

Financial Investment in Universities in 2006-2007: Comparison between Québec and the Other Canadian Provinces

Introduction

How does Québec's financial investment in its universities compare with that of the other provinces? To answer this question, it is necessary to examine the problem from various perspectives. The revenues and expenditures of the universities must be taken into consideration, of course, but also the economic realities of the regions concerned. The level of collective wealth varies from one province to the next, as does the cost of living. The indicators selected in this document will make it possible to determine Québec's relative position and explain the differences observed in comparison with the rest of Canada.

Section I covers total spending by universities relative to gross domestic product (GDP). Section II considers total per-student spending by universities and, in particular, the salary cost of teachers and its two main components: the student-teacher ratio and the average salary of university professors. Section III examines the per-student revenues of universities. In section IV, the revenue and spending of universities are compared and the issue of the deficit position of Québec universities is discussed.

The data used in this study come mostly from Statistics Canada and the Canadian Association of University Business Officers (CAUBO). The data sources are the same ones used for the production of certain indicators in *Education Indicators*¹ (2008 edition). The data used here, however, are more recent,² which explains the difference in the results in the two publications.

I - Total Educational Spending in Relation to the GDP

One of the indicators used most often to measure financial investment in education is the ratio of total educational spending to the GDP. It indicates what proportion of the collective wealth of a society is devoted to education. In this context, we can ask what proportion of the GDP is represented by the total spending of Québec universities and how it compares with spending in the rest of Canada.

Total spending by universities includes the general operating fund, endowment fund, research fund and capital fund. Table 1 shows the data on total spending by universities in relation to the GDP in Québec and in the other Canadian provinces, in 2006-2007.

1 Québec, Ministère de l'Éducation, du Loisir et du Sport, Direction de la Recherche, des Statistiques et de l'Information. *Education Indicators*, annual publication. See indicators 1.12 to 1.15.

2 The data used for the production of *Education Indicators* (2008 edition) were those available in January 2008. The data in this study is from updates carried out in June 2008.

Table 1 Total spending by universities as a percentage of GDP, in Québec and in the other Canadian provinces, 2006-2007^e (%)

	2006-2007 ^e
Québec	1.85
Canada without Québec	1.48
Atlantic provinces	2.02
Ontario	1.58
Western provinces	1.29
Canada	1.55

e: Estimate.

Source: DRSI, MELS Calculations based on data from Statistics Canada and CAUBO.

In 2006-2007, total university spending was approximately 1.85% of the GDP in Québec; compared with an estimated 2.02% in the Atlantic provinces, 1.58% in Ontario and 1.29% in the Western provinces.

The difference between Québec (1.85%) and the average for the other provinces (1.48%) is 0.37 percentage points. This gap is significant. It can be explained using an analysis model with four major explanatory factors: total per-student spending, collective wealth (defined by the per capita GDP), the participation rate and the demographic factor.³ The participation rate is defined by the ratio of university enrollment expressed in full-time equivalents to the population 18 to 24 years of age, while the demographic factor is the ratio of the 18-to-24 age group to the total population.

Table 2 shows data on each of these factors and Table 3 indicates the contribution of these factors to differences between total university spending as a percentage of GDP, in Québec and in the rest of Canada in 2006-2007. The “positive” factors are those that are responsible for Québec’s higher level of financial investment, while the “negative” factors are those that reduce the difference.

Table 2 Total per-student spending by universities, per capita GDP, participation rate and demographic factor in Québec and in the rest of Canada, 2006-2007^e

	Québec	Canada without Québec
Per-student spending (\$)	26 619	26 114
Per capita GDP (\$)	36 968	46 525
Participation rate (%)	29.3	26.9
Demographic factor (%)	8.8	9.8

e: Estimate.

Source: DRSI, MELS. Calculations based on data from Statistics Canada, CAUBO, the Association of Universities and Colleges of Canada (AUCC), from the DGFE-ES of MELS and the Council of Ontario Universities.

³ See Appendix 1.

Table 3 Influence of various factors in the differences between total university spending as a percentage of GDP, in Québec and in the rest of Canada, 2006-2007^e

Total university spending in relation to the GDP in Québec (%)	1.85
Total university spending in relation to the GDP in the rest of Canada (%)	1.48
Difference (Québec – rest of Canada), in percentage points	0.37
Contribution of each factor to this difference, in percentage points:	
Per-student spending higher in Québec	0.03
Per capita GDP lower in Québec	0.38
Participation rate higher in Québec	0.14
Demographic factor (fewer young people in Québec)	-0.18
Total	0.37

e: Estimate.

Source: DRSI, MELS. See Appendix 1.

