other comparable aspects of the distribution of powers under the British North America Act makes it clear that Parliament is competent.¹⁴

Similar arguments have been raised in other policy areas and underpin, for example, the federal government's standards encapsulated in the Canada Health Act. But what is the state of education in Canada?

Education in Canada

Under Section 93 of the *Constitution Act, 1867*, the provinces of Canada have the legal, administrative, and financial responsibility for education. During the negotiations leading up to Confederation, early listings of federal powers included the power to enforce uniformity in education.¹⁵ When the powers were finally enumerated control of education was given exclusively to the provincial legislatures, save for the rights and privileges of existing Protestant and Catholic minority denominational systems operating at the time when Confederation was enacted.¹⁶ In large part, the listing of education under provincial jurisdiction reflected the practical reality that colonial governments had already legislated in the field and that elementary education systems were in place before

¹⁴ J.A. Corry, quoted in The Honourable Normal MacKenzie in "Federal Involvement in Education."

Address to the Invitational Conference on Emerging Trends in Canadian Education, 2 March 1978, Regina, Saskatchewan School Trustees' Association, quoted in Goble 1981, p. 67.

¹⁵ Manoly R. Lupul, "Educational Crisis in the New Dominion to 1917." *Canadian Education: A History*. J. Donald Wilson et.al. Eds. (Scarborough: Prentice-Hall, 1970) p. 267 (266-289)

¹⁶ In truth, during the legislative debates, political leaders focused on the legitimacy of preserving sectarianism in Canadian education, and not on the issue of whether provinces should control the education sector [*Parliamentary Debates on the Subject of the Confederation of the British North American Provinces*, (Quebec: Hunter, Rose and Company, 1865) For example, pp. 18, 95, 144, 189, 191, 264]

the conferences leading up to Confederation. Each of the parties in the early negotiations already had their own unique arrangements – differing in terms of such things as governance, finance, and scope of curriculum – to provide some form of schooling and did not wish to have a different system unilaterally imposed from above. Politically, therefore, any leaders who wished to centralize education under the federal government faced stiff opposition and so education was placed firmly in provincial hands.

Unlike other federations, Canada does not maintain an authoritative national body capable of imposing overarching standards in the field.¹⁷ A voluntary body, the Council of Ministers of Education Canada (CMEC) was created in 1967 to provide a forum for inter-provincial discourse and action in education. The CMEC's mandate is quite simple: to facilitate and enhance discussions among education ministers and bureaucratic officials from the ten provinces and three territories. Coordination and cooperation among the sub-national governments is a goal of the Council, and CMEC accomplishes this without intervention from the federal government.¹⁸ Moreover, provincial and territorial autonomy is both recognized and guarded by CMEC as agreements reached among the parties are of a non-binding nature and unenforceable by the Council.

The institutional exceptionalism of Canadian K-12 education is one of the reasons why Canada provides an interesting case to examine the potential tensions between federalism and equality in social policy. However, institutional autonomy and the capacity to act independently, does not immediately mean that provincial educational policies will diverge. Additionally, the Canadian provinces demonstrate significant diversity on factors such as political economy, demographics, and political culture, which are implicated by both public policy scholars and education policy scholars as critical elements that influence the shape and form of government policies.¹⁹ Given these important variations in the policy context, it is reasonable to expect significant variations in the policy inputs and outcomes of the different provinces. Put simple, diversity – and potentially inequalities – should be the norm in Canadian education.

From this admittedly brief discussion of the federalism literature and the outline of the structural and contextual configuration of education in Canada it becomes possible to distil two groups of propositions to guide the subsequent empirical investigation of K-12 education in Canada. First, based on the decentralization of the policy arena and the extensive autonomy afforded the provincial governments, we can anticipate that Canada should under-invest in K-12 education and that there should be significant inter-regional variations in the levels of investments made compared to other OECD countries. Second, and related to the first, given the institutional fragmentation of Canadian education, we

¹⁷ This institutional anomaly does not go unnoticed on the international stage. One Director-General of the CMEC noted that, "When I travel abroad, international leaders are frequently flabbergasted by the institutional framework of Canadian education. In Russia, for example, education officials were shocked when I told them that there are 18 ministers responsible for education in the Canada" (personal interview, December 2007).

¹⁸ When the Council meets to discuss issues of post-secondary education, representatives from the federal government usually participate due to their long-standing fiscal contributions to colleges and universities in the country. However, for the elementary and secondary sectors, the federal government is largely excluded from the processes barring an explicit invitation from the CMEC Chair to make a presentation on a specific issue.

¹⁹ Terry Wotherspoon, Ed. *The Political Economy of Canadian Schooling*. (Toronto: Methuen, 1987); Amy Klauke, "Coping with Changing Demographics." ERIC Digest Series EA45 ERIC Identifier ED315865, 1989. <http://www.ericdigests.org/pre-9214/coping.htm> (accessed on February 27, 2008).

should find under and uneven achievements in educational outcomes compared to other OECD countries.

