

## Educational Spending Relative to the GDP in 1997: A Comparison of Québec and the OECD Countries<sup>1</sup>

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### Introduction

The indicator most often used to measure financial investment in education is the percentage of the gross domestic product (GDP) spent on education. This indicator measures the relative share of a nation's wealth that is invested in education. In this context, we can ask what percentage of the GDP is allocated to education in Québec; how this financial investment compares to that of other provinces, the United States and member countries of the Organisation for Economic Cooperation and Development (OECD); and what explains these differences.

This information bulletin answers these questions and complements the Education indicators,<sup>2</sup> in which the Ministère de l'Éducation du Québec makes comparisons primarily with the other provinces and the United States. Here, Québec's situation is compared primarily with that of the OECD countries.

In May 2000, the OECD published a new edition of *Education at a Glance: OECD Indicators*, which included an international comparison of the proportion of the GDP dedicated to education. Although this document represents the best data available, it should be noted that there are problems with comparing data from the various countries, due in part to structural differences between the education systems.

The calculation of the proportion of the GDP that is devoted to education is based on the concept of total expenditure. This includes operating expenditures, capital expenses for both public and private schools at all levels of instruction, the Ministry's expenditures, government contributions to employee pension funds, the costs of financial aid and other education-related expenditures.<sup>3</sup>

Québec can be ranked against the OECD countries by considering the data presented in the table in Appendix 1. This table shows data for the following levels of instruction: preschool, elementary, secondary, non-university post-secondary and university education. The last column in the table shows the totals of all the levels of instruction (including non-categorized expenses). In addition, at the bottom of the tables in Appendixes 1 and 2, we show the average for the OECD countries considered, as well as an adjusted average, which excludes countries that have a particularly low per capita GDP. **This adjusted average is what we have used for our comparisons between Québec and the OECD countries.**

1. This bulletin is an update of *Education Statistics Bulletin* No. 3: Marius Demers, *Educational Expenditure Relative to the GDP: A Comparison of Québec and OECD Countries*, June 1998.
2. *Education Indicators*, Ministère de l'Éducation du Québec, Direction des statistiques et des études quantitatives, yearly publication.
3. The OECD's concept of total educational expenditure is not the same as that used in the *Education Indicators* (which is based on Statistics Canada's concept of total expenditure). However, in this bulletin, when Québec is compared to the OECD countries, the Québec data have been adjusted to take into account the OECD definition. Data contained in this document are for the calendar year 1997.

### Educational Expenditure Relative to the GDP

In 1997, Québec spent a larger portion of its GDP on education (7.0%) than the rest of Canada (6.4%), the United States (6.9%) and almost all the OECD countries for which data were available (5.9%). In 1997, only Korea earmarked a larger percentage of its GDP for education than Québec (7.4%). For 1999, we estimate that Québec spent the same percentage of its GDP on education as in 1997 (7.0%), while the rest of Canada and the United States spent 6.2% and 7.0% respectively, as shown in Table 1 below.

**Table 1**  
Educational expenditure  
relative to the GDP (%)

	1994	1997	1999
Québec	8,0	7,0	7,0
Canada excluding Québec	7,0	6,4	6,2
United States	6,6	6,9	7,0
Adjusted OECD average	6,2	5,9	n/a

n/a: not available

The most recent available data (1997) indicate that the portion of the GDP that Québec spends on education is 1.1 percentage points higher than the OECD average; a considerable difference. In effect, 1.1% of Québec's GDP (which was \$187.3 billion in 1997) represents a total of \$2.1 billion.

To explain Québec's greater financial investment in education we must consider all available information on the contributing factors. The factors for which we have information may be grouped into four large categories: per-student spending, collective wealth (defined by the per capita GDP), school attendance rates and the demographic factor (see Appendix 3). When all levels of instruction are considered, the school attendance rate is defined as the ratio of the school population to the total 5-29 age group, while the demographic factor is the ratio of the 5-29 age group to the total population.

The following simulation will help readers understand the role of each factor in determining the financial investment of each area. Let us assume that all the factors except one are identical for each area. If per-student spending is different, then the area with the higher spending invests more because it must allocate a larger proportion of resources is to education.

The less wealthy area (with a lower per capita GDP) spends a greater portion of its GDP on education than the more wealthy area for the same quantity of resources allocated to its students. If the school attendance rate or the proportion of the school-age population is different, then a higher ratio will reflect a larger financial investment because more financial resources are required.