Per-student spending in Québec universities (\$26 619) was 2% higher than the average for universities in the rest of Canada (\$26 114), in 2006-2007. This factor contributed 0.03 percentage points to the difference between total educational spending by universities in relation to the GDP, in Québec and in the rest of Canada.

In addition, the fact that Québec's per-capita GDP (\$36 968) was 21% lower than the average for the other provinces (\$46 525), contributed 0.38 percentage points to the difference between total educational spending by universities as a percentage of GDP, in Québec and in the rest of Canada. This is the most significant factor in Québec's higher educational spending relative to the rest of Canada.

The higher participation rate in Québec, contributed 0.14 percentage points to the difference. Finally, the demographic factor (relatively fewer young people in Québec) reduced the difference by 0.18 percentage points.

Thus, three of these four factors contributed to a higher level of spending by universities in Québec: per-student spending, which is higher in Québec than in the rest of Canada; the participation rate, which is slightly higher in Québec and the level of collective wealth, which is lower in Québec than the average for the other provinces. Only the demographic factor (fewer young people in Québec) had an opposite effect.

II - Total per-student spending by universities

This indicator makes it possible to compare the level of financial resources devoted to students. The concept of total spending used in this section is the same as in the previous section. It would have been desirable to present distinct data for operating expenses (excluding spending for research and capital expenses), but the data available does not permit this.⁴

⁴ In 2004, CAUBO formed a task force to identify the factors behind the differences in financial reporting from one university to another. Experts have indicated that one of the main factors contributing to data comparability problems is the fact that universities record their expenses differently in the various funds. Thus, some expenses are entered in the capital fund and others, in the general operating fund (e.g. the purchase of furniture and equipment). The task force report also notes problems related to the distribution of certain expenses between the general operating fund and the research fund (e.g. medicine costs), as well as between the general operating fund and the endowment fund. (Source: ACPAU, *Report of the Task Force on the Review of CAUBO Financial Reporting*, November 2004).

There are also structural differences among the education systems (for example, differences related to college education), which have an influence on the relative level of per-student spending by universities. While they are difficult to measure, it is possible to estimate the impact of the structural differences on variations between per-student spending in the provinces.

Differences in the cost of living must also be borne in mind. The cost of living was approximately 10% lower in Québec than in the rest of Canada in 2006.⁵ It is important to take this into account in comparisons of financial data, since for the same number of dollars, purchasing power is not the same from one province to the next. To illustrate the importance of this factor, we can look at professors' salaries. At \$95 434, the average salary of full-time professors in Québec universities in 2006-2007, 5% less than that of their colleagues in the rest of Canada, which averaged \$100 794. If, however, we take into account differences in the cost of living, we come to the conclusion that the purchasing power of full-time professors in Québec universities was actually 4% higher than that of professors in the other provinces.

Comparison of per-student spending

In 2006-2007, per-student spending in Québec universities is estimated at \$26 619.⁶ By comparison, in the universities in the Atlantic provinces, it is estimated at \$22 547, in Ontario, \$23 698 and in the Western provinces, \$31 793 (Table 4). The second column of the table shows the data on per-student spending in current dollars, in the form of indices (Québec = 100). **Per-student spending in Québec was 2% higher than it was in the rest of Canada.**

It is also important to note that, in recent years, per-student spending by universities (in current dollars) rose at a faster rate in Québec than in the rest of Canada. From 1998-1999 to 2006-2007, there was an increase of 54% in per-student spending in Québec and 48% in the rest of Canada.

Table 4 Per-student spending by universities⁷ in 2006-2007^e, in Québec and in the other Canadian provinces

	Per-student spending (in current \$)	Per-student spending (in current \$)	Weighted per-student spending (in current \$)	Weighted per-student spending (in PPP-converted \$)
	(1)	Québec = 100 (2)	Québec = 100 (3)	Québec = 100 (4)
Québec	26 619	100.0	100.0	100.0
Canada without Québec	26 114	98.1	104.0	94.4
Atlantic provinces	22 547	84.7	93.9	91.2
Ontario	23 698	89.0	95.0	83.0
Western provinces	31 793	119.4	122.9	115.8
Canada	26 230	98.5	103.0	95.4

e: Estimate.

Source: DRSI, MELS. Estimates based on data from Statistics Canada, CAUBO, AUCC, the DGFE-ES of MELS, the Council of Ontario Universities and the Ministère des Finances du Québec (calculation of PPPs).

⁵ See Appendix 2.

⁶ Total spending by universities includes the general operating fund, the endowment fund, the research fund and the capital fund. In 2006-2007, per-student spending by Québec universities was underestimated because of data missing from the databanks of Statistics Canada and CAUBO (for example, the capital expenses of the Université du Québec à Montréal).