II. Investments in Canadian Education

Two sets of indicators are used to measure the level of investment in Canadian education and situate it in a comparative context. The first set focuses on spending: average annual expenditures per pupil and educational spending as a proportion of GDP. Data on national level per pupil spending and as a proportion of GDP is taken from the OECD. Per pupil spending provides one indicator of government generosity in education. Per pupil expenditures, however, are heavily influenced by contextual conditions, including the power of teachers' unions to press for higher salaries, transportation costs to bring students to schools, and other general overhead costs. To reinforce the measure of spending I also examine educational expenditures as a proportion of GDP. This allows us to assess the relative importance of education spending next to the overall fiscal capacity of the state. The second set addresses a different measure of inputs: student-teacher ratios. Borrowing from Rom and Garland, this indicator assumes that the smaller the class size the more generous the education policy.²⁰ OECD and Statistics Canada data are used for student-teacher ratios.

To measure the extent of inequality in Canadian education I look at the differences between the levels of investments made at the provincial level. The data on spending and student-teacher ratios are therefore broken down to see whether or not significant variations appear among the provinces. Ideally, all regional level data would be systematically compared with a number of other cases to see if greater inequalities appear in the Canadian case. However, as noted in the introduction, certain data limitations restrict the potential for such a comprehensive assessment.²¹ As a result, we can only compare variations in regional per-pupil spending between Canada and the United States. Moreover, spending is reported in domestic dollar values, which further weakens the comparable validity. However, it nevertheless provides an initial benchmark to determine if greater internal inequalities appear in the Canadian case.

Does Canada under-invest in education relative to other OECD countries? The picture is a bit mixed. The data presented in Table 1 demonstrates that per-pupil spending is lower in Canada, thus seeming to confirm the general consensus that institutional fragmentation can depress social spending in a federation. In fact, of the twelve countries sample, only New Zealand falls below that of Canada. However, other federations record higher per pupil spending, which demonstrates that federalism does not necessarily contribute to less investment in social programs. It simply seems that Canada spends less than other OECD countries. Looking at spending as a proportion of GDP, Canada falls below slightly below the OECD average and, of our selected countries, only Germany and Japan invests less than Canada. Again, this seems to confirm our proposition that decentralized systems invest less in social programs. However, looking at the other

²⁰ Mark Carl Rom and James C. Garland, "Interstate Competition in K-12 Education Policy." Paper presented at the Association for Policy Analysis and Management annual research conference, Washington, DC. 2001.

²¹ Student-teacher ratios broken down to the regional level, for example, are not published by Australia or the United States. In Australia, state-level spending is only provided as a dollar-value expenditure, not according to per-pupil allocations or as a percentage of Gross State Product.

countries, the impact of federalism and decentralization on educational spending as a percentage of GDP is not consistent, which calls into question the general consensus that institutional fragmentation leads to underinvestment in social programs. Once again, it just seems that Canada spends less.

[TABLE 1 HERE]

Turning to our alternative measure of inputs, Canada's student-teacher ratio is aligned with OECD averages (see Table #). To be sure, this data is not perfectly comparable because Canadian information on student-teacher ratios is not broken down into elementary and secondary levels. However, it nevertheless seems that Canadian class sizes are comparable to international averages. Based on the aforementioned assumption that class size indicates generosity, it therefore seems that Canada is no more or less generous in this measure of education policy than other more centralized education systems in the world.

[TABLE 2 HERE]

Are there significant inter-provincial variations in the levels of educational investments generating inequalities in the field? Here the answer is a resounding no. Looking at the results presented in Table 3, provincial governments invest at similar levels, both in terms of spending per pupil and as a percentage of GDP. Indeed, the differences among the 10 jurisdictions are almost statistically insignificant. In 2001, for example, per-pupil spending ranged from a high in Manitoba at \$8,432.00, to a low in Prince Edward Island at \$6,239.00.²² Student-teacher ratios are similarly aligned among the provinces with no significant variations appearing.

[TABLE 3 HERE]

Canadian inter-regional equality in educational investments can be neatly contrasted with conditions in the US. In 2005, state per-pupil spending ranged from a high in New Hampshire at \$13, 740.00 to a low in Utah at \$5,574.00.²³ Therefore, it seems that despite the decentralization and potential for systematic inequalities in Canadian education, the provinces provide comparable levels of investment in K-12 education and thus adhere to the logic of social citizenship by exhibiting similar generosity in this arena of social policy.

To summarize, while Canadian provinces spend less per pupil and less as a percentage of GDP than other OECD countries, in our other measure of investment Canadian education is on par with the averages reported by the OECD. Moreover, when looking within Canada, the data reveals a picture of inter-provincial uniformity in educational investments. It therefore seems that federalism and decentralization have not

²² Statistics Canada, Report of the Pan-Canadian Education Indicators Program, 2003. Table B1.4.

²³ US Census Bureau, *The 2008 Statistical Abstract: The National Data Book*. Table 248.

http://www.census.gov/compendia/statab/cats/education/elementary_and_secondary_education_staff_and_finance.html (accessed on May 12, 2008).

undermined the provinces' abilities to achieve inter-provincial equality in educational investments.

