



A PRIMER FOR WORKING WITH COMPARATIVE DATA

CAUBO's enhanced dashboards facilitate access to financial, enrolment, and faculty data. This companion 'Primer' focuses on the limitations and inherent differences that are part of the Canadian higher education data landscape. The Primer's objectives are to improve the understanding, interpretation, comparability, and usefulness of the data.

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The Canadian Association of University Business Officers (CAUBO) is a non-profit professional organization representing the chief administrative and financial officers at over 100 universities and affiliated colleges in Canada. CAUBO provides a national perspective on matters related to higher education administration. It strengthens the capacity of leaders in the sector by connecting them with peers and information, enabling them to pursue opportunities and create solutions for shared issues.

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Table of Contents

Introduction	4
Report Outline	5
Section 1: Limitations and Inherent Differences as identified in the CAUBO Guidelines	5
Size	5
Academic programs	6
Organization structure	9
Physical environment.....	9
Management philosophy	10
Budgetary and Accounting procedures	10
Section 1 Summary	11
Section 2: Provincial ‘systems’	11
System structure	13
Funding policies and practices	14
Tuition and Student Assistance	15
Section 2 Summary	15
Section 3 Student and Faculty Data	16
Student Data	16
Student Data Summary	19
Faculty Data	19
Faculty Data Summary	20
Section 4 Concluding Observations and References	20
References	21
Appendix A: National and International Indicators	22

Introduction

CAUBO's recent value enhancements to the Financial Information of Universities and Colleges (FIUC) report include the development of financial dashboards that aim to simplify the presentation and utilization of the financial information. To further enhance the value, enrolment information from Statistics Canada's Postsecondary Student Information System (PSIS) and faculty information from the University and Colleges Academic Staff System (UCASS) have been added, where available¹, to provide information that can be used to normalize comparisons. The existence of the new [FTE-dashboards](#) underscores the importance of reminding current and potential users of the limitations and inherent differences of the FIUC information, highlighting the limitations and inherent differences² of the Statistics Canada student and faculty information, and drawing attention to differences in provincial systems that affect comparative analyses in Canadian higher education.

At the same time, it is important to note that the data provided by Canada's universities to Statistics Canada is used for a variety of purposes and published in a variety of Statistics Canada tables. The data is widely used by federal ministries, provincial ministries, education analysts, institutions, and academics and forms the basis of Canada's submissions to the Organisation for Economic Development (OECD). As such, it plays a key role in informing decisions impacting various federal and provincial policies and levels of support. In a nutshell, the data is important. CAUBO's initiative will facilitate the use of the information which, in turn, will help improve the various definitions and interpretation of definitions that are critical to the production of quality information for the university and postsecondary sector.

From the outset it is important to note that institutional comparative analysis requires users to pay particular attention to selecting appropriate peer comparators (which, indeed, may vary depending on the specific data element being compared) and **'drilling into the data'** to develop an appreciation of how the limitations and inherent differences may be reflected in the institutional information. Further, inter-jurisdictional comparisons at the institutional or provincial level require an understanding of the structural differences in higher education systems and their impact on comparative analyses.

CAUBO's [financial dashboards](#) and [FTE-based dashboards](#) provide a set of data and tools to facilitate comparisons and trend analyses at the institutional, provincial, and national level with the objective of informing planning and decision-making. This 'primer' focuses on providing an overview of the caveats and considerations that should help users construct useful information from the FTE-based dashboards. More technical detail about the data elements in the FTE-based dashboards, including the sources of data and the mapping of enrolments and faculty to specific discipline groupings, is included in a separate Methodology document available within the dashboards.

It is strongly recommended that institutional users of the FTE-based dashboard familiarize themselves with the data provided by their own institution – financial, student, faculty. Knowledge of your institution's data will help with the interpretation of the dashboards information and provide a solid foundation for pursuing more detailed analyses.

¹ Some affiliated and federated institutions may not participate in the PSIS or UCASS surveys or the enrolment and faculty information may be provided by the parent institution and is recorded in that fashion.

² Canadian Association of University Business Officers (CAUBO), Guidelines, Financial Information of Universities and Colleges 2019-20, CAUBO, 2020, p.2 <https://www.caubo.ca/knowledge-centre/surveysreports/fiuc-reports/#squelch-taas-accordion-shortcode-content-1>

Report Outline

Section 1 expands on the FIUC reference to *limitations* and illustrates why users need to be aware of the *inherent differences* when undertaking institutional comparative analyses. The focus is on the FIUC report and the General Operating Fund although reference may be made to other Funds.

Section 2 outlines some of the provincial differences in system structure and funding of higher education that need to be taken into consideration when conducting comparative and trend analyses both at the institutional and provincial levels. Again, the focus of the financial information is on the General Operating Fund although reference is made to other Funds.

Section 3 focuses on the enrolment and faculty information contained in the [FTE-based dashboards](#) and details some of the factors that users of the data need to consider when undertaking comparative analyses. Both sets of information have their own *limitations* and *inherent differences* much like FIUC. Readers should note that the [FTE-based dashboards](#) contain detailed documentation on each specific indicator, identifying the data sources and definitions.

Section 4 provides concluding thoughts and a set of references and related notes.

Appendix A provides an overview of how the data is reported internationally and how it is reflected in Statistics Canada publications aimed at measuring national and provincial indicators in an international context.

Section 1: Limitations and Inherent Differences as identified in the CAUBO Guidelines

Size, Academic programs, Organization structure, Physical environment, Management philosophy, Budgetary and accounting procedures

Users of the FIUC should familiarize themselves with the Guidelines and the “Survival Guide” that accompany the publication of the annual FIUC report³. The Guidelines contain the detailed explanation of the reporting requirements, emphasize the importance of comparability and reporting consistency, and offer more specific reference to the limitation and inherent differences that need to be considered when using the FIUC. The Survival Guide is a valuable tool, aimed at those individuals tasked with completing the FIUC-CAUBO survey.

Size

Given a certain level of fixed costs associated with any university⁴ differences in enrolment size will contribute to differences among and between universities in expenditure per student by function and overall. In general, smaller institutions will have higher fixed expenditures per student and as a percentage of total expenditures. Some provinces recognize the financial reality of size through supplementary grants to small universities. **The [FTE-based dashboards](#) facilitate the review of institutions by size (financial, enrolment, and faculty) and includes some existing size categorizations.**

³ The Guidelines are intended to assist both users and preparers of the financial data reported in the annual return while the Survival Guide is intended as a supplemental resource to the FIUC Guidelines and was developed to provide additional clarification on certain items included in the FIUC report.

⁴ For example, regardless of size a given university requires a minimum number of faculty to deliver its academic programs, core personnel (e.g., president, chief financial officer, and registrar), and a basic level of services / facilities (e.g., library, information technology, physical plant).

Academic programs

Academic programs refers to four fundamental academic characteristics that directly impact expenditures and therefore comparisons: i) differences in program level ‘mix’ (i.e., the proportion of enrolments in undergraduate, professional, Masters, and Doctoral level programs), ii) differences in program discipline ‘mix’ (e.g., proportion of enrolments in sciences, humanities and social sciences, health sciences) iii) differences in program design and delivery (e.g., Co-op programs, distance learning, part-time studies offerings, and service teaching), and instruction norms regarding workloads and class size and iv) differences in the degree of research intensity.