⁷ In the calculation of total per-student spending, a standardized accounting of student enrollment for all the provinces based on the following convention has been used: part-time enrollments are converted into full-time equivalents by dividing them by 3.5, and they are then added to the full-time enrollments.

Impact of structural differences

As indicated in the introduction to this section, the differences in per-student spending by the provinces can also be explained, in part, by the structural differences among the education systems. Thus, the differences in college education have an impact on the duration and the costs of university education.

In Québec, a Diploma of College Studies in pre-university education is the usual requirement for admission to university, whereas in the other provinces, a secondary school diploma is generally sufficient. Furthermore, in some provinces in Western Canada (especially Alberta and British Columbia), students can do their first two years of university studies in a college, and then finish their studies at a university. College-level education is less costly, but at the same time per-student spending in the universities is higher (since the last years of university education are more costly).

Another structural difference concerns the composition of the student body according to level and field of study in the universities. Thus, the fact that Québec universities have a higher proportion of students in costlier fields of study and higher levels of study explains in part their higher per-student spending.

As part of the work of the *Comité sur le niveau comparatif des ressources*, the Ministère de l'Éducation, du Loisir et du Sport (MELS) and the Conférence des recteurs et des principaux des universités du Québec (CREPUQ) have developed a methodology for taking into account, in part, these structural differences. The basic idea was to use a weighting grid that makes it possible to estimate a weighted enrollment for each of the provinces.⁸

Column 3 of Table 4 contains data on weighted per-student spending, in the form of indices (Québec = 100). **Thus, when the data is adjusted to take into account structural differences, we obtain a level of per-student spending in Québec that was 4% lower than that in the rest of Canada in 2006-2007.**

Taking into account the cost of living

It is possible to make another adjustment to the data to take into account differences in the cost of living between provinces (the cost of living is 10% lower in Québec compared to the rest of Canada). Column 4 of Table 4 contains data on the weighted per-student spending, in purchasing power parity (PPP) converted dollars. The data are presented in the form of indices (Québec = 100). **When we take into account both the structural differences and the cost of living, it appears that per-student spending in the universities in Québec is 6% higher than the average in the rest of Canada.**

Returning to the comparison of per-student spending in current dollars, we notice that Québec universities spent \$2 921 more per student than universities in Ontario.⁹ This gap can be explained primarily by higher per-student spending on teaching personnel, administration, activities related to computers and communications, research and financing costs. Conversely, per-student spending on student services (including bursaries¹⁰), external relations and libraries is lower in Québec than in Ontario.

8 The weighted student enrollment makes it possible to take into account variations in the cost of educating students by subject area and level of education. For example, the cost of training a student in veterinary medicine is substantially higher than in business administration. Similarly, an MA student is more costly than an undergraduate student.

9 Appendix 3 shows the breakdown of per-student spending in Québec and Ontario universities, by type of expenditure, in 2006-2007.

10 Universities outside Québec award more bursaries because their tuition fees are higher than Québec's, but a portion of the fees collected are returned to the students in the form of bursaries.

A substantial expense: the salary costs of university professors

Salary spending for all categories of university personnel (including employee benefits) accounts for more than half of total university spending in Québec and the rest of Canada. Professors' salaries are the largest component of payroll expenditure. When the total payroll for teaching staff is divided by the number of students expressed in full-time equivalents, the result is the cost of professors per student.¹¹

This cost was higher in Québec (\$7 268) than in the Atlantic provinces (\$6 700) and Ontario (\$6 844), but lower than in Western Canada (\$9 002), in 2006-2007. The per-student cost of professors in Québec is lower than the average for the rest of Canada (\$7 507). However, if we take into account the fact that the cost of living is lower in Québec than in the rest of Canada, we obtain a per-student cost of professors that is higher in Québec by 7% compared with the average for the rest of Canada.

Among the factors that explain the differences observed in the salary costs of teachers, two are particularly significant: the number of students per teacher and the average salary of teachers. **Thus, even though the average salary of teachers was lower in Québec than in Ontario, the cost of teachers per student was still higher in Québec, essentially because the average number of students per teacher was lower in Québec than in Ontario.**

The student-teacher ratio in the universities

In 2006-2007, the average number of students per full-time professor in Québec (20.8) was lower than in Ontario (24.9), but higher than in the Atlantic provinces (16.9) and in Western Canada (18.1), as shown in Table 5.

However, it should be noted that the average number of students per professor is obtained by dividing the number of students in full-time equivalents (FTE) by the number of regular full-time teachers in the universities. Lecturers and part-time teachers are not included in this calculation. In fact, lecturers are responsible for a large proportion of the teaching load in the universities (slightly more than 50% in Québec¹²).

Table 5 Student-full-time professor ratio in universities, in Québec and in the other Canadian provinces

	2006-2007 ^e
Québec	20.8
Canada without Québec	21.2
Atlantic provinces	16.9
Ontario	24.9
Western provinces	18.1
Canada	21.1

e: Estimate.