III. Achievements in Canadian Education

To measure the levels of educational achievements in Canada, I start with national results on international tests. Specifically, I look at Canada's results on different rounds of the OECD's PISA program.²⁴ These tests give us some indication of how Canada performs as a whole compared with other countries. These tests, however, are not without some controversy as some education scholars contest their validity (and appropriateness) to accurately assess the knowledge of students in different countries.²⁵ In addition to the test scores, I therefore also look at high school and tertiary completion rates to compare educational achievements in different countries. These measures assume that countries with higher completion rates have stronger educational attainments overall. Tertiary completion is included because if secondary education was poor, tertiary completion rates should also be compromised.

Does Canada under-perform in education? Results from the PISA tests demonstrate that Canada achieves high marks consistently coming in near the top of the scale across the three different subject areas (Table 4). In the most recent round of PISA, for example, only two countries (Finland and Hong Kong) received higher scores on the science assessment.²⁶ Therefore, at the national level, the country is performing well in educational outcomes on these international assessments.

[TABLE 4 HERE]

High school graduation rates are also comparably higher in Canada, with Canada ranked fourth among OECD countries.²⁷ Among 25-34 year-olds, 91 percent of Canadian students have completed upper secondary education compared with the OECD average of 77 percent. And at the tertiary level, in 2004, Canada was ranked first among OECD countries, with a staggering 45 percent of the population aged 25 to 64 holding some form of higher education degree, compared with the OECD average of 25 percent.²⁸ If

²⁴ PISA is an OECD-led project designed to provide international indicators of the skills and knowledge of 15 year old students in the subject domains of reading, mathematics, and science. The assessment aims to determine the degree to which students nearing the completion of their formal education have gained the knowledge and skills necessary for effective participation in society. In 2006, fifty-seven countries participated in the PISA science assessment, including all 30 OECD countries. In most countries, the sample ranges from 4,500 to 10,000. In Canada, approximately 22,000 students from 1,000 schools wrote the assessments to ensure that information could be provided at both the Canadian and provincial levels. Other countries, with the notable exception of the US, also maintain large enough sample sizes to permit inter-regional differences in performance outcomes. Here, Canadian data will be compared with results from Germany. In addition, the OECD does measure between-school equity, which we can use as a proxy to see if greater variance appears in Canada than in other countries with more centralized education systems.

²⁵ S.J. Prais, "Cautions on OECD's Recent Educational Survey." *Oxford Review of Education*. 2003; Albert E. Beaton et al. *The Benefits and Limits of International Educational Achievement Studies*. International Institute for Educational Planning. 1999.

²⁶ *Measuring up: Canadian Results of the OECD PISA Study – The Performance of Canada's Youth in Science, Reading and Mathematics – 2006 First Results for Canadians Aged 15*.

²⁷ OECD 2006, Table A1.2a, p. 38.

²⁸ OECD 2006, Table A1.3a, p. 39.

we just look at 25-34 year-old, the completion rate increases to 53 percent compared with the OECD average of 31 percent.

Have these positive national results been equally distributed across the country? Here again we find evidence that Canadian citizens receive comparable educational benefits regardless of their provincial residence (Table 5). Looking at secondary graduation, some variations appear in high school completion rates. At 66 percent, Alberta's graduation rate is significantly lower than the national average of 78 percent, which is cause for some concern. Students in Atlantic Canada and Québec, with the exception of Nova Scotia, generally complete high school at a higher rate than the national average. There is a simple economic explanation for this variation, however. Research confirms that when an economy is booming, students tend to prematurely end their studies to enter the workforce, whereas when the economy is depressed, students stay within the school system and delay their entry into the workforce.²⁹ Provincial graduation rates simply replicate these well-documented patterns and are therefore not necessarily a reflection on the quality of education provided by the different jurisdictions.

[TABLE 5 HERE]

Taking a look at PISA results in the country, differences in assessment outcomes appear among the Canadian provinces. In all three rounds of the assessments, Alberta consistently received the highest results while New Brunswick and Prince Edward Island consistently lagged behind. However, despite the variations, all the Canadian provinces exceeded the OECD average of 500 points, which indicates positive educational outcomes across all 10 jurisdictions.

We can contrast Canadian inter-regional results with those of Germany. In PISA 2003, Germany was ranked 20th of 41 participating countries with significant variations appearing among the different länder.³⁰ Bavaria, the second largest state by numbers of students, received a score of 533, putting it in the top five performers internationally. The largest state, North Rhein-Westphalia, only received a score of 486, putting it in the 35th slot, while the city-state of Bremen received the poorest results, achieving a score of 471 putting it in 39th place. Overall, six states scored below 493, five states scored between 493 and 500, and five states scored over 500. Therefore, despite the imposition of some national standards set down by the Bundersrat, inter-regional equality in educational achievements has not been achieved in the German federation.

Finally, through PISA, the OECD has developed a measure of internal educational equality, ranking countries according to the impact of socio-economic and locational variables (referred to as between-school variation) on educational outcomes. According to their system, socio-economic status only marginally influences student achievement in Canada (Appendix 1). What is more, between-school variance in Canada is around one-tenth of the OECD average meaning that performance is largely unrelated to the schools in which students are enrolled. To quote from the 2006 PISA report, "It is

²⁹ Daniel I. Rees and H. Naci Mocan, "Labor Market Conditions and the High School Dropout Rate: Evidence from New York State." *Economics of Education Review*. 16, 2 (1997) pp. 103-109.