### Total Educational Spending Per Student

Table 2 shows data on total spending per-student for elementary, secondary and university education as well as the totals for all levels of instruction. Currently, the data do not allow us to make comparisons for college-level education. However, the college-level data are included in the totals for all the levels of instruction.

**Table 2**  
Total educational spending per-student per level of public instruction in 1997 (converted into Canadian dollars converted using Purchasing Power Parity (PPP) exchange rates)

	Elementary	Secondary	University	All Levels of Instruction <sup>1</sup>
Québec	5 277	7 299	17 739	8 192
Adjusted OECD average	5 227	6 899	11 685	7 400
Difference (%)	1	6	52	11

In 1997, total spending per-student for all levels of instruction was \$8 192 in Québec, compared with an average of \$7 400 for the OECD countries, for a difference of 11%.

Québec's per-student spending figures for elementary (\$5 277) and secondary (\$7 299) education were slightly higher than the OECD average. More than half of the countries considered had per-student spending figures lower than Québec (see the table in Appendix 2). If one takes the average of Québec's elementary and secondary education per-student spending (\$6 248), this figure is close to the OECD average (\$6 238).

With respect to university education, Québec's per-student spending (\$17 739) was 52% higher than the OECD average (\$11 685) in 1997. In fact, only two countries had a per-student figure higher than Québec: Switzerland (\$19 362) and the United States (\$20 421). Per-student spending in Québec is very close to that of Canada (\$17 284). The OECD does not currently furnish the detailed data that would be needed to explain the differences between the countries with respect to per-student spending at the university level. However, it is likely that the cost of teachers in Québec (North American context) is higher than the OECD average.

In fact, the OECD publication only supplies data on teacher costs at the elementary and secondary education levels. Teacher costs refer not only to teachers' salaries, but also to all the related personnel costs.

Two main elements can be used to compare teacher costs per student: the statutory salary and the student-teacher ratio. The student-teacher ratio is obtained by dividing the number of students by the number of teachers (data on enrolments and teaching personnel is expressed in full-time equivalents).

### Teacher Salaries

In another statistics bulletin,<sup>2</sup> we presented a comparison of the salaries and teaching time of teachers in public elementary and lower secondary schools in Québec and in the OECD countries for 1997-1998. We considered starting salaries (at the beginning of a career), salaries after 15 years of experience and maximum salaries (at the top of pay scales). Salaries were also compared with other variables such as per capita GDP.

1. Including preschool and college-level education and non-categorized expenses. According to the new international classification, Québec pre-university collegiate education corresponds to post-secondary non-tertiary level 4A education and technical collegiate education corresponds to tertiary 5B education. These equivalencies are the same as those defined by Statistics Canada for Canada. See, Diane Foucault, "Québec's Education System and the International Standard Classification of Education," *Education Statistics Bulletin* No. 18, September 2000.
2. Marius Demers, "Statutory Salaries of Teachers in Public Elementary and Secondary Schools in 1997-1998: A Comparison of Québec and OECD Countries," *Education Statistics Bulletin* No. 19, September 2000.

According to all the indicators considered, the salaries of teachers in Québec school boards are usually higher than the OECD average.<sup>1</sup> The following table compares annual statutory salaries for teachers in Secondary Cycle One (1994-95) in Québec with the OECD average for the lower secondary school level.

**Tableau 3**  
Annual statutory salaries  
for teachers in public  
institutions in 1997-1998  
(in PPP-converted  
Canadian dollars)

	Starting salary	Salary after 15 years of experience	Maximum salary
Québec	32 305	49 340	49 340
Adjusted OECD average	27 052	37 733	45 356
Difference (%)	19	31	9

The difference between salaries is particularly high for teachers with 15 years of experience, primarily because Québec teachers reach the top of their payscale after 15 years of experience, whereas in the OECD countries, the maximum salary is attained after an average of 26 years of experience.

It should be noted, however, that teachers employed by Québec school boards are on average paid less than their colleagues in the rest of Canada and in the United States.<sup>3</sup>

#### Student-Teacher Ratio

Table 4 compares student-teacher ratios for elementary and secondary education in 1997-1998 in Québec and the average for the OECD countries.

**Table 4**  
Student-teacher ratio  
in public elementary  
and secondary schools  
in 1997-1998

	Elementary Education	Secondary Education
Québec	18,4	14,9
Adjusted OECD average	18,3	16,1
Difference (%)	1	-7

The figures show that the average number of students per teacher is about the same as the OECD average in Québec public elementary schools, but 7% lower at the secondary school level.