I. Differences in the program level “mix”

In general, institutions offering programs at all levels (undergraduate, professional, Masters and Doctoral) have higher expenditures per student than institutions that offer primarily undergraduate programs. The main reasons for the difference are the

- more labour intensive nature of graduate level work per student,
- the need for specialized facilities/services, and
- a requirement for higher levels of financial support for graduate students.

In jurisdictions⁵ where enrolment-based funding formulas are, or were, used to determine and/or allocate some portion of government grants there is a long-standing recognition of the differences in expenditure requirements via the assignment of differential program weights – by *program level* and by *discipline*. In general, higher weights are attributed to graduate programs relative to undergraduate programs in recognition of the added cost associated with graduate education. At the undergraduate level, higher weights are attributed to professional programs and to upper year undergraduate enrolment in the arts, humanities, social sciences, and sciences as well as programs in the applied sciences and health sciences.

II. Differences in discipline ‘mix’

Differences in *discipline* ‘mix’ are recognized as the major contributor to differences in *per student instruction expenditures*.⁶ Programs in the health sciences, for example, are generally more expensive to operate than programs in the sciences which in turn are generally more expensive than programs in the social sciences, and humanities. Enrolment limits, (often set by government), prescribed program requirements (often set by professional associations and/or regulatory agencies), ‘hands-on’ learning, higher labour costs, and the need for specialized facilities all contribute to the higher levels of per student instruction expenditure in the health sciences.

Fine Arts and Music are examples of two specific discipline areas where expenditures per student tend to be higher than in the social sciences and humanities due to the hands-on nature of the learning experience, associated limitations on class size and enrolment, and specialized equipment and infrastructure. In institutions where Fine Arts and/or Music represent a higher proportion of enrolments than the average one might expect to see higher expenditures per student, notwithstanding the fact that lower labour rates (faculty salary levels in Fine Arts and Music) may partially offset the added costs.

Differences in salary levels by discipline are major contributors to expenditure differences at the discipline level; salary levels in Business, Law and Medicine are at one end of the scale and Fine Arts and Humanities at the other end. For example, in 2017-18 salaries in Business were approximately 20% higher than the average at the Full Professor level, 13% higher than the average at the Associate Professor level and 24% higher than the average at the Assistant Professor level.

⁵ For example, funding formulas in Ontario and Quebec (Canada) and Texas, Ohio, and Colorado (United States).

⁶ See Middaugh, Wellman, and Capaldi references in Section 4.

In the Liberal Arts / Humanities average salary levels were approximately 7% lower than the average for Full Professors, 2% lower at the Associate Professor level and 8% lower at the Assistant Professor level.⁷

Similarly, **the rank/age composition of faculty will affect institutional comparisons**; the greater the proportion of Full Professors, for example, the greater the likelihood that average expenditure per student will be higher. Unless that increased expenditure is offset by other measures (e.g., higher student to faculty ratio or the greater use of part-time and/or teaching only faculty) the added expense associated with an older age/senior rank profile that differs from a peer set translates into higher expenditure per student.

The predominant factors associated with variance in faculty salaries are discipline and rank. Unless the comparator peer set has the same faculty composition by rank and discipline, there will be error that might be masked at the campus level.⁸

The ‘masking’ of error occurs when salary comparisons are limited to the ‘average’ for an institution as a whole. In comparative analysis, the ‘average’ salary is of little value unless it is placed in the context of the discipline composition of faculty *and* recognition of age/experience profile or rank profile as well. An institution with a lower average age/experience or a decidedly higher proportion of Assistant Professors may well have a lower *average* salary than an institution with a higher proportion of Full Professors. Similarly, an institution with programs predominantly in the liberal arts and sciences will likely have lower average salaries than an institution with professional programs (e.g., Law, Business, and Engineering).

In addition to differences in salary level by age/experience and discipline, **there are salary differences by type of institution – those with relatively high levels of research activity and relatively large numbers of graduate students, tend to have higher salary levels**, on average, as compared to institutions that focus on primarily undergraduate studies. Part of the difference at the institutional level is simply a function of discipline ‘mix’ – more faculty in higher paid disciplines. More recently the expanded use of full-time teaching stream faculty has added another dimension to the comparability of salary information reported to Statistics Canada via UCASS, a matter we return to in Section 3b.

Another factor to consider is the ‘inherent differences’ in cost-of-living between larger urban centres and smaller towns and cities and the relative economic conditions of Canada’s regions. Those realities translate into differences in salary levels by province as illustrated in the following table.⁹

⁷ CAUT, *Almanac of Post-Secondary Education*. Table 3.2 2017-18. Based on UCASS data.

⁸ Chatman, S., “Constructing a Peer Institution: A New Peer Methodology, Association for Institutional Research”, Professional Files | Summer 2017, Supporting quality data and decisions for higher education. pp.55-66

⁹ CAUT, *Almanac of Post-Secondary Education*. Table 3.1 2017-18. Based on UCASS data.

Table 1: Average Salaries of Full-time University Teachers by Rank and Institution, 2017-2018

	Full	Associate	Assistant	Lecturer	All ranks
Total - Newfoundland and Labrador	\$153,525	\$122,400	\$99,325	\$80,175	\$124,175
Total - Prince Edward Island	\$154,675	\$128,825	\$101,600	-	\$128,000
Total - Nova Scotia	\$144,950	\$114,375	\$97,025	\$84,075	\$119,900
Total - New Brunswick	\$148,900	\$118,775	\$94,700	\$103,850	\$123,900
Total - Quebec	\$144,025	\$116,275	\$94,400	\$84,825	\$122,975
Total - Ontario	\$180,600	\$145,775	\$113,850	\$111,400	\$148,100
Total - Manitoba	\$151,575	\$116,775	\$103,050	\$85,825	\$123,425
Total - Saskatchewan	\$174,700	\$136,475	\$112,825	\$93,100	\$140,525
Total - Alberta	\$178,525	\$127,625	\$103,900	\$95,475	\$136,125
Total - British Columbia	\$170,350	\$126,275	\$109,550	\$101,925	\$134,950

1. Excludes all positions with senior administrative responsibilities, all staff that are appointed to a faculty of medicine or dentistry, and all positions with a Rank below Lecturer or a Rank of Other (ungraded, etc.) Excludes any Administrative Stipends from calculations of annual rate of salary.

2. 119 institutions in universe. Salary statistics were not authorized for release by the following institutions: Bishop's University, Wycliffe College and Saint Andrew's College - University of Manitoba. Of the 116 remaining institutions, Horizon College and Seminary, Lutheran Theological Seminary, Regis College, Saint Augustine's Seminary, St. Andrew's College - University of Saskatchewan and University of Trinity College did not report any data, leaving 110 institutions reporting.

Source: Statistics Canada, University and College Academic Staff System.

III. Differences in program design and delivery and instruction norms

Institutions heavily engaged in co-op programs and distance education may well incur added costs and have somewhat different expenditure patterns than the norm. While such institutions may have specific sources of income to fund such expenditures (i.e., co-op fees), **the differences in expenditure and income per student relative to the 'average' may be sufficient to warrant a careful look at the institution to ensure it does fit into the comparator peer group.** Moreover, co-op and distance education (part-time) students pose a challenge to the conventional method of counting students – thus potentially affecting the denominator in 'per student' comparisons; a topic that is discussed further in Section 3.