³⁰ Ludger Woessmann, "Fundamental Determinants of School Efficiency and Equity: German States as a Microcosm for OECD Countries" PEPG/07-02 http://www.hks.harvard.edu/pepg/PDF/Papers/PEPG07-02_Woessmann.pdf (accessed on May 13, 2008).

noteworthy that Canada, Denmark, Finland, Iceland, Ireland, Norway and Sweden also perform close to or above the OECD average level. Parents in these countries can be less concerned about school choice in order to enhance their children's performance, and can be confident of high and consistent performance standards across schools in the entire education system."³¹

Canada's results in inter-provincial equality exceed those of other more centralized education systems. According to OECD data, for example, in countries such as Austria, Belgium, Germany, and Italy the proportion of between-school variance is one-and-a-half times that of the OECD average.³² Moreover, in Belgium and Germany, socio-economic backgrounds have a major impact on assessment outcomes. These inequalities appear despite the fact that, in all cases, the national governments maintain central departments of education capable of issuing directives that the subnational governments must follow.

To summarize, at the national level, Canada records high marks on international assessments and maintains an elevated high school and tertiary completion rate relative to other OECD and non-OECD countries. Therefore, at the national level, Canada maintains strong educational outcomes despite the institutional fragmentation and potential for underachievement relative to other jurisdictions. Looking within Canada, according to our indicators, some variations in provincial achievements begin to appear both in graduation rates and assessment results. However, when compared with regional variations exhibited in other countries, the differences in Canada are more restrained. Finally, the importance of socio-economic variables as a determinant of educational outcomes is highly limited in Canada, and between-school variation is minimal. Therefore, when taken together, these results demonstrate that the Canadian school system proves that national standards are not required to achieve high inter-jurisdictional equality in education achievements.

IV. Defying the Odds

What explains these interesting outcomes in Canadian K-12 education? Clearly decentralization and institutional fragmentation have not compromised the achievement of comprehensive equality in educational investments and achievements. Moreover, Canada's lack of a national department of education has not undermined its abilities to achieve high results in education achievements and maintain comparable levels of education outcomes across the 10 provinces. To look for an explanation, I utilize three distinct analytical tools: a society-centered approach, economic theory of federalism, and sociological institutionalism.

Society-centred Approach

From a society-centred perspective, the explanation for inter-regional equality in the social policies of federated states begins with the people. Citizens have similar expectations when it comes to government programs and thus place comparable demands on their regional governments. The closer proximity of regional governments makes them more responsive to public pressures. And so, while particular policies and strategies within education may vary between the provinces, the governments are highly motivated

³¹ OECD 2006, p. 77.

³² Ibid.

to maintain comparable levels of investments and achievements with the other jurisdictions in the federation.

To be sure, for some scholars, this assertion is counter-intuitive. Federalism, and decentralized decision-making, is often justified as a means to permit regional governments to tailor policies to local needs and interests thus preserving policy diversity. However, as Keith Banting argues: “regional political autonomy is driven less by different policy preferences than by the politics of ethno-linguistic diversity and distinctive conceptions of political community and identity.”³³ Stated simply, just because federal publics may desire the preservation of subnational policy autonomy to reflect internal ethno-linguistic heterogeneity, it neither means that their substantive policy preferences will vary greatly nor that regional inequalities in inputs and outcomes will become the norm.

We can clearly see this pattern in the Canadian education arena. Citizens from coast to coast consistently demand and expect high quality education programming from their governments. During provincial elections, education is always a main item and frequently appears at the top of voters’ priority lists. When surveyed, with the notable exception of Québécois, many provincial residents often request federal intervention in the policy field. This puts additional pressure on the provincial governments to provide quality and equitable programs to preserve and legitimize their jurisdiction over the arena.³⁴ One Director-General of the CMEC put it this way: “When I say I work for the CMEC, people get confused and ask ‘Don’t we have a federal minister for that?’ Which is why when we do polls on jurisdictional issues, Canadian’s couldn’t care less. All they want is quality education.”³⁵

This analysis clearly helps us understand why federations achieve degrees of inter-regional equality in social policy despite authoritative fragmentation in various policy fields. The society-centred approach, however, does not allow us to account for observed differences in inter-regional equality between federations, including those that quickly appeared between Canada and the US in educational investments and Canada Belgium and Germany in educational achievements. Resting only on a societal explanation, we would need to claim that citizens in some US states, German länder, and Belgian regions are satisfied with significant educational inequalities and do not demand comparable programs and benefits from their governments. This is not an assertion I am willing to sustain and therefore turn towards economic theories of federalism to enhance our explanation.

Economic Theories of Federalism

As noted above, federalism enhances policy responsiveness by giving powers to governments that are closer to the people. It is hardly contentious to note that policy responsiveness is only possible if the governments have the capacity to use the powers at their disposal. Legislative and administrative jurisdiction is meaningless without the fiscal resources to sustain policy action. But fiscal resources are never equitably distributed within a state. Therefore, economists emphasize the critical importance of the

³³ Banting, 2006, p. 61.