Source: DRSI, MELS. Calculations based on data from Statistics Canada, AUCC, the DGFE-ES of MELS and the Council of Ontario Universities.

¹¹ The total payroll considered in the calculation of per-student spending for professors includes deans, department heads, research professors and lecturers, as well as amounts paid to all other personnel employed in teaching positions (as defined by Statistics Canada). Employee benefits are not included in the total payroll used for this calculation.

¹² Source: DERU, MELS. *Rapports de suivi des contrats de performance*, 2002-2003.

Moreover, there appear to be more lecturers and part-time teachers in Québec than in the rest of Canada. Although no comparable data on their number are available, it is possible to estimate salary spending on these categories of personnel, by province.¹³ The comparison of salary spending in the different provinces for lecturers and part-time teachers shows Québec's per student-spending on this item is higher than the average for the other provinces.

In order to be able to go further in the comparative analysis of student-teacher ratios, comparable data would also be required on elements such as the average number of three-credit courses taught per year by professors, the average number of students per class, as well as data on the use of lecturers. For the time being, there is no comparable, recent data for these variables.

Studies carried out in the eighties and nineties showed that average teaching time for professors is particularly low in Québec.¹⁴ This was related, among other things, to the widespread practice of reducing teaching loads to enable faculty to carry out other tasks (research, holding administrative positions in academic affairs, tasks related to internal services in the university, etc.).

This question of the reduction of teaching loads came up more recently, in the context of the financial problems experienced by the Université du Québec à Montréal (UQAM). Theoretically, the annual teaching load of professors should be four three-credit courses a year. According to the report produced by the accounting firm PricewaterhouseCoopers, the average is instead 2.8 courses per professor.¹⁵

Courses that are not taught by professors as part of their normal workload are given by lecturers or as overload courses by professors. It is not possible to calculate, for the time being, the additional expense caused by the reduction of teaching loads, but everything indicates it is considerable. The measures proposed by the accounting firm to improve UQAM's financial situation include the following: reinforcement of controls to ensure that professors teach their full loads and adjustment of the workload of professors who were not taking on all components, an increase in the teaching loads of regular professors and a reevaluation of releases from teaching for administrative duties and research.¹⁶

The average salary of university professors

The average salary of professors includes a basic salary as well as additional fees paid for administrative functions. The first column in Table 6 shows the average salary of professors, in current dollars, in Québec and the other provinces, in 2006-2007. The average salary of Québec professors (\$95 434) was 7% higher than that of their counterparts in the Atlantic provinces (\$89 007), but it was 7% lower than that of professors in Ontario (\$102 835) and Western Canada (\$102 704). Column two of the table has data on salaries, in current dollars, in the form of indices (Québec = 100).

These data on salaries do not take into account differences in the cost of living. In column 3 of Table 6, the data on salaries are converted into PPPs, in the form of indices (Québec = 100). **When the cost of living is factored in, the average salary of professors appears a little higher in Québec than in the rest of Canada, a difference of 4%.**

13 The financial data from CAUBO and Statistics Canada provide the total payroll for teaching staff (all categories). Moreover, it is possible to estimate the total payroll for regular, full-time staff by multiplying their number by their average salary. The payroll for lecturers and part-time teachers is estimated by subtracting from the total payroll, the total estimated payroll for regular full-time staff.

14 See, for instance, the following publications:

- Groupe ministériel de travail sur la tâche du professeur d'université. *La tâche du professeur d'université au Québec*, Report of the task force to the Minister of Higher Education and Science (Rapport Archambault), Québec, 1989, 252 p. (appendixes).
- Bertrand, Denis et al. *Le travail professoral remesuré*, Presses de l'Université du Québec, 1994, 446 p.
- Le Vérificateur général du Québec. *Rapport du Vérificateur général à l'Assemblée nationale pour l'année 1994-1995*, 1995.

15 PricewaterhouseCoopers, UQAM, *Rapport définitif sur la situation financière et le plan de redressement*, Québec, March 4, 2008, p. 47.

16 PricewaterhouseCoopers, *op. cit.*, p. 29, 46 and 47.

Table 6 Average salary of university professors in 2006-2007^e in Québec and in the other Canadian provinces

	Average salary (in current \$) (1)	Average salary (in current \$) Québec = 100 (2)	Average salary (in PPP- converted \$) Québec = 100 (3)
Québec	95 434	100	100
Canada without Québec	100 794	106	96
Atlantic provinces	89 007	93	91
Ontario	102 835	108	94
Western provinces	102 704	108	101
Canada	99 552	104	97

e: Estimate.