Another area to keep an eye on when conducting comparative analyses is the degree of service teaching within an institution and its impact on the proportion of activity by broad discipline groupings – Health Sciences, Sciences and Applied Sciences, and Arts, Social Sciences and Humanities. This particular issue is of importance in determining whether costs are more a function of student 'mix' or faculty 'mix'. In some cases, institutions may have a higher proportion of faculty in the health sciences than enrolments in the health sciences. That may be due to discipline differences in workload norms (i.e., the proportion of time spent teaching, doing clinical work and/or conducting research, the latter related to the degree of research intensity – see below) but it may also be influenced by the degree of service teaching that is part of the academic structure at the institution. For example, at a number of institutions a portion of the health science programs may actually be taught in other Faculties (e.g., electives, perhaps introductory biology, mathematics) thus affecting the number of faculty required in the Health Sciences to teach 'the program'. The enrolment data and faculty data that form part of the [FTE-based dashboard](#) only record the student's discipline area or faculty member's home department/discipline area – there is no mechanism to capture service teaching or enrolments in what are often considered service courses in another discipline/unit. So differences in the indicators should lead to further questions about institutional operations that are not readily apparent from the dashboards.

With respect to differences in instruction norms, **the key point is that the application of workload statements tends to be at the department level where discipline norms prevail.** Those norms are influenced by a variety of factors including enrolment demand (service teaching, undergraduate specializations, graduate teaching/supervision), program requirements,¹⁰ research intensity, and service requirements (e.g., service to the department, the institution, the discipline, the profession, and the community), classroom space configuration and availability, and the availability/utilization of teaching only faculty, as well as availability/utilization of adjunct/part-time faculty/instructors. Many of those factors may be a function of institutional policies and collective agreements, sources of information that should be reviewed and monitored as part of the comparative analysis.

IV. Differences in the degree of research intensity

Research intensity refers to the level and resource intensiveness of research activity. **The FTE dashboards facilitate the analysis of research income / expenditure in terms of both dimensions; level and intensiveness.** The greater the level of research activity, the greater the likelihood of higher operating expenditures because much of the cost of research is borne by the Operating Fund in the form of faculty time, direct expenditures associated with graduate support, and indirect costs such as facilities, IT, and administration. While some of the indirect costs are recovered via overhead grants and/or recoveries, there is a ‘net’ cost that is reflected in increased operating expenditures. Resource intensive research – primarily focused on the sciences, applied sciences and health sciences – leads to further expenditures because of added infrastructure requirements (e.g., specialized research facilities with increased institutional service demands such as occupational health and safety, security, and utilities infrastructure). **To some extent, the comparative analyses will account for these factors in the selection of appropriate ‘peers’ where program level and discipline ‘mix’ are considered along with measures of research intensity derived from the financial data and from the enrolment/faculty discipline grouping data.** The [FTE-based dashboards](#) include some existing categorization of institutions and facilitate the creation of appropriate peer institution comparator groups.

Organization structure

Organization structure refers to differences related to multi-campus structures, the presence of federated/affiliated arrangements, and the existence of other organizations that are inextricably tied to the university such as hospitals, and/or research centres/units. **In general, organizational complexity translates into added costs and therefore contributes to increased expenditure per student.** As well, the added complexity may translate into financial arrangements and reporting differences that may be masked by institutional level data. For example, funding arrangements for Faculties/Schools of Medicine and Veterinary Medicine differ across the country and involve major contributions from other government funding sources beyond the Ministry responsible for Post-Secondary Education. Also, it is important to note that while affiliated/federated institutions are included separately in the FIUC report, the related PSIS enrolment information and/or UCASS faculty information may be reported as part of the parent institution. That reality affects the usefulness of the indicators for affiliated/federated institutions.

Physical environment

Physical environment refers to recognized differences in the costs associated with operating in distinct environments. For example, one might expect that utilities costs (e.g. electricity, water, waste disposal, heating and sewage) would be higher for institutions operating in the north and travel costs would be higher for institutions in more remote locations. Again, some provinces recognize these additional costs by providing supplementary grants. Additionally, there are examples

¹⁰ Particularly if pursuing comparative analyses at the academic program level - differences in program requirements (e.g., # of courses/credits for graduation, specializations/major/minor designations) will have an impact on expenditure levels.

where institutional facilities were constructed to support a particular learning approach that, in effect, limits class size and therefore affects the level of expenditure per student.

Management philosophy

Management philosophy refers to the issue of centralization versus decentralization in the provision of non-instruction services and in some cases to the actual attribution of service expenditures to the Faculties/Schools (*Instruction and non-sponsored research*). Some institutions adopt a Faculty/School based approach to the provision of services and management, while others opt for a more centralized approach or a mix of both approaches. Recently there appear to be more examples of institutions adopting a decentralized approach to the provision of what, in the past, may have been seen as a central service. While all institutions have some form of central IT function, for example, many have Faculty/School IT units that provide local services and are included in Faculty/School expenditures rather than in the FIUC function *Computing and Communications*. Similarly, while an institution may have a central suite of Student Services, individual Faculties/Schools may have a local 'suite' as well that is likely reflected in the Faculty/School expenditures rather than the *Student services* function. Yet another example of the centralized/decentralized model is the provision of Advancement Services with some institutions providing such services centrally while others provide a mix of central and local services. The impact on expenditure analysis can be particularly telling when trying to interpret the expenditures associated with a particular function such as *Instruction and non-sponsored research* in the FIUC. There are ways to infer the level of centralization versus decentralization from the FIUC¹¹ but **differences in management philosophy will impact the expenditure patterns in institutions and therefore need to be considered when interpreting the comparative data.**

Budgetary and Accounting procedures

Budgetary and Accounting procedures refers to institutional specific budget and accounting policies that may impact an institution's financial reporting as reflected in the FIUC. This point is reflected in the previous note about centralization and decentralization but also applies to other institutional specific policies and practices. For example, policies regarding internal cost recoveries and rates vary by institution as do policies and rates regarding interest on loans (internal and external). In institutions using some form of activity-based budgeting, central service expenditures (e.g. interest expense, or enhanced service levels for janitorial, security, IT services) may be incurred in, or distributed to Faculties/Schools, thus increasing the reported expenditures in *Instruction and non-sponsored research* and lowering the reported expenditure in another functional area. **Users of the data should be prepared to devote time to understanding the income/expenditures of comparator institutions as part of the peer selection.**

Related to the Budgetary and accounting procedures, it is important to note that in the FIUC, *Non-credit instruction* is included in the General Operating Fund income and expenditure. In terms of income, *Non-credit fees* represent approximately 2% of General Operating income but the amount varies significantly by institution and by province. The importance of Non-credit instruction in the General Operating Fund income and expenditure information is especially pertinent when considering comparative analyses because the enrolment information in the [FTE-based dashboards](#) does not include the student counts normally associated with Non-credit instruction. **Users are advised to examine the relative size of the non-credit instruction function (income and expenditures) as part of the peer selection process** and factor that information into the interpretation and presentation of the comparative analyses. **Users can easily remove the Non-Credit fees from income information in the FTE-based dashboard and the Non-Credit instruction expenditures from General Operating expenditure analyses.**

¹¹ For example, calculating the ratio of 'Other salaries and wages' to 'Academic ranks' in the *Instruction and non-sponsored research* function of the FIUC and comparing the ratio at 'peer' universities.