³⁴ I NEED TO TRACK DOWN THESE SURVEYS

³⁵ Personal Interview

central state as an agent of economic redistribution to ensure that regional governments have comparable levels of fiscal capacity to act in the areas of their jurisdiction.

The constant across all federations is therefore the reality of fiscal imbalances between among the sub-national jurisdictions.³⁶ To correct these imbalances, national governments deploy their spending power developing schemes of financial transfers. As one would expect, the financial schemes vary from country to country. The United States relies on a model of conditional grants, where 100% of federal transfers are conditional in character.³⁷ Washington therefore earmarks all of its funds for specific programs to influence how states allocate the monies. Moreover, the lion's share of revenue-raising powers rests in federal hands, thus restricting the autonomy of the states from federal interference. In contrast, Canada has developed a transfer system that scholars regard at most as semi-conditional, or more commonly as unconditional, through the Canada Health and Social Transfer (CHST).³⁸ What is more, Canadian provinces retain greater independent taxation powers than their US subnational counterparts. Finally, a broad federally-funded equalization program to adjust for the different revenue raising capacities of the provinces in turn supplements federal programmatic transfers in an effort to level the inter-provincial playing field.

Clearly, American fiscal federalism is highly centralized, with strong levers afforded to Washington to impose national policy prescriptions serving to limit the autonomy of state governments. Canadian fiscal federalism, alternatively, is highly decentralized in nature, providing extensive financial independence to the provincial governments. So why has this contributed to equality in Canadian education? The Canadian system gives the capacity to provincial governments to spend in areas of their choosing; equalization and unconditional grants gives them the flexibility to put the funds where it is necessary. Moreover, the system serves to ensure that provinces have the fiscal capacity to provide similar services, regardless of their variations in economic strength. Indeed, this was precisely the rationale that underpinned the authors of the Rowell-Sirois Report. When rejecting the proposal for the federal government to directly involve itself for setting standards in education, the commissioners stated: “

Our financial proposals aim at placing every province in a position to discharge its responsibilities for education (on a scale that is within the means of the people of Canada) if it chooses to do so. Once this position is established it seems to us best that education, like every other form of welfare service in a democratic community, should have to fight for its life, and that a generous provision for the education of the children of the nation should depend, not on any arbitrary constitutional provision, but on the persistent conviction of the mass of the people that they must be ready to deny themselves some of the good things of life in order to deal fairly by their children.³⁹

³⁶ Ronald Watts, *Comparing Federal Systems* 1999, p. 45.

³⁷ Ronald L. Watts, *The Spending Power in Federal Systems: A Comparative Study* (Kingston: Institute of Intergovernmental Relations, Queen's University, 1999), p. 56.

³⁸ *Ibid.*

³⁹ Rowell Sirois quoted in Donald Smiley, “The Rowell-Sirois Report, Provincial, and Post-War Canadian Federalism.” *The Canadian Journal of Economics and Political Science*. 28, 1 (February 1962) p. 56. [The author wishes to thank Luc Turgeon discovering this quote]

Under the US model of fiscal federalism, given the extensive conditionality, states are obligated to spend in areas that the national government dictates. Since they cannot cut from federal programs, when faced with economic downturns, state governments are forced to trim from areas unmarked by federal funds. Therefore, we find divergent patterns in educational spending among the US states.⁴⁰ What is more, the US does not maintain a comparable equalization program, similar to that of the Canadian government. Using figures from 1994, for example, the U.S. Advisory Commission on Intergovernmental Relations' Representative Tax System found that the range in revenue-raising capacities measured between 141 in Nevada to 71 in Mississippi.⁴¹ The strongest state, therefore, had two times the fiscal capacity of the weakest. Canada demonstrates similar figures where fiscal capacities in 1996-97 ranged from 143.4 in Alberta to 64.8 in Newfoundland.⁴² Equalization, however, serves to ameliorate this disparity thus giving Newfoundland the opportunity to spend comparable levels on educational programming as Alberta.

Economic arguments thus provide a powerful means to account for the variations appearing between Canada and the US. But for our other more centralized countries, fiscal federalism gives a less convincing explanation. German federalism, for example, is characterized by interlocking legislative and administrative powers with the *länder* participating in federal decision-making, and fiscal federalism is organized around revenue sharing. Due to interlocking decision-making, the federal government cannot dictate to the *länder* where and how money should be spent, thus allowing the regional governments increased freedom to spend in areas of local importance. Moreover, while economic theories help us understand why internal levels of investment may vary within a federation, they cannot clearly account for internal variations in educational achievements. Canadian results demonstrate that higher levels of investment are not necessarily correlated with higher educational achievements. To account for these types of variations, we turn to our third approach – sociological institutionalism.

Sociological Institutionalism

For sociological institutionalists, our initial focus on the institutional framework of federalism offers a useful starting point to uncover the reasons behind our interesting outcomes. However, sociological institutionalists would encourage us to push beyond the level of the nation-state, to examine the rules and norms that support the policy sector and understand how they shape and influence both the outcomes that result from individual action and the relations between authoritative actors.