Source: DRSI, MELS. Calculations based on data from Statistics Canada, CREPUQ and the Ministère des Finances du Québec (calculation of PPPs).

III - Per-student revenues of universities

What are the sources of funding for Québec universities and how do they compare with those of the other provinces? This section attempts to answer this question. However, as in the previous sections, it is essential to take into account, in the comparisons, the economic realities of the regions, that is, to consider the differences in relative wealth and the cost of living in the regions concerned.

Comparison of per-student revenues

In 2006-2007, the per-student revenues of Québec universities were \$26 353. By comparison, in the universities in the Atlantic provinces, they amounted to \$24 099, in Ontario, \$26 358 and in the Western provinces, \$34 296 (Table 7). Column 3 of the table shows the data on per-student revenues in current dollars, in the form of indices (Québec = 100). Per-student revenues in Québec were 8% lower than in the rest of Canada.

Table 7 Per-student revenues of universities in 2006-2007^e in Québec and in the other Canadian provinces

	Per-student revenues (in current \$)	Per capita GDP (in current \$)	Per-student revenues (in current \$) Québec = 100	Per-student revenues (in PPP-converted \$) Québec = 100	Per-student revenues/ Per capita GDP Québec = 100
	(1)	(2)	(3)	(4)	(5)
Québec	26 353	36 968	100.0	100.0	100.0
Canada without Québec	28 592	46 525	108.5	98.5	78.3
Atlantic provinces	24 099	37 412	91.4	88.8	87.8
Ontario	26 358	43 902	100.0	87.4	73.6
Western provinces	34 296	51 855	130.1	122.6	87.4
Canada	28 076	44 285	106.5	98.7	82.4

e: Estimate.

Source: DRSI, MELs. Estimates based on data from Statistics Canada, CAUBO, AUCC, the DGFE-ES of MELs, the Council of Ontario Universities and the Ministère des Finances du Québec (calculation of PPPs).

Taking into account the cost of living

It must be remembered that the cost of living was about 10% lower in Québec than in the rest of Canada in 2006-2007. Column 4 of Table 7 shows data on per-student revenues in PPP-converted dollars. The data are presented in the form of indices (Québec = 100). When we take into account the cost of living, the per-student revenues in Québec universities were 2% higher than the average in the rest of Canada.

Taking into account differences in collective wealth

The level of collective wealth is also lower in Québec. Column 2 of Table 7 presents the data on per capita GDP by province. It appears that the per capita GDP was 21% lower in Québec (\$36 968) than in the rest of Canada (\$46 525), in 2006-2007.

There is an indicator that makes it possible to take into account both the differences in the cost of living and the differences in collective wealth among the provinces considered. This is the ratio of per-student revenues of universities to per capita GDP. In column 5 of Table 7, this indicator is presented in the form of indices (Québec = 100). According to this indicator, it appears that collective spending by Québec in its universities is 28% higher than comparable spending in the rest of Canada. **Therefore, when we take into account the provinces' ability to pay and differences in the cost of living, it appears that Québec is making a substantially greater financial effort on behalf of its universities.**

The universities' revenue sources

Tables 8 and 9 show the breakdown of per-student revenues for universities by source of funds (in current dollars and in percentage).

In Québec, 52.1% of university funding comes from the provincial government, while the corresponding percentage is 41.4% in the rest of Canada. The federal government provides 14.4% of funding in Québec, and 11.3% in the rest of Canada. The significant contribution of the federal government to university funding can be explained primarily by research grants (for example, the research councils).

Tuition and other fees¹⁷ contribute 11.4% to university funding in Québec and 23.2%, in the rest of Canada. In 2006-2007, the average tuition fees for Canadian full-time undergraduate students were 2.6 times higher in the rest of Canada (\$4 964) than in Québec (\$1 932).¹⁸ Other compulsory school fees were a little higher in Québec (\$630) than in the rest of Canada (\$612), however.¹⁹

The other sources of revenue include revenue from foundations, non-government grants and contracts, investment income, rental income and various other revenues. These other revenue sources are more significant in the rest of Canada (24.1%) than in Québec (22.1%), mostly because of revenues from foundations, which are higher in the other provinces.

Table 8 Per-student revenues of universities in 2006-2007^e, by source of funds, in Québec and in the other Canadian provinces (in current dollars)

	Provincial government	Federal government	Tuition fees and other fees	Other sources	Total
Québec	13 730	3 784	3 013	5 826	26 353
Canada without Québec	11 833	3 224	6 646	6 889	28 592
Atlantic provinces	9 436	2 643	6 381	5 639	24 099
Ontario	10 031	2 924	6 905	6 498	26 358
Western provinces	15 971	3 982	6 281	8 062	34 296
Canada	12 271	3 353	5 808	6 644	28 076

e: Estimate.