Section 1 Summary

The FIUC report is the only national source for comparable and consistent financial information for Canadian universities and considerable effort has been made over the years to ensure the data is reported consistently across the country. Nevertheless, the financial information has some limitations and there are inherent differences among the 100+ institutions, 10 provinces and (currently) one territory that need to be considered when utilizing the financial information for comparative purposes. The main messages from the preceding overview of the FIUC's limitations and inherent differences are:

- i) differences in the number and proportion of enrolments by program level (undergraduate, professional, Masters, Doctoral) have a major impact on income and expenditures per student by institution and province,
- ii) the difference in discipline 'mix' is often cited as the primary factor explaining differences in expenditure per student,
- iii) because of i) and ii) users need to be particularly diligent in selecting appropriate 'peer institutions', something the FTE-based dashboards will facilitate,
- iv) the level of Non-credit activity should be factored into peer selection and consideration should be given to excluding Non-credit fees as well as the related Non-Credit expenditure when conducting income/expenditure per student and/or per faculty comparative analyses,
- v) financial comparisons using FIUC information (and the information from the FTE dashboards) provide rough measures that should be seen as the starting point for further analysis rather than a finished product, and finally, as a reminder,
- vi) *"Even the most stringent of reporting guidelines cannot eliminate differences resulting from different underlying accounting practices."*¹²

Section 2: Provincial 'systems'

The system of post-secondary education in each province evolved from very different origins and the ensuing national landscape reflects those differences and presents a number of challenges to comparative analyses. Section 2 begins with an overview of the differences in provincial funding approaches and the impact on comparative analyses. Building on CAUBO's 2020 publication [University Funding in Canada, A Comparison of Provincial Policies on University Funding, Student Aid, and Research Support](#), additional information is presented regarding tuition levels and student assistance along with commentary about the impact on comparative analyses.

Bowen's Law, simply stated, is that costs (expenditures) are simply a function of revenue.¹³ His observation holds true today but it is also worth noting that shifts in revenue sources can over time have a major impact on both expenditure levels and expenditure patterns. For example, higher levels of tuition revenue may well result in higher levels of student assistance expenditures. Higher levels of donations may result from higher fundraising expenditures. A shift from provincial funded block grants to earmarked or targeted grants, by definition, will affect spending patterns.

¹² Ibid., p.2 (A summary of the accounting standards followed by CAUBO member institutions is available at: https://www.caubo.ca/accounting-standards_cauboinstitutions/)

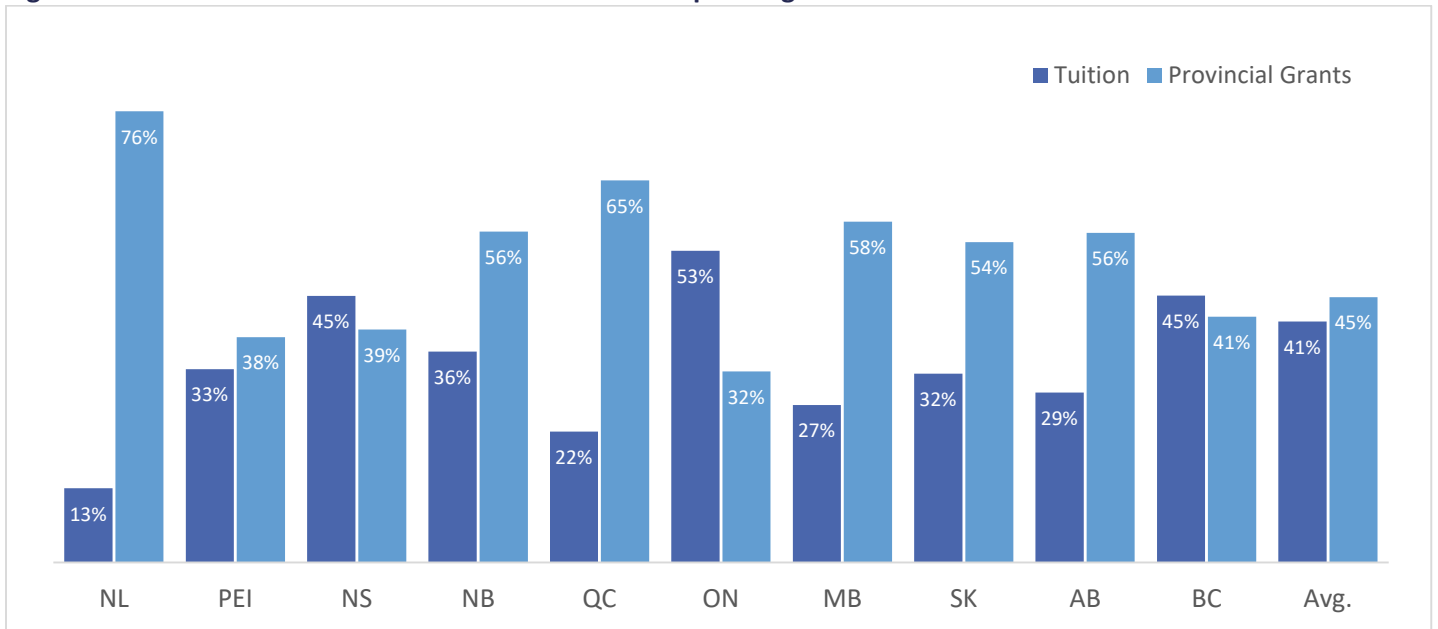
¹³ For more information about "Bowen's Law" see *Canada's Universities: Cost Pressures, Business Models and Financial Sustainability*, CAUBO, 2015 p.17 www.caubo.ca/knowledge-centre/surveysreports/

Figure 1 created from the 2019-20 FIUC highlights the difference in provincial funding approaches in providing support to higher education. While the *average* indicates that provincial grants and gross tuition fees represent about 41% (tuition) and 45% (provincial operating grants) of total General Operating Income, (the remaining 14% is ‘all other income’ including ‘other fees’) the differences across the country are significant. Most provinces opt for greater direct provincial subsidy (public) and less reliance on tuition (private) while others, notably Ontario and to a lesser extent Nova Scotia and B.C., have opted for the converse.^{14 15}

The differences in funding approach are a function of a variety of factors including each province’s

- historical and current decisions about the structure of the post-secondary system,
- its financial circumstances and funding priorities,
- its explicit or implicit views of the public/private benefits of university education,
- decision about the level of public subsidy, and
- its views/decisions about the most efficient way to deliver the subsidy – to institutions, to students or a combination of both.

Figure 1: Provincial Grants and Tuition as % of General Operating Income 2019-20



Each of the preceding factors are often a topic of discussion in higher education and have been the subject of many research efforts and government commissions/reviews/task forces over the years. Users of the data, particularly time series data, should familiarize themselves with more recent history of higher education funding approaches to help place comparative analyses in context.

¹⁴ What’s missing from the chart is recognition of additional provincial investments (and federal investments) and private investments (e.g., contracts, grants, donations) in student assistance, research and capital. Accordingly, the chart does not attempt to measure or compare provincial funding “effort” – e.g., provincial funding as a % of GDP, or as % of government income, or provincial funding per capita. However, when conducting provincial comparative analyses users may want to consider those factors/indicators to put the comparisons in context.

¹⁵ Readers should note that ‘tuition’ includes tuition revenue from international students. To illustrate the importance, in Ontario, tuition from international students represents over 40% of tuition revenue.* Tuition income from domestic students only is about \$3.5 billion compared to \$3.7 billion in provincial grants. (For the most part international enrolments are not eligible for provincial operating grants in Ontario). * Committee of Finance Officers, *Financial Report of Ontario Universities, 2019-20* Table 2. <http://couprod.tgtsolutions.com:94/static-reports.aspx>

At the provincial level there are a number of specific topics that affect comparative analyses:

- i) postsecondary system structure,
- ii) funding policies/practices affecting grant support,
- iii) tuition policy and regulations, and
- iv) student assistance policy.