The OECD publication *Education at a Glance: OECD Indicators* presents data permitting comparison of the factors that determine the student-teacher ratio in public institutions at the Secondary Cycle One level for certain countries.<sup>3</sup> Table 5 shows the

1. In comparisons with OECD countries, we have considered the pay scales of Québec teachers with 17 years of training, which is the norm in Québec. This pay scale has 15 levels corresponding to the teachers' years of experience.
2. See the British Columbia Ministry of Education document entitled *Inter-Provincial Education Statistics Project* (available on the Internet at <http://www.bced.gov.bc.ca/statistics/interprovincial/>), as well as the Ministère de l'Éducation document *Education Indicators* (section 1.9): *Average Salary of Teachers in School Boards*. This document is available on the Internet at <http://www.meq.gouv.qc.ca/STAT/indic00/indic00a.htm>
3. The average number of students per teacher in the first cycle of secondary school is 15.6 in the OECD countries. Data needed to calculate this ratio are not available for Québec. Factors that cause the average number of students per teacher to vary slightly from the beginning to the end of secondary school are primarily linked to the composition of the student population. For example, there is a higher proportion of students with handicaps or with learning difficulties or social maladjustments Secondary Cycle One than in Secondary Cycle Two, while in Secondary Cycle Two, the ratio is affected by the presence of vocational education students. Since the student-teacher ratio is smaller for these two groups of students, these factors at least partially cancel each other out.

three factors that determine this level.<sup>1</sup>

**Table 5**  
Instruction time (students), teaching time (teachers) and average number of students per class in public institutions at the Secondary Cycle One level in 1997-1998

	Instruction time (students) (hours per year)	Teaching time (teachers) (hours per year)	Average number of students per class
Québec	900	615	22
Adjusted OECD average	950	717	21
Difference (%)	-5	-14	5

Instruction time is defined here as the number of hours of instruction that students must receive per year. Teaching time is calculated on the basis of the annual number of hours a teacher spends teaching in the classroom; this indicator does not take into account the hours that a teacher spends on other activities, such as preparing for courses, helping students or attending training sessions and meetings. Average class size indicates the average number of students per class; this is a theoretical measure calculated by multiplying the student-teacher ratio by the students' instruction time and dividing this product by the teachers' teaching time (according to the OECD's method).<sup>2</sup>

It appears that instruction time is slightly lower and teaching time considerably lower in Québec, but that the average class size is larger than the average for OECD countries for which data were available.

The following simulation may be used to clarify the way in which each of these factors influences educational spending. Let us assume that two countries have identical education systems except for one of the following factors: teachers' teaching time, students' instruction time or average class size. If teachers' teaching time is different, then the country with the lower teaching time must hire more teachers and educational spending will therefore be higher. If students' instruction time is different, then the country with the lower instruction time will require fewer teachers to provide educational services and educational spending will therefore be lower. The same reasoning may be applied to average class size to demonstrate that the country with more students per class will have a smaller financial investment in education.

Returning to the comparison between Québec and the OECD average, we see that of the three factors that influence the student-teacher ratio, one widens the gap between educational expenditure in Québec and the OECD average (lower teaching time in Québec), and two reduce it (lower instruction time and larger average class size in Québec).

The following table presents a summary of the degree to which factors contribute to the difference between the teaching costs per student ratio in public institutions at the Secondary Cycle One level. In this instance, salary costs are based on maximum salary.

It is estimated that, in 1997-1998, teaching costs per student at the Secondary Cycle One level were \$3 312 in Québec and \$2 903 for the OECD countries, on average; a difference of \$409.

1. Note that the student-teacher ratio does not indicate the average number of students per class (average class size). To understand the difference between the student-teacher ratio and the average class size, one must consider the student-teacher ratio as a composite indicator, i.e. the result of the three factors that determine the ratio. These factors are average class size, average teaching time of teachers and the average instruction time of students.
2. More complete definitions are provided in the OECD publication, *Education at a Glance: OECD Indicators*. It should be noted that, for Québec, the enrolments considered for the calculation of the student-teacher ratio, and therefore indirectly for the calculation of the average number of students per class, include all educational activities in the school boards (regular education, welcoming and francization classes, vocational education, students with handicaps or learning difficulties or social maladjustments, adult education, etc.).