Source: DRSI, MELS. Estimates based on data from Statistics Canada, CAUBO, AUCC, the DGFE-ES of MELS and the Council of Ontario Universities.

Table 9 Per-student revenues of universities in 2006-2007^e, by source of funds, in Québec and in the other Canadian provinces (%)

	Provincial government	Federal government	Tuition fees and other fees	Other sources	Total
Québec	52.1	14.4	11.4	22.1	100.0
Canada without Québec	41.4	11.3	23.2	24.1	100.0
Atlantic provinces	39.1	11.0	26.5	23.4	100.0
Ontario	38.1	11.1	26.2	24.6	100.0
Western provinces	46.6	11.6	18.3	23.5	100.0
Canada	43.7	11.9	20.7	23.7	100.0

e: Estimate.

Source: DRSI, MELS. Estimates based on data from Statistics Canada, CAUBO, AUCC, the DGFE-ES (MELS) and the Council of Ontario Universities.

17 "Other fees include all compulsory and noncompulsory fees charged to students such as health services, athletics, library, applications, late registrations, lockers and transcripts." (Source: CAUBO, *Guidelines: Financial Information of Universities and Colleges, 2006-2007*, p. 12).

18 In 2007-2008, tuition fees were \$2 025 in Québec and \$5 124 in the rest of Canada.

19 In 2007-2008, other fees were \$698 in Québec and \$648 in the rest of Canada.

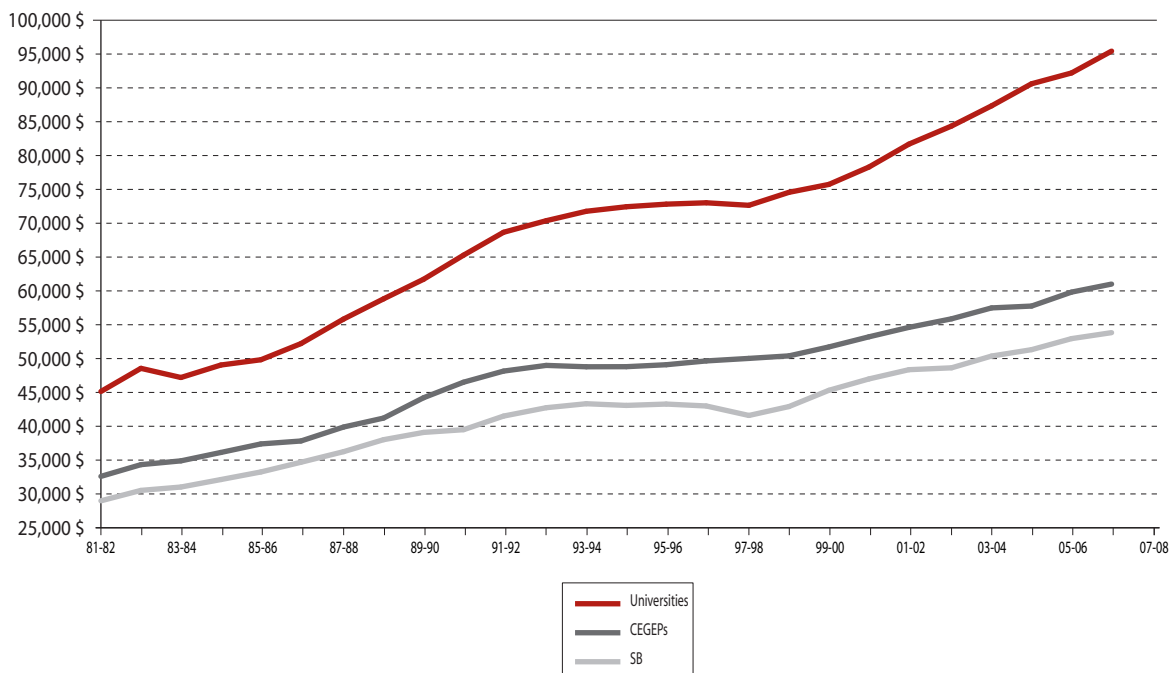
IV - Comparison of revenues and spending

In recent years, Québec universities' spending has exceeded their revenues. Therefore, when we compare revenues and spending, in 2006-2007, we can see that, for Québec universities, per-student spending was higher (\$26 619) than per-student revenue (\$26 353), while the opposite is the case in the rest of Canada (\$26 114 for per-student spending and \$28 592 for per-student revenue).

Although these data cannot be used to determine the financial situation of universities (surplus or deficit) with precision, it has been established that the Québec universities had a deficit of 21.5 million dollars in 2006-2007.²⁰ Their deficit position can be explained, in large part, by their salary indexation policy, which goes further than the salary policy of the Québec government. It should be remembered that grants to universities take into account the government's salary policy for public service employees and that the universities must fund any salary increases that go beyond the parameters set by the government from other revenue sources. However, as already noted, other sources of university funding in Québec are relatively limited.