System structure

System structure affects comparative analyses in at least two specific ways. In the first instance, some provinces have defined their universities in terms of their missions, which carry with it expectations about activity and services that have a direct impact on income and expenditure. Alberta's Universities, for example, have been categorized into either Comprehensive Academic Research Universities or Undergraduate Universities as part of a postsecondary education classification system that includes Comprehensive Community Colleges, Polytechnic Institutions, Undergraduate Institutions, Specialized Arts and Cultural Institutions, and Independent Academic Institutions.¹⁶ In British Columbia universities are designated as 'research intensive' or 'teaching intensive' and are part of a more comprehensive postsecondary system that includes colleges and institutes.¹⁷ In Ontario, Strategic Mandate Agreements have a bearing on mission and the breadth, depth and levels of academic programming.¹⁸ These provincial designations affect program level offerings and discipline 'mix' – factors that are critical components to understanding differences in institutional expenditures.

In the second instance, the public postsecondary system structure in all provinces includes community colleges and universities (and may well include other institutions offering postsecondary education/training). The level of integration between the community colleges and universities varies from province to province. In British Columbia and Alberta, extensive transfer and pathway programs are part of the system with some students choosing to study at local institutions and transfer to a university in the upper years to finish their programs. Accordingly, the distribution of student enrolments by year level¹⁹ may be different for Alberta and British Columbia universities relative to most other provinces. Since institutional expenditure is affected by the distribution of year level enrolments (larger class sizes in years 1 and 2 and therefore less expenditure per student, on average) the universities with higher proportions of transfer students into upper years, on average, will incur higher expenditures per student. Those institutions are teaching a greater percentage of what would be considered 'upper year' courses in other systems.

Quebec's system structure also includes colleges, the Collège d'enseignement général et professionnel (CEGEPs) and universities. The CEGEP's play a direct role in the provision of university education by providing what is considered the 1st year of university education in many other provinces. Accordingly, for students from Quebec enrolled in a Quebec university, the program duration for a baccalaureate degree is essentially 3 years; out-of-province students in Quebec institutions take an initial year of foundational courses resulting in a program duration of four years. The impact of this structural difference is that there is a smaller proportion of 'lower level' students in Quebec universities relative to universities in other provinces except, perhaps, as noted previously, in Alberta and British Columbia.

In other provinces the link between colleges and universities is not imbedded in the structure but there are a variety of arrangements to facilitate pathways from college to university and collaboration between colleges and universities.

¹⁶ <https://www.alberta.ca/types-publicly-funded-post-secondary-institutions.aspx> (retrieved, April 16, 2021)

¹⁷ The Canadian Information Centre for International Credentials (CICIC)

https://www.cicic.ca/1155/postsecondary_education_in_british_columbia.canada#:~:text=Teaching%2Dintensive%20universities%20%E2%80%94%20Capilano%20University,Valley%20and%20Vancouver%20Island%20University (retrieved September 29, 2021)

¹⁸ <https://www.ontario.ca/page/all-college-and-university-strategic-mandate-agreements> (retrieved June 21, 2021)

¹⁹ 'Year level' refers to the student's progression in an undergraduate program, (i.e., 1st year, 2nd year, 3rd year, 4th year).

Funding policies and practices

CAUBO's *University Funding in Canada*, referenced previously, provides an overview of some of the provincial policies that affect institutional funding. Operating funding formulae are, or were until recently, operational in three provinces (Ontario, Quebec, Saskatchewan) and historically have had an impact on funding levels and policies in many other provinces. The key characteristics of the funding formulas are i) the recognized difference in program costs by level and discipline, ii) distinct differences in the methodology used to arrive at those 'cost' differences and iii) differences in the mechanics of the respective formulas in arriving at institutional allocations.

In addition to 'core funding' for basic operations, many provinces use special purpose grants to recognize specific public policy initiatives, special institutional characteristics (i.e. small size or region-based), specific missions, and plant repairs and alterations. Those monies are included in the FIUC income data and the expenditure data; funding levels and the distribution mechanisms vary by province.

While core funding grants and special purpose grants constitute the vast majority of provincial operating grants provided by a 'lead' ministry, some universities also receive income for educational purposes in the General Operating Fund from other provincial government ministries such as Health. While the overall total represents roughly 3% of the total provincial grants across the country, in some institutions the non-lead ministry grants represent a larger proportion and therefore have a greater impact on comparisons. Moreover, changes in provincial policies/practices and/or institutional policies/practices may result in year over year differences in how such grants are reflected in the institutional reports.

Users should also note that many universities report some provincial grants in the Special Purpose and Trust Fund. Those funds may reflect grants from the lead ministry as well as other provincial ministries, including Health. Across the country, those provincial grants averaged about 5.5% of the value of the provincial grants in the General Operating Fund (2019-20) but there are major differences among the provinces. PEI recorded \$0 in provincial grants in the Special Purpose and Trust Fund in 2019-20 and Newfoundland & Labrador recorded less than \$1 million. In other provinces, however, provincial grants in the Special Purpose and Trust Fund represented more sizeable amounts; over 2% of provincial grants in the General Operating Fund in Quebec and Nova Scotia, 4% in Manitoba and Ontario, close to 5% in New Brunswick, over 7% in Alberta, over 12% in British Columbia and almost 20% in Saskatchewan. Similar to the previous comment about lead ministry grants and other provincial grants in the General Operating Fund, changes in provincial policies/practices and/or institutional policies/practices may result in year over year differences in how provincial grants in the Special Purpose and Trust Fund are reflected in institutional reports.

As part of the 'peer selection' stage of comparative analyses, users are advised to carefully review the financial information of the proposed peers as part of the peer selection.²⁰

For comparative analysis users may want to look at the FTE-based dashboard information in multiple ways, for example by focusing on the General Operating Fund and then combining that Fund with the Special Purpose and Trust Fund. The dashboards facilitate such comparisons.

²⁰ In this specific case Table 7 of the FIUC survey.

Each province has adopted its own approach to funding repairs and alterations and capital projects. While most provinces provide some form of annual provision for maintenance/renovation/repair, the amount varies significantly by province. Provincial approaches to institutional borrowing for capital projects also differ by province as noted in the *University Funding in Canada* report. **The implications for comparative analyses are twofold: differences in the level of funding for maintenance and repair may be due to provincial policy rather than institutional resource allocation decisions, and differences in the levels of ‘interest expense’ may also be a function of provincial practices. Both factors may influence expense by type analyses and expense by function.**

Tuition and Student Assistance

As noted in Figure 1 there are marked differences among the provinces in the proportion of university General Operating Income derived from provincial grants versus tuition. Tuition policies vary across the country with the lowest tuitions in Newfoundland & Labrador and Quebec and the highest tuition levels in Ontario and Nova Scotia. Low tuition tends to translate into a lesser requirement for student assistance and, for comparative purposes, one would expect to see lower levels of institutional student assistance expenditure per student in those ‘low-tuition’ provinces, notwithstanding the fact that student assistance is used for both recognizing merit (scholarships) and providing need-based assistance and for both undergraduate and graduate students.