Sociological institutionalists start from the premise that institutions should be seen as “culturally-specific practices akin to the myths and ceremonies devised by many societies and assimilated into organizations.”⁴³ Where others see institutions as a means to achieve efficient decision-making and rationalize human interactions by structuring

⁴⁰ Rom, 2006.

⁴¹ R. Tannenwald and J. Cowan, “Fiscal Capacity, Fiscal Need, and Fiscal Comfort among U.S. States: New Evidence,” *Publius: The Journal of Federalism*, 27 (Summer, 1997): 113-25.

⁴² Watts, 1999B, p. 11.

⁴³ Peter Hall and Rosemary Taylor “Political Science and the Three New Institutionalisms” *Political Studies*. (XLIV 1996) p. 946.

and constraining behaviour,⁴⁴ for sociologists, institutions take on a different meaning that emphasizes “social and cognitive features.”⁴⁵ Institutions do not simply maximize the abilities of agents to achieve pre-existing preferences but maintain a mutually-constitutive dynamic that shapes the preferences and behaviour of individual action. In the words of Hall and Taylor, “institutions influence behaviour by providing the cognitive scripts, categories and models that are indispensable for action, not least because without them the world and the behaviour of others cannot be interpreted.”⁴⁶

The insights from sociological institutionalism for our puzzle can be separated on two levels. First, looking within the education sector itself, the norms and practices of the structure of public schooling have implications for educational outcomes. There is a clear international commitment to universal education at the elementary level, which has generated an international convergence in educational achievements at the end of childhood. This consensus, however, breaks down as we advance through the teenaged years into secondary education. While all countries are committed to providing some form of secondary instruction for their citizens, the delivery of these programs varies with significant implications for equality in achievements. Some education systems are highly stratified with students grouped at an early age into general, vocational, and academic streams thus permitting intensified subject specialization to prepare students for particular career pathways. Due to this specialization, once a student has been allocated, transferring between streams can be extremely complicated if not virtually impossible. Other education systems operate on alternative principles. Rather than emphasizing subject specialization, some systems delay any form of streaming for as long as possible and leave escape hatches in place in case a student wishes to change their options after starting down a particular path. Referred to as comprehensive schooling, such systems privilege inclusiveness and flexibility over subject specialization.⁴⁷

German education, like many continental European systems, personifies the former model of secondary school. Highly stratified and elitist, students are streamed at a very early age with little opportunity to change pathways once following a particular stream. As a result, pre-existing socio-economic conditions are often replicated, as students from particular economic backgrounds tend to end up in the same field as their parents. Class mobility is thus restricted by the stratification of secondary education. Recent reports from Germany similarly support this analysis implicating the structure of secondary education as a key factor explaining the persistent between-school variations in educational achievements.⁴⁸ In contrast to the German system, Canadian education embodies the latter principles. Across the provinces, secondary education is underpinned by a commitment to extending flexibility to students, affording them considerable time to determine where their strengths and skills lie before being set down a particular path.

⁴⁴ Douglass North, *Institutions, Institutional Change and Economic Performance*. (New York: Cambridge University Press, 1990).

⁴⁵ Martha Finnemore, “Norms, Culture, and World Politics: Insights from Sociology’s Institutionalism.” *International Organization*. (50, 2, Spring 1996) p. 326.

⁴⁶ Hall and Taylor 1996, p. 948.

⁴⁷ Ronald Manzer, *Public Schools and Political Ideas: Canadian Educational Policy in Historical Perspective*. (Toronto: University of Toronto Press, 1994).

⁴⁸ Ludger Woessmann, “Fundamental Determinants of School Efficiency and Equity: German States as a Microcosm for OECD Countries” PEPG/07-02 http://www.hks.harvard.edu/pepg/PDF/Papers/PEPG07-02_Woessmann.pdf (accessed on May 13, 2008).

Often critiqued in the popular press for watering down the quality of education and reducing the preparedness of students for the workforce, comprehensive schooling nevertheless allows students the opportunity to reconsider their options and thus potentially increasing their likelihood of successfully completing the initial stages of education.

Moving up to the level of intergovernmental dynamics, sociological institutionalists would ask us to consider how the institutional configurations may affect the relations among the constituent governments. Admittedly impossible to conclusively prove here, it is possible that the lack of coercive authority in Canadian education better enables cooperation and information sharing among the provincial governments. Acrimonious relations and jealous turf guarding by both orders of government often characterize federal-provincial tables in areas such as health and the environment. Relatively unencumbered by the threat of federal incursions in the education arena, however, the provinces are freer to interact with one another without the potential for unilateral action or edicts from Ottawa. Instead of being socialized into hierarchical roles and positions of dominance or subservience, as the case may be in other areas of federal involvement, the provinces maintain relations on a relatively equal plain. To be sure, larger provinces may try to overwhelm the interests of the smaller provinces; but the CMEC preserves the principle of provincial autonomy through the principles of voluntary participation and consensus decision-making. Workable relations in turn facilitate the realization of inter-provincial equality in educational investments and achievements, and thus help us to account for the initialling puzzling empirical results presented here.