Complete data on indexation rates of the salaries of universities staff are not available, but it is possible to make a rough comparison between the rise in the average salary of university professors and that of teachers in school boards and CEGEPs, who are subject to the salary policy of the Québec government. Graph 1 shows this comparison for the years 1981 to 2006. It is clear that the gap between the average salary of university professors and that of teachers in the school boards and CEGEPs increased over the years.

Graph 1 Average salary of teachers in school boards, CEGEP teachers and university professors (in current dollars)



Sources: DRSI, MELS. *Coût global de la rémunération* (average salary of teachers in school boards), financial reports of CEGEPs (average salary of CEGEP teachers), Statistics Canada and CREPUQ (average salary of university professors).

²⁰ According to the audited financial reports of the universities and according to the preliminary data for Bishop's University.

In 1981-1982, the average salary of university professors was 38% than that of CEGEP teachers, and 56% higher than that of teachers in school boards. In 2006-2007, these gaps were respectively 56% and 77%.

In order to have an idea of the effect of the salary indexation policy regarding staff in Québec universities, we can estimate the additional cost for the universities of each one per cent increase in salaries. In 2006-2007, according to data from CAUBO, the total payroll of Québec universities was 2.5 billion dollars. One per cent of this sum is 25 million dollars and ten per cent, 250 million dollars.

It is important to point out that the additional percentage increases accorded over the years are cumulative, and severely limit the universities' financial resources, which would explain in large part the deficit position of Québec universities.

Conclusion

According to various indicators, Québec spends more on its universities than the average in the rest of Canada. Total spending represented approximately 1.85% of the GDP, compared with 1.48% in the rest of Canada, in 2006-2007.

The following three factors contributed to higher financial effort in Québec: per-student spending, which is higher in Québec than in the rest of Canada; the participation rate, which is slightly higher in Québec and the level of collective wealth, which is lower in Québec than in the other provinces.

Higher per-student spending, \$26 619 in Québec versus \$23 698 in Ontario, can be explained primarily by higher per-student spending in Québec on teaching staff, administration, activities related to computers and communications, research and financing costs.

It should be noted that although the average salary of professors is lower in Québec than in Ontario, their cost per student is higher in Québec. This can be explained primarily by the fact that the average number of students per teacher is lower in Québec than in Ontario.

When we take into account the cost of living, the average salary of Québec professors appears a little higher in Québec than in the rest of Canada, a difference of 4%, in spite of the fact that the level of collective wealth is substantially lower in Québec.

Furthermore, the comparison of revenues and spending (per student) reveals that revenues are lower than spending in Québec, while the opposite is the case in the rest of Canada. The deficit position of Québec universities can be explained, in large part, by salary policies that are more generous to their personnel than the government funding that the universities receive for this purpose. In fact, Québec government grants are based on the government's salary policy for its employees, while the universities give their staff higher increases.

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APPENDIX 1

Factors explaining the differences between the provinces with respect to total educational spending by universities in relation to the GDP

In order to be able to explain the differences observed between the provinces with regard to total university spending in relation to the GDP, it is necessary to do a comparative analysis of the main factors that determine the level of spending in each province. The factors considered are: per-student spending, collective wealth (defined by the per capita GDP), the participation rate and the demographic factor. The participation rate is defined by the ratio of enrollment, expressed in full-time equivalents, to the population 18 to 24 years of age, while the demographic factor is the ratio of the 18 to 24 age group to the total population.²¹

The equation used is as follows:

$$\frac{\text{EXP}}{\text{GDP}} = \frac{\text{EXP}}{\text{FTE}} \times \frac{1}{\text{GDP/POP}} \times \frac{\text{FTE}}{\text{18-24}} \times \frac{\text{18-24}}{\text{POP}}$$

in which

- EXP:** total spending by universities
- GDP:** gross domestic product
- FTE:** enrollments in full-time equivalents
- POP:** total population
- EXP/GDP:** portion of the GDP spent on universities
- EXP/FTE:** spending per student
- GDP/POP:** per capita GDP
- FTE/18-24:** participation rate
- 18-24/POP:** demographic factor

²¹ The formulas used to calculate the contribution of the factors in the difference between two provinces, with regard to total educational spending in relation to the GDP, are not provided in this document, but are available upon request.