In Ontario, a series of government decisions essentially earmark a portion of tuition income for student assistance. That reality affects the availability of tuition income to be used for other general operating purposes and contributes to higher student assistance expenditures in Ontario universities. Similarly, a set of government decisions in Ontario encouraged universities (and colleges) to increase endowments for student assistance which also contributes to the overall level of student assistance expenditure in the General Operating fund. Other provinces may have similar programs in place that ultimately affect the net revenue available to support the institution and affect the level of student assistance expenditure. **The important point to note is that when selecting peers and interpreting income per student or expenditure per student data, differences in provincial tuition policy and student assistance policy will affect institutional expenditure levels in total, by expense type, and by function.**

Related to an earlier point in the previous section, and with specific reference to student assistance expenditures, users may want to review expenditures in the General Operating Fund and then add the student assistance expenditures from the Special Purpose and Trust Fund. The FTE-based dashboards facilitate such comparisons.

Section 2 Summary

Canada’s ten provinces have developed quite distinct post-secondary education systems characterized by funding approaches and organizational structures that reflect a set of provincial specific factors. In conducting comparative analysis involving inter-jurisdictional comparisons and/or institutions in different jurisdictions, users need to have an understanding of the basic funding approach adopted by the respective jurisdictions and recognize the important role of differences in system structure, funding policies/practices, and tuition and student assistance policies. For comparative analyses, users may want to combine the General Operating Fund with the Special Purpose and Trust Fund to provide a more comprehensive ‘view’ of the funding information.

Section 3 Student and Faculty Data

How many students are enrolled in Canadian universities? How many faculty are employed in Canadian universities? These are simple questions with multiple answers depending on the definitions and the availability of information. Much like the FIUC information, student and faculty information have their own sets of limitations and inherent differences.

Student Data

How many students are enrolled in Canadian university programs depends on

- i) how one defines a ‘student’ (e.g., headcount full-time, part-time, full-time equivalent, full-load equivalent, undergraduate, graduate, international, domestic, eligible, ineligible),
- ii) whether ‘enrolled’ refers to a specific point(s) in time during a year or the full year,
- iii) whether type of program – certificate, diploma, degree – is considered, and
- iv) whether non-credit courses and programs are included or excluded from the data.

Statistics Canada collects student enrolment information from institutions directly or via provincial government ministries/agencies²¹ and that information forms the basis of what is commonly referred to as PSIS – the Postsecondary Information System. PSIS has its comparability challenges because there are limitations and inherent differences in the way institutions and provinces ‘count’ students and regulate the development and offering of programs. **Accordingly, there are several issues to consider when using the student data in the [FTE-based dashboards](#).**

I. PSIS - a ‘snapshot’ in time

As noted in the Statistics Canada PSIS documentation²²

*Enrolments are based on students enrolled in the postsecondary institutions at the time of the fall snapshot date, that is, a single date chosen by the institution which falls from September 30th to December 1st. Therefore, students who are not enrolled during this time period are excluded and **enrolment totals do not represent a full academic year.** (emphasis added)*

The implication of the preceding is twofold:

First, inherent differences in the actual reporting date affects the comparability of the information, particularly at the inter-jurisdictional level, because the later the reporting date, the greater likelihood of attrition as students drop courses and alter workloads through the term. Accordingly, institutions that use a September 30th date are likely to report higher enrolment than if they reported on December 1st.²³

Second, the PSIS data represents a slice of the total annual course registrations in an institution – representing a substantial part of the enrolment activity but not capturing Spring/Summer activity.²⁴ To put that into perspective note that in Ontario, the Spring/Summer activity represents, on average, about 5% of the Fall enrolment levels and varies by institution. This limitation of the data affects the general comparability and needs to be considered in the comparative analyses.

²¹ For example, “Ontario’s universities have chosen to meet their required reporting requirements to Statistics Canada’s Postsecondary Student Information System (PSIS) through centralized reporting” (to the Ontario Ministry) and the Maritime Provinces Higher Education Commission (MPHEC) reports on behalf of its member institutions in the Atlantic Provinces. (<https://www.ontario.ca/page/collection-and-use-postsecondary-education-enrolment-information> retrieved March 15, 2021)

²² <https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5017>

²³ For example, the Maritime Provinces Higher Education Commission (MPHEC) uses December 1st as the official count date, while Ontario uses November 1st as does Manitoba. The University of Saskatchewan uses December 1st.

²⁴ Nor capturing non-credit activity. Since the FIUC data reflects an entire fiscal year and includes non-credit instruction income and expenditures as noted earlier, there is a mismatch between the enrolment information and financial information. Hence, the suggestion in Section 1 to consider excluding Non-credit fees and Non-credit expenditures.

II. Different definitions of Full-time and Part-time status

While PSIS collects information about full-time and part-time registered students, there are inherent differences in the institutional definition of full-time and part-time students. A full-time student is usually defined as taking a minimum proportion of the normal full-time course load for a specific program (e.g., at least 60%). Definitions of “full-load” can vary by program within an institution and among institutions (e.g., Engineering vs. Arts vs. Commerce) and the actual threshold for full-time status varies from 60% to 80%. If the course load per term falls below the stated minimum threshold (e.g., 60% or 80%) the student’s status may change from full-time to part-time.

For the most part institutions tend to define part-time status at the undergraduate level by setting a course load threshold as noted and/or by an admission process for part-time studies where the student is subject to a set of academic regulations that may differ from regulations for full-time students.

At the graduate level, part-time students are often defined by a specific admission process, and/or enrolled in a designated part-time program, and ‘counted’ as a fraction of a full-time load, often based on the relative duration of the part-time program versus the full-time program. For example, a full-time Master’s student might be expected to complete the full-time program in two years while a part-time Master’s student might be expected to complete the program in four years. Using that example, the part-time student would be counted as 0.5 or ½ of a Full-time student in a given year. Master’s students in course-based programs may be counted differently.

Regulations governing the admission, registration and program requirements as well as the thresholds or mechanism used to define part-time and full-time students differ from institution to institution. **Depending on the level of detail required for a specific comparative analysis, users should familiarize themselves with institutional practices regarding the definition of part-time and its relationship to the PSIS information.**

The FTE-based dashboard provides the flexibility to use headcount or the Statistics Canada FTE count (see below) for the indicators, recognizing the importance of using different counts for specific indicators – e.g., income per student FTE, versus expenditure on student services per student headcount. The latter measure recognizes that part-time students may have a major impact on specific services; therefore, using a student FTE would understate the impact.

III. Converting Full-time and Part-time enrolments into Full-time Equivalents (FTEs)

PSIS does not provide a student ‘count’ that normalizes the full-time and part-time conventions to arrive at a form of standardized full-time equivalent count. **There is no national standardized methodology for reporting full-time equivalent enrolments.** Some provinces have a full-time equivalent measure based on a definition of full course load (fiscal full-time equivalents, full-load equivalents) but the conventions and methodologies differ by province.

Statistics Canada has adopted a convention of converting full-time and part-time student headcounts into Full-Time Equivalents (FTE) by counting an individual student enrolled full-time (according to the institution) as 1 FTE and 3.5 individual students enrolled part-time as 1 FTE. The reality is that some full-time students will take less than the full load in any given term and few will take more than the normal course load. And the average course load for part-time students is institutional specific and dependent on a variety of factors.