**Table 6**  
Impact of various factors  
on teachers' salary  
costs per student  
in public institutions at  
the Secondary Cycle One  
level in 1997-1998  
(in PPP-converted  
Canadian dollars)

Salary costs per student for Québec teachers	3 312
Salary costs per student for teachers in OECD countries	2 903
Difference between Québec and OECD countries	409
<b>Factors accounting for this difference:</b>	
Teachers' salaries	262
Instruction time (students)	-169
Teaching time (teachers)	477
Average class size	-161
Total	409

The salaries of Québec teachers, which were somewhat higher than the OECD country average, as well as the fact that Québec teachers spend less time teaching in the classroom, contributed considerably to the higher teaching costs (\$262 + \$477 = \$739). The lower instruction time for students in Québec and the higher average class size than the OECD average reduced the gap in salary costs ( $[-\$169] + [-\$161] = -\$330$ ). The net effect of these factors is a difference of \$409 in the teaching costs per student. We do not have the necessary data to do such a detailed calculation for elementary school and for Secondary Cycle Two, but the data available indicate that the teacher cost per student is slightly higher in Québec at all levels of instruction.

Since Québec's total expenditure per student for pre-school, elementary and secondary education is very close to the OECD average, Québec's higher teacher costs for 1997-1998 must be compensated by other per-student expenses that are lower than the OECD average.

There are, of course, major differences between countries concerning the values that determine the teacher cost per student. For more information on the data from each country, see the OECD publication.

Comparisons by country demonstrate the various decisions made with respect to the combination of factors selected by each country. The combination of factors chosen by a given country has a direct impact on per-student costs, and also determines the working conditions of teachers and the quality of the instruction that students receive.

### Collective Wealth

The second factor considered in the analysis of the difference between Québec and the OECD average, in terms of the percentage of the GDP spent on education, is collective wealth.

In 1997, Québec's per capita GDP was \$25 644, compared with \$27 026, the adjusted average for the OECD countries' average; a difference of 5%. Since Québec is slightly less wealthy than the adjusted OECD average, for a given educational expenditure, Québec spends a larger portion of its GDP. This factor thus contributed to widening the gap between the relative amount of financial support for education in Québec and the OECD average (see the summary of contributing factors later in this document).

### School attendance rates

The school attendance rate is defined here as the ratio of total enrolments (expressed in full-time enrolment equivalents) for all levels of instruction to the population of

5-to-29-year-olds. A higher school attendance rate for an area indicates (all other variables being equal) that more individuals will attend school in this area and, therefore, that a larger financial investment in education will be required.

The 2000 edition of *Education at a Glance: OECD Indicators* does not supply data on school attendance rates for the population between the ages of 5 and 29. In order to calculate the relative contribution of various factors to the difference between the financial support provided by Québec and the average support provided by OECD countries, we had to estimate the school attendance rate. The following table presents a comparison between Québec's enrolment rates<sup>1</sup> by age group and the OECD average.

**Table 7**  
Enrolment rates (%) per  
age group in 1997-1998

	Students aged 5 to 14 years as a % of the population of the same age group	Students aged 15 to 19 years as a % of the population of the same age group	Students aged 20 to 29 years as a % of the population of the same age group
Québec	96,0	88,1	31,1
Adjusted OECD average	98,5	80,0	22,3

The enrolment rate for students between 5 and 14 years old is slightly lower in Québec, but the Québec rates for students in the 15 to 19 and 20 to 29 age groups are considerably higher than the OECD average. The higher enrolment rates for older students are explained by a higher school attendance rate in Québec post-secondary schools. This factor tended to increase the proportion of Québec's GDP dedicated to education (see the Summary of Factors at Play below).

### Demographic Factor

The age structure of the population of the areas considered also contributes to the differences observed in the proportion of the GDP spent on education.

The demographic factor is defined here as the proportion of the total population that is between 5 and 29 years of age, which is the segment of the population that is most likely to attend school. For a given area (all other variables being equal), a larger proportion of young people in the total population indicates that there will be more persons attending school in this area and that, therefore, a greater financial investment in education will be required.

In 1998, this proportion was 33% in Québec, whereas the OECD average was 34%. The fact that the school-age population is smaller in Québec contributed to reduce the gap between Québec's financial support of education and the average of the OECD countries considered.

It should also be noted that this proportion greatly decreased in Québec between 1981 and 1998: it declined from 43% to 33%. This could have caused a significant decrease in financial support for education. However, such was not the case because, at the same time, there was a great increase in school attendance rate. Thus, the opposite effects of these two factors cancelled each other out to a considerable extent.