Conclusion

What are the implications of this research? To start, national coercive authority directly imposed in a policy field is clearly not a necessary condition for the achievement of inter-regional equality. It was the Commissioners of the Rowell Sirois report who sagely declared:

It must be emphasized again that collective action through the agency of democratic government implies a common purpose and an agreed method of achieving it. If the common endeavour is one with respect to which deep impulses in the community around differing conceptions, it is likely to break down and the consequent disharmony will embarrass all the common enterprises which have been entrusted to the government. A population of common origin and traditions, deeply habituated to think alike on fundamental issues, may be readily able to maintain the agreement necessary for collective action affecting the whole range of community life. Canada lacks that homogeneity and this, in turn, limits the extent of collective endeavour which can be effectively organized under Dominion control.

That is why Canada is a federal state and must remain so. Deep underlying differences cannot be permanently overcome by coercion . . .⁴⁹

This does not mean that the national government is not an important factor in the achievement of equality. Indeed, the argument presented here suggests that the relatively

⁴⁹ “The Sirois Commission as Historians,” *Canadian Forum*, November, 1940 pp. 118-119, quoted in *The Rowell Sirois Report Book One*, Abridged Version. Donald V. Smiley, ed. (Toronto: McClelland and Stewart Limited, 1963) p. 4.

unrestricted equalization program operated by the federal government in Canada is a crucial factor giving provinces the necessary fiscal capacity to invest at comparable levels in areas of social policy. This suggests a second implication of this research, specific to the Canadian case: Ottawa should tread cautiously when making consideration to reduce its redistributive functions and capacities in the Canadian state. Looking beyond Canada, when deciding upon arrangements of fiscal federalism, other federal and non-federal countries should consider the potential benefits of relatively unconditional grants - trade-off between the hyper-accountability of the US model that hamstring the policy autonomy of states versus the relatively open system of Canadian equalization. Finally, this research confirms the importance that norms and principles entrenched within a policy sector can have on substantive outcomes. The Canadian commitment to de-stratification in secondary education has helped overcome the entrenchment of significant between-school variations in educational achievements thus generating equitable results overall. Moreover, the absence of the federal government as a coercive force in the policy arena alters the traditional intergovernmental dynamics. Rather than as children sitting around a table with their parent, in education, the provinces meet and interact as equals, thus socialized into alternative roles that seem to enhance positive and constructive interactions.

These findings generate a series of interesting questions for future research. Has Canada always enjoyed such significant inter-regional equality in education investments and achievements, or have these varied over time? Do these results also indicate a high degree of interprovincial similarities in the substance of education policy across the provinces? If there is a high degree of substantive similarity among the provinces, how was this achieved without a national coercive authority mandating common standards in the field? In other areas of social policy where the federal government plays a more active role, is cooperation among the players more difficult to achieve due to the hierarchical dynamics between Ottawa and the provinces?

TABLES:

Table1: Annual Expenditures on educational institutions, per student for all services, selected countries and as a percentage of GDP (2003).

	Pre-Primary	Primary	Secondary	P/S and post-secondary non-tertiary education – as GDP
	(1)	(2)	(3)	(4)
Australia	m	5 226	7 408	4.11
Austria	6 064	6 978	8 740	3.83
Belgium	4 488	5 949	7 419	4.10
Canada^{1, 2}	x(3)	x(3)	6 317	3.55
Finland	3 582	4 684	6 516	3.98
France	4 615	4 805	8 419	4.21
Germany	4 838	4 599	7 133	3.54
Italy	5 743	6 916	7 453	3.65
Japan	3 316	5 590	6 411	2.97
New Zealand	4 147	4 614	5 458	4.92
UK	7 112	5 818	7 249	4.58
United States	7 755	8 305	9 590	4.20
Average	5 166 ³	5 713 ³	7 343 ³	3.90 ⁴

1. Public institutions only
2. Year of reference, 2002
3. Average from only selected countries, author's calculation.
4. OECD average is for all countries, not just those selected.

Source: OECD, *Education at a Glance, 2006*. Table X2.4 p. 433, Table B6.1, p. 252.

Table 2: Ratio of students to teaching staff in educational institutions 2004.

	Elementary	Secondary
	(1)	(2)
Australia	16.4	12.3
Austria	15.1	10.7
Belgium	12.9	9.6
Canada ¹	16.3	x(1)
Czech Republic	17.9	13.1
Finland	16.3	13.1
France	19.4	12.1
Germany	18.8	15.1
Greece	11.3	8.3
Hungary	10.7	11.2
Ireland	18.3	14.3
Italy	10.7	11.0
Japan	19.6	14.1
Korea	29.1	17.9
Mexico	28.5	30.3
Netherlands	15.9	15.8
New Zealand	16.7	14.7
Norway	11.9	10.0
Portugal	11.1	8.4
Slovak Republic	18.9	14.0
Spain	14.3	10.8
Sweden	12.1	12.9
Switzerland	14.3	11.2
Turkey	26.5	16.9
United Kingdom	21.1	14.4
United States	15.0	15.5
<i>OECD Average</i>	16.9	13.3
<i>EU19 Average</i>	15.3	12.0

1 – Canadian data combines both elementary and secondary student-teacher ratios together and they cannot be disaggregated.

Sources: *Education at a Glance*, OECD Indicators 2004, Table D2.2, p. 371; Statistics Canada, *Education Indicators in Canada*, 2003, Table C2.2, p. 310.