To test the Statistics Canada convention, fall enrolment counts in Ontario (a province that uses full course loads and course registrations to calculate full-time equivalents used for funding purposes) were compared with the Statistics Canada FTE method. In Ontario, the Statistics Canada methodology yielded a count approximately 5%-6% higher than the full load course registration count with an institutional range of between 0% - 15%. Factors appearing to influence the difference were the presence and extent of co-op programs, the extent of transfer enrolments, part-time/full-time regulations, and the level of part-time enrolment.

A brief review of a few institutions in other provinces suggests that the Statistics Canada methodology also yields figures that are higher than a full course load methodology by as much as ~10-15%, although somewhat closer to the level of activity for the entire year.

The Statistics Canada FTE methodology has its acknowledged limitations. Nevertheless, in the absence of a better measure, the Statistics Canada FTE methodology has been adopted for the enrolment data in the FTE-based dashboard. Accordingly, the indicators based on the FTE enrolment information need to be interpreted carefully and should be treated with +/- factor rather than as absolutes for comparative purposes.

IV. PSIS program categorizations of students

In terms of types of programs, PSIS collects student information according to program types. For the most part, student enrolment in Canadian universities, as reported to PSIS, falls into 3 main program type categories; baccalaureate, masters and doctoral and also includes for-credit certificate, diploma and degree programs as well as students enrolled in courses where a specific program type has not been identified. Details about program types are included in the FTE-based dashboards.²⁵

V. Enrolments in Affiliated and Federated Institutions

The FIUC includes the financial reports of many affiliated and federated institutions separately but PSIS information may not necessarily record student information at that level because, in many cases, the enrolment information is only recorded by the “parent” institution. This means the enrolments directly associated with the affiliate/federated institutions are included in the “parent” institution in those cases. It also means that, in most cases, any enrolments in courses offered by the affiliated/federated institutions to students in the parent institution will not be reflected in the affiliates/federated institutions. **Accordingly, indicators in the [FTE-based dashboards](#) that use enrolments may not be applicable at the level of affiliates/federated institutions. For comparative purposes we recommend that, in general, users use the “parent” institution consolidated data – financial, student, faculty – for the comparative analyses. The mapping of affiliated/federated institutions to the “parent” institution is included in the FTE-based dashboard documentation.**

VI. Enrolment information by major discipline group

As noted in a previous section, the categorization of student enrolments by major discipline groupings reflects the student’s discipline area (vs. where the student is actually taught). Accordingly, service teaching is not reflected in the enrolment data. At one level that is immaterial because the financial data (FIUC) is not segregated by major discipline grouping. However, the student and faculty data is available by major discipline grouping (Health Sciences, Sciences and Applied Sciences, and Arts, Social Sciences and Humanities). The provision of the major discipline grouping data allows for a better selection of ‘peers’ based on similar discipline ‘mix’ in addition to considering enrolments by program level – undergraduate/graduate – and full-time/part-time.

VII. Considerations about time series data

In some cases, historical enrolment figures may be understated (or overstated) due to institutional and provincial decisions about what enrolments should be included in official counts, changes in definitions of full-time/part-time, and changes in program and student eligibility. For example, in some provinces there is a distinction between ‘funded’ students and total students. While PSIS is clear that the focus is on total students, the fact is differing institutional and provincial practices may affect the reporting of international students, ineligible students, and students enrolled in ineligible programs and/or cost-recovery programs.

²⁵ Users should note that the 2018-19 PSIS data includes approximately 4400 students who are not registered in a program but are registered in **non-credit** courses. Roughly 80% of the students are part-time and most of the students are in B.C. institutions.

Student Data Summary

PSIS provides a set of enrolment data that has its own limitations and inherent differences. Specific limitations apply to the 'snapshot' approach to counting students and the Statistics Canada FTE calculation. Inherent differences apply to part-time/full-time definitions. **The combination of limitations and inherent differences means the enrolment information needs to be interpreted carefully and should be treated with +/- factor rather than as absolutes.**

Users of the FTE-based dashboard should become familiar with their own institution's enrolment information to help understand how it is reflected in the dashboards. That, in turn, will help inform the selection of appropriate peers and improve the interpretation of the data and indicators.

Faculty Data

How many faculty are in Canadian universities? Statistics Canada, through its annual University and College Academic Staff System (UCASS) survey, captures a wealth of information about full-time faculty in Canadian universities. There is no standardized methodology for converting part-time faculty into some form of FTE equivalent. Accordingly, the FTE-based dashboard information from the UCASS survey is full-time faculty only.

The Statistics Canada UCASS count date is October 1st and defines full-time faculty as follows:

- Staff appointed on a full-time basis whose term of appointment is 12 months.
- New appointees hired on a full-time basis whose term of contract is 12 months, although they may be at the institution for less than 12 months during the first year.
- Staff who were appointed to teach full-time and at a later date, have entered into a formal agreement with the institution to carry a fraction of a normal full-time load.

The data reported in the FTE-based dashboards includes all full-time faculty by rank, with and without administrative duties, and by major discipline grouping – using the same groupings as the PSIS student information. The major discipline grouping information will help users establish a set of peers with comparable distributions.

The limitations of the data, as related to comparative analyses, are the absence of part-time faculty and different institutional reporting conventions regarding the use of sessional faculty employed for less than 12 months (e.g., 9-month contract faculty). The inherent differences in the data are that some institutions have both full-time teaching/research faculty and full-time teaching stream faculty included in the Statistics Canada UCASS. The full-time teaching/research faculty will be the majority but faculty members in the teaching stream constitute a significant minority at some institutions. Those faculty will have a different workload distribution and will likely have different compensation arrangements than full-time teaching/research faculty; indicators such as **research income per faculty** member need to be interpreted accordingly.²⁶ It is important, as part of the peer selection process, to examine the rank and discipline composition of the full-time faculty using the FTE-based dashboard. UCASS rank categories are as follows;

- Full Professor
- Associate Professor
- Assistant Professor
- Ranks/level below assistant professor: includes lecturers, instructors, and other teaching staff
- Other: includes staff that do not fit in the categories described above (ungraded)

²⁶ A glimpse of a few faculty in the teaching stream category was highlighted in *University Affairs*. <https://www.universityaffairs.ca/features/feature-article/five-teaching-stream-professors-tell-stories/>

Given there are differences in the composition of teaching resources, users of the UCASS and the FIUC data should understand the composition of the data for their own institution. What categories of full-time faculty are included in the institution's UCASS submission? Where are part-time adjuncts/sessional appointments reflected in the FIUC expenditures by type – e.g. within Academic ranks or Other instruction and research?

Faculty Data Summary

The UCASS information has its own set of limitations and inherent differences but provides the opportunity to explore differences in costs associated with numbers of full-time faculty and the composition of the faculty in terms of differences in rank profile and differences in the proportion of faculty identified with and without administrative duties. **Further refinement of reporting options may help focus on the difference between full-time teaching only faculty and full-time teaching and research faculty.**

Section 4 Concluding Observations and References

The 'primer' focuses on the limitations and inherent differences with the data used in the FTE-based dashboard. Comparative analyses at the institutional level require the selection of comparable "peer" institutions and an in-depth understanding of the data – both your own institution's data as well as the peers in question. Accordingly, it is important to collaborate with the units/individuals in your own institution who report the financial information for the FIUC, PSIS, and UCASS surveys. Individuals familiar with the data are often in institutional planning/analysis units and in the specific operational units – finance, human resources, registrar/enrolment reporting.