1. Unlike school attendance rates, enrolment rates are calculated by dividing the number of students of a particular age group by the total population in the same age group. Enrolment is expressed in terms of the number of individuals and includes both full-time and part-time students.

### Summary of Factors at Play

In 1997, Québec allocated 7.0% of its GDP to education, compared with the OECD countries' average of 5.9%, for a difference of 1.1 percentage points.

Table 8 indicates the degree to which the main factors contribute to this difference. The "positive" factors are those that increase in educational spending in Québec and the "negative" factors are those that reduce it.

**Table 8**  
Impact of the various factors on the gap between the proportion of the GDP dedicated to education in Québec and the OECD average in 1997

Educational spending in relation to the GDP in Québec (%)	7.0
Educational spending in relation to the GDP in OECD countries	5.9
Difference (Québec - OECD countries) in percentage points	1.1
<b>Factors contributing to this difference (in percentage points):</b>	
Higher per-student spending in Québec	0.7
Lower per capita GDP in Québec	0.3
Higher school attendance rates in Québec	0.4
Demographic factor (fewer young people in Québec)	-0.2
Residual factor	-0.1
<b>Total</b>	<b>1.1</b>

In 1997, Québec's total educational spending per student at all levels of instruction (\$8 192) was 11% higher than the OECD average (\$7 400). As Québec's total spending per student at the preschool, elementary and secondary levels was essentially the same as the OECD average, it is Québec's higher post-secondary per-student spending that is responsible for the gap between the total per-student spending for all levels of instruction. This factor contributes 0.7 of a percentage point to the difference in the portion of the GDP dedicated to education in Québec and the OECD average.

In addition, Québec's per capita GDP, which was slightly less than the adjusted OECD average, also increased the difference in the portion of the GDP dedicated to education by 0.3 of a percentage point.

The higher school attendance rate in Québec schools increased the difference by 0.4 of a percentage point because Québec's school attendance rate in post-secondary education in 1997 is higher than the OECD average, this factor contributes greatly to the higher overall rate.

Finally, the demographic factor (relatively fewer young people in Québec) reduced the difference between the proportion of the GDP dedicated to education in Québec and in the OECD countries by 0.2 of a percentage point.

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[Other Education  
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## APPENDIX 1

**Comparison of educational spending in relation to the GDP in Québec  
and the OECD countries in 1997, by educational level**

	Preschool Education, Elementary and Secondary Education	Non-University Post-Secondary Education	University Education	Partial Total (Post-Secondary Education)	All Levels (including non-categorized expenses)
Korea	4.4	0.7	1.8	2.5	7.4
United States	4.2	n/a	2.6	2.6	6.9
Sweden	5.2	n/a	1.7	1.7	6.9
Denmark	5.4	n/a	1.2	1.2	6.8
Austria	4.8	0.5	1.0	1.5	6.5
Canada	4.3	0.8	1.4	2.2	6.5
Finland	4.5	0.3	1.4	1.7	6.3
France	5.1	0.3	0.9	1.2	6.3
Switzerland	4.7	0.2	1.0	1.2	6.0
Portugal	4.4	n/a	1.0	1.0	5.8
Germany	4.1	0.4	1.0	1.4	5.7
Spain	4.4	n/a	1.2	1.2	5.7
Iceland	4.4	n/a	0.7	0.7	5.7
Australia	3.9	0.3	1.5	1.8	5.6
Mexico	4.4	n/a	1.1	1.1	5.5
Belgium (Flemish comm.)	4.0	n/a	0.9	0.9	5.2
Czech Republic	4.1	0.2	0.7	0.9	5.2
Hungary	3.9	0.1	1.0	1.1	5.2
Ireland	3.4	0.1	1.4	1.5	5.0
Greece	3.7	0.3	0.9	1.2	4.9
Italy	3.8	n/a	0.8	0.8	4.8
Japan	3.2	0.1	0.9	1.0	4.8
The Netherlands	3.4	n/a	1.2	1.2	4.7
<b>Country average</b>	<b>4.3</b>	<b>0.3</b>	<b>1.1</b>	<b>1.4</b>	<b>5.8</b>
<b>Adjusted country average (without Greece, Hungary, Mexico, Poland, Czech Republic and Turkey)</b>	<b>4.3</b>	<b>0.2</b>	<b>1.2</b>	<b>1.4</b>	<b>5.9</b>
<b>Québec</b>	<b>4.2</b>	<b>1.1</b>	<b>1.7</b>	<b>2.8</b>	<b>7.0</b>

n/a: not available

Sources: OECD Countries: *Education at a Glance: OECD Indicators 2000*  
Québec: Direction des statistiques et des études quantitatives, Ministère de l'Éducation du Québec

Note: We have grouped together the following elements of the OECD classification: post-secondary non-tertiary education and level B tertiary education (Table B4.1 of *Education at a Glance*). Québec's pre-university college-level education corresponds to level 4A post-secondary non-tertiary education and technical college-level education corresponds to level 5B tertiary education. These equivalencies are the same as those established by Statistics Canada for Canada.