APPENDIX 2

The purchasing power parity indices by province

When the OECD makes international comparisons of education spending, the amounts spent in the national currency of the countries considered are converted into American dollars using the purchasing power parity indices (PPPs) of these countries. The PPP indices make it possible to convert spending into a common currency, but also to take into account differences in the cost of living in the countries considered: "Purchasing Power Parities (PPPs) are the rates of currency conversion that equalize the purchasing power of different currencies. This means that a given sum of money, when converted into different currencies at the PPP rates, will buy the same basket of goods and services in all countries. Thus, PPPs are the rates of currency conversion which eliminate differences in price levels between countries." (OECD, *National Accounts*)

It is important to distinguish between the consumer price index (CPI) and the cost of living index. The CPI is an indicator of variations in consumer prices. It is calculated by comparing, over time, the price of a fixed basket of commodities purchased by consumers. The index therefore reflects only the movement of prices over time; it is not a cost of living index, although people often call it that.²²

Obviously, the various Canadian provinces use the same currency, but developing a purchasing power parity index, by province, would make it possible to take into account differences in the cost of living from province to province.

For the time being, there are no purchasing power parity indices by province, but Statistics Canada seems to have available the data necessary to produce such indices. The Ministère des Finances du Québec has moreover developed a simplified method for approximating provincial PPP indices. Preliminary data have also been produced using this simplified method.²³

"The objective here is to obtain conversion rates for public spending in monetary value that eliminate the differences in price levels between the provinces, in order to permit comparisons in volumes of services."²⁴

The following table provides the purchasing power parity indices that were used for comparisons between provinces of per-student spending by universities (Table 4 in the text), of the average salary of professors (Table 6 in the text) and of per-student revenues of universities (Table 7 in the text).

22 See the following articles from the Institut de la statistique du Québec (ISQ) on the subject:

Flash-info - Travail et rémunération, *Inflation et coût de la vie*, Vol. 4, no. 1, January 2003, accessible on the Web: <http://www.stat.gouv.qc.ca/publications/remuneration/pdf/pdf-bulletin/TRjanv03.pdf>

Flash-info - Travail et rémunération, *Indice du coût de la vie*, Vol. 4, no. 2, March 2003, accessible on the Web: <http://www.stat.gouv.qc.ca/publications/remuneration/pdf/pdf-bulletin/TRmars03.pdf>

23 Québec, Ministère des Finances, Direction Générale des Finances Publiques et de la Fiscalité Locale et Autochtone. *Méthode simplifiée pour approximer les PPA provinciales*, June 2004.

24 Québec, Ministère des Finances, *op. cit.*, p. 1 [Translation].

Table A2.1 Purchasing power parity indices for the provinces in 2006^e (Québec = 100)

Newfoundland	102.1
Prince Edward Island	101.6
Nova Scotia	105.7
New Brunswick	100.0
<i>Atlantic provinces</i>	102.9
Québec	100.0
Ontario	114.4
Manitoba	99.1
Saskatchewan	99.1
Alberta	105.7
British Columbia	109.8
<i>Western provinces</i>	106.2
<i>Canada without Québec</i>	110.1
Canada	107.9

e: Estimates.

Source: DRSI, MELS. Calculations based on data provided by the Ministère des Finances du Québec.

APPENDIX 3

Breakdown of the total per-student spending by Québec and Ontario universities

This appendix presents the breakdown of per-student spending in the universities by type of expenditure, in Québec and Ontario, in 2006-2007.²⁵

Table A3.1 Total per-student spending in universities, Québec and Ontario, by type of expenditure, in 2006-2007^e (in current \$)

	Québec	Ontario	Difference
1. Academic ranks	5 506	4 715	791
2. Other instruction and research	1 763	2 129	-366
3. Other salaries and wages	5 436	5 056	380
4. Benefits	2 371	2 264	107
5. Travel	604	603	1
6. Library acquisitions	304	525	-221
7. Printing and duplicating	124	147	-23
8. Materials and supplies	1 367	1 424	-57
9. Communications	87	125	-38
10. Other operational expenditures	1 479	937	542
11. Utilities	425	512	-87
12. Renovations and alterations	517	512	5
13. Scholarships, bursaries and prizes	1 018	1 418	-400
14. Externally contracted services	653	362	291
15. Professional fees	691	263	428
16. Cost of goods sold	35	0	35
17. Interest	1 286	198	1 088
18. Furniture and equipment purchase	1 536	1 100	436
19. Equipment rental and maintenance	251	232	19
20. Internal sales and cost recoveries	32	-87	119
21. External cost recoveries	0	0	0
22. Buildings, land and land improvements	1 181	1 252	-71
23. Lump sum payments	-45	12	-57
Total²⁶	26 619	23 698	2 921

e: Estimate.

Source: DRSI, MELS. Estimates based on data from Statistics Canada, CAUBO, AUCC, the DGFE-ES of MELS and the Council of Ontario Universities.

²⁵ Student enrollments are estimated.

²⁶ The totals may differ slightly from the sum of the components because of rounding.