The FTE-based dashboards provide access to a wealth of data. Each of the main data sets – financial, students, faculty – provide an interesting view of higher education. Together they allow for the production of a set of indicators that can be tailored to your specific needs and will help establish appropriate peer comparisons. A number of categorizations (e.g., by size of institution, by type of institution) have been constructed to help provide users with additional reference points. Explore the data and the dashboards functionality. And keep in mind that the student indicators included in the dashboards provide the enhanced function of allowing 'students' – to be considered on a headcount or FTE basis.

Finally, notwithstanding the limitations and inherent differences noted in the Primer, the value of the FTE-based dashboards is the ability to facilitate comparative analyses that over time will improve many elements of Canadian higher education. Better data, better understanding of data limitations and possibilities, and more emphasis on trend analysis rather than a focus on absolute values are factors that will contribute to better decision-making at many levels.

References

Capaldi, E.D., and Abbey, C.W., “Performance and Costs in Higher Education: A Proposal for Better Data”, Change, March-April, 2011

Capaldi and Abbey (2011) noted that not only do costs vary by discipline, they vary markedly by level of instruction. Moreover, the authors suggest that Lower division is particularly low cost to teach at big public research institutions where teaching assistants help with the labs and recitations and lecture class sizes can be very large. Upper division, in contrast, involves smaller classes with more specialized equipment and faculty and thus greater expenditure.

Delta Cost Project <https://deltacostproject.org/>

“In January 2012, AIR took over the analytic work of the Delta Cost Project. The National Center for Education Statistics is maintaining the Delta Cost Project’s database as part of its Integrated Postsecondary Education Data System (IPEDS). IPEDS conducts annual surveys gathering information from every college, university, and technical and vocational institution that participates in the federal student financial aid programs.”

Wellman, J.V., “Costs, Prices and Affordability: A Background Paper for the Secretary’s Commission on the Future of Higher Education”, 2006

While discipline ‘mix’ is the key ingredient in explaining cost differences by institutional type, it is also important to note that Middaugh identified other factors that play a role. Jane Wellman, former director of the Delta Cost Project, in a report prepared for the Spellings Commission in the United States, summarized Middaugh’s findings as follows: *“The Delaware study focuses on average direct costs of instruction, and not other costs such as for administration or research. That study has found a consistent pattern that differences between institutions in the average direct cost of instruction are largely attributable to differences in the mix of disciplines, levels of student enrollment (lower division, upper division, graduate or professional), faculty compensation patterns, and policies for use of part-time and adjunct faculty.”*

Middaugh, M.F., Graham, R., Shahid, A., A Study of Higher Education Instructional Expenditures: The Delaware Study of Instructional Costs and Productivity, Research and Development Report, National Center for Education Statistics, NCES 2003-161, U.S. Department of Education, Institute of Education Sciences

Middaugh, M., Understanding Higher Education Costs, Planning for Higher Education, March-May 2006

The Almanac of Post-Secondary Education contains a set of information sourced from various Statistics Canada datasets including UCASS, PSIS and FIUC. While Statistics Canada makes some basic tables available for each of the three datasets, specific analyses such as faculty salary information by subject taught and/or discipline and aggregated statistics by province or other categorizations require special requests on a fee for service basis. The Almanac provides a public reference for some data.

Appendix A: National and International Indicators

In the same way that users need to be aware of differences in reporting between and among institutions, and provinces, this Appendix highlights some of the differences associated with Canadian data that is used in international comparisons and then finds its way into Canadian publications. The **Canadian Education Statistics Council's Pan-Canadian Education Indicators Program (PCEIP)** is a common reference for comparative purposes, provincially and nationally. PCEIP information, including a list of the reported data is available at <https://www150.statcan.gc.ca/n1/en/catalogue/81-582-X>.

Information from the PCEIP is part of Canada's statistical participation in the **Organisation for Economic Co-operation and Development (OECD)**. The OECD publishes *Education at a Glance* and that document contains comparative information from OECD countries including Canada. Given that educational systems differ from country to country, the OECD has established a set of data definitions that require some adjustments to the Statistics Canada data. Annually PCEIP publishes *Education Indicators in Canada: An International Perspective* to provide more analyses of the Canadian data in *OECD's Education at a Glance*. Information in both publications may differ from postsecondary information reported in Statistics Canada postsecondary tables. The following summarizes the main adjustments to the university information collected by Statistics Canada and reported to the OECD.

Enrolment data – student enrolments are categorized as follows:

- Short-cycle tertiary education;
- Bachelor's or equivalent level;
- Master's or equivalent level;
- Doctoral or equivalent level; and
- Not applicable

Using the OECD categorization, the Canadian data looks different than enrolment tables reported by Statistics Canada. For example, in 2018-19 about 12,000 students in career-technical programs, primarily in Alberta and BC, would be counted in Short-cycle tertiary education. Most of the students classified as diploma and certificate students in Canadian universities (excluding those in Quebec) are classified as Non-applicable. In addition, some 40,000 students in selected medical and law bachelor's programs in universities across Canada would be 'transferred out' of what would typically be referenced as professional programs at the bachelor's level and into the Master's or equivalent level. Additionally, about 59,000 degree students in colleges are added to the bachelor's level for these purposes.

Finance data – information reported in PCEIP and submitted to OECD rely almost exclusively on the data reported to Statistics Canada in the FIUC. Statistics Canada adds information from a small number of universities that are not CAUBO members and not reported with the "CAUBO institutions". The data from these institutions is typically less than one percent of the national totals on any particular element in the revenue or expenditure elements in the FIUC database. When the preceding amounts are added to the CAUBO data the total revenues of all universities in 2018-19 was \$41.542 billion FIUC (Statistics Canada Table 37-10-0026-01).

For OECD (and PCEIP) the only significant element that is added to the report on total expenditures on university level education for Canada is about \$857 million in household expenditures on things like textbooks and education related supplies. A small amount is also added for the administration costs of the federal granting agencies. The PCEIP/OECD calculation deducts \$623 million based on an estimate of revenues that are associated with health care rather than university education.

Fees associated with non-credit courses of \$545 million and another \$1.29 billion in ancillary and other fees are also excluded from total revenues for university education. Finally, \$2.3 billion for scholarships and bursaries is removed from the total.

After the adjustments, the net total expenditures on university level education for Canada was about \$37.3 billion in 2018-19. With about 1.15 million FTE that translates into total per student funding of approximately \$32,500 or using Purchasing Power Parity (~1.20) \$US 27,100. **It is important to note that this includes virtually all university operating, special purpose, research, ancillary services, and capital spending and as a result is much higher than would typically be reported in Canada.**

Faculty data – the dashboard information excludes non-CAUBO institutions. Total full-time faculty as reported in UCASS were 46,440 in 2018-19 (Statistics Canada Table: 37-10-0144-01 Number and proportion of full-time teaching staff at Canadian universities by academic rank and sex). Total faculty reported in the dashboard were 46,091. Most of the difference is recorded in B.C., and Alberta and the remainder is due to rounding.

For more information about the OECD's *Education at a Glance* please see <https://www.oecd.org/education/education-at-a-glance/>

OECD's financial data definitions and methodology is available at:

<https://www.oecd-ilibrary.org/docserver/9789264304444-en.pdf?expires=1630330144&id=id&accname=guest&checksum=A8F8E990D2C1F2FC25A287B2AB24B2B9>

The link to PCEIP's 'International Perspectives' is

<https://www150.statcan.gc.ca/n1/pub/81-604-x/2020001/notes-eng.htm>