## APPENDIX 2

Comparison of Québec and the OECD countries relative to total educational spending per-student per level of instruction in 1997 (in PPP-converted Canadian dollars)

	Elementary Education	Secondary Education	University Education
Australia	4 248	6 512	14 058
Austria	7 317	9 603	11 684
Belgium (Flemish comm.)	4 458	8 112	9 160
Canada	n/a	n/a	17 284
Czech Republic	2 285	4 257	7 201
Denmark	7 712	8 416	8 528
Finland	5 424	5 922	8 409
France	4 234	7 675	8 231
Germany	4 081	7 189	11 789
Greece	2 749	3 018	4 729
Hungary	2 379	2 447	6 349
Iceland	n/a	n/a	n/a
Ireland	3 010	4 518	9 351
Italy	5 931	7 347	6 993
Japan	6 082	6 918	12 420
Korea	3 868	4 113	9 952
Luxembourg	n/a	n/a	n/a
Mexico	1 093	2 018	5 284
The Netherlands	3 899	5 837	11 725
New Zealand	n/a	n/a	n/a
Norway	7 383	8 153	11 818
Poland	1 678	n/a	5 019
Portugal	3 798	4 985	n/a
Spain	3 718	4 997	6 100
Sweden	6 420	6 357	15 177
Switzerland	7 292	10 575	19 362
Turkey	n/a	n/a	2 803
United Kingdom	3 748	5 389	9 551
United States	6 685	8 453	20 421
<b>Country average</b>	<b>4 562</b>	<b>6 209</b>	<b>10 136</b>
<b>Adjusted country average (without Greece, Hungary, Mexico, Poland, Czech Republic and Turkey)</b>	<b>5 227</b>	<b>6 899</b>	<b>11 685</b>
<b>Québec</b>	<b>5 277</b>	<b>7 299</b>	<b>17 739</b>

n/a: not available

Sources: OECD Countries: *Education at a Glance: OECD Indicators 2000*  
 Québec: Direction des statistiques et des études quantitatives, Ministère de l'Éducation du Québec

Note: For purposes of comparing Québec with the OECD countries, and taking into account the new OECD classification system (ISCED-97), we have considered per-student spending for tertiary education (type 5A tertiary education and advanced research degrees, where country data were available, otherwise the total amount for tertiary education was used).

## APPENDIX 3

**Factors accounting for the difference between the percentage of GDP dedicated to education in Québec and the OECD countries<sup>1</sup>**

To explain the differences observed between the percentage of GDP dedicated to education by the governments studied it is necessary to compare the main factors determining the level of financial support provided by each government. These factors are: total educational spending per-student, per capita GDP, a school attendance rate indicator defined by the proportion represented by the number of students in the 5- to 29-year-old population and a demographic factor defined by the ratio of the 5 to 29 age group to the total population.

The equation used is as follows:

$$\frac{\text{EXP}}{\text{GDP}} = \frac{\text{EXP}}{\text{FTE}} \times \frac{1}{\text{GDP/POP}} \times \frac{\text{FTE}}{5-29} \times \frac{5-29}{\text{POP}}$$

where,

EXP:	total spending for all levels of instruction
GDP:	gross domestic product
FTE:	enrolments in full-time equivalents
POP:	total population
5-29:	population of 5- to 29-year-olds
EXP/GDP:	proportion of the GDP spent on all levels of instruction
EXP/FTE:	spending per student
GDP/POP:	per capita GDP
FTE/5-29:	school attendance rate
5-29/POP:	demographic factor

1. The formulas used to calculate the contribution of each factor to the difference between the percentage of GDP dedicated to education in Québec versus the OECD average are shown in Appendix 3 of the following document: Demers, Marius. *L'effort financier pour l'éducation primaire et secondaire : une comparaison Québec - Autres provinces - États-Unis, de 1981-1982 à 1991-1992*, Ministère de l'Éducation du Québec, Direction des études économiques et démographiques. December 1992.