Table3: Canadian and Provincial Investments in Education, 1999-2000 ¹

	Pre-elementary, elementary, secondary ²	Expenditures as a Percentage of GDP	Student-Teacher Ratio
CANADA	7,758	6.6	16.3
Newfoundland	6,503	8.5	14.1
PEI	6,239	8.2	16.8
Nova Scotia	7,072	8.3	15.9
New Brunswick	7,239	8.3	16.7
Quebec	7,333	7.4	15.0
Ontario	8,130	6.0	16.3
Manitoba	8,432	8.3	14.7
Saskatchewan	7,293	7.8	16.9
Alberta	7,401	5.4	16.9
British Columbia	7,905	6.9	16.9

1 – in 2001 constant dollars

2 – Public and private expenditures on education per student (based on full-time equivalents)

Sources: Statistics Canada, Report of the Pan-Canadian Education Indicators Program, 2003. Table B1.4, Table B1.6, Table C3.1.

Table 4: Top Ten Performing Countries in PISA, 2000-2006

2000 <i>(Reading)</i>	2003 <i>(Mathematics)</i>	2006 <i>(Science)</i>
Finland	Hong Kong – China	Finland
Canada	Finland	Hong Kong – China
New Zealand	Korea	Canada
Australia	Netherlands	Chinese Taipei
Ireland	Liechtenstein	Estonia
Korea	Japan	Japan
United Kingdom	Canada	New Zealand
Japan	Belgium	Australia
Sweden	Macao – China	Netherlands
Austria	Switzerland	Korea

Source: *Measuring Up: The performance of Canada's youth in reading, mathematics and science*. OECD PISA Study – First Results for Canadians aged 15, Highlights.
<http://www.cmec.ca/pisa/2000/highlights.en.pdf> - (accessed on May 12, 2008)
<http://www.cmec.ca/pisa/2003/highlights.en.pdf> - (accessed on May 12, 2008)
<http://www.cmec.ca/pisa/2006/Highlights.en.pdf> - (accessed on May 12, 2008)

Table 5: High school graduation rates and PISA results, by province, 2000 - 2006

	Graduation Rates (2000)	PISA 2000 (ranking) ¹	PISA 2003 (ranking) ¹	PISA 2006 (ranking) ¹
CANADA	78	534 (2)	532 (7)	534 (3)
Newfoundland	82	517 (8)	517 (13)	526 (9)
PEI	84	517 (8)	500 (21)	509 (20)
Nova Scotia	77	521 (8)	515 (14)	520 (12)
New Brunswick	86	501 (15)	512 (16)	506 (22)
Québec	85	536 (2)	537 (5)	531 (7)
Ontario	78	533 (3)	530 (8)	537 (3)
Manitoba	77	529 (3)	528 (9)	523 (10)
Saskatchewan	79	529 (3)	516 (13)	517 (14)
Alberta	66	550 (1)	549 (2)	550 (2)
BC	75	538 (2)	538 (4)	539 (3)

- PISA 2000 – 31 countries; PISA 2003 – 41 countries; PISA 2006 – 57 countries.

1 – Ranking is according to position on the international level, not within Canada

Sources: *Measuring Up: The performance of Canada's youth in reading, mathematics and science*. OECD PISA Study – First Results for Canadians aged 15, Complete Reports, 2000, 2003, 2006.

Appendix 1: Odds ratios of the likelihood of students with the lowest socio-economic status to be lowest mathematics performers relative to the likelihood of students with the highest socio-economic status to be lowest mathematics performers (2003)

	Odds Ratio	S.E	
▲ – country odds ratio is significantly higher than the OECD average odds ▼ – country odds ratio is significantly lower than the OECD average odds			
Iceland	2.1	(0.23)	▼
Turkey	2.5	(0.31)	▼
Canada	2.7	(0.21)	▼
Japan	2.8	(0.32)	▼
Finland	2.8	(0.37)	
Greece	2.8	(0.32)	▼
Norway	2.9	(0.28)	▼
Spain	2.9	(0.28)	▼
Sweden	2.9	(0.27)	▼
Portugal	3.0	(0.29)	
Austria	3.1	(0.40)	
Italy	3.1	(0.27)	
Australia	3.2	(0.40)	
Poland	3.2	(0.31)	
Luxembourg	3.3	(0.40)	
United Kingdom	3.3	(0.32)	
Korea	3.5	(0.40)	
Ireland	3.6	(0.44)	
New Zealand	3.6	(0.44)	
Netherlands	3.8	(0.70)	
United States	3.8	(0.34)	
Sweden	3.9	(0.27)	
Czech Republic	4.1	(0.44)	
Denmark	4.1	(0.37)	
Mexico	4.1	(0.52)	
France	4.3	(0.51)	
Germany	4.6	(0.50)	▲
Hungary	4.8	(0.56)	▲
Slovak Republic	5.1	(0.54)	▲
Belgium	5.4	(0.52)	▲
OECD Average	3.5	(0.08)	

Countries are ranking in ascending order

Source: Adapted from OECD, *Education at a Glance*, 2006. Table A6.1. p. 91