
Fiscal Sustainability of Ontario Colleges

January 2017



Contents

Executive Summary	1
Introduction	5
Scope of Review	7
Historical Context of Colleges Fiscal Position	8
<hr/>	
Demographics	9
Revenues	12
Expenses	19
<hr/>	
Baseline Model	23
<hr/>	
Baseline Model Assumptions	23
Domestic Student Enrolment	23
International Student Enrolment	25
<hr/>	
Revenue	27
Expenditure	29
Net Revenue	31
<hr/>	
Projection Model Sensitivity Testing	33
<hr/>	
Grant Funding	33
Domestic Tuition Growth	34
Labour Expenses	35
International Student Enrolment	36
<hr/>	
Alternative Scenarios	38
Conclusions and Recommendations	41
Appendix A: Limitations	43
Appendix B: Scope of Review	44
Appendix C: Provincial College Funding Formula	46
Appendix D: Capital Investment and Deferred Maintenance	47

Executive Summary

PwC has been retained by Colleges Ontario to provide an independent assessment of the fiscal sustainability of the Ontario college sector over the next decade to 2024-25.¹ To that end, we have analyzed the current fiscal condition of Ontario's 24 public colleges (collectively referred to hereafter as "colleges") and conducted interviews with senior executives at each college to augment our understanding as to how recent economic and demographic trends have affected colleges' financial condition, as well as the challenges and opportunities they foresee, for their respective college, over the course of the next decade.

Based on the above as well as our own research, we developed a baseline model to project colleges' fiscal position from 2015-16 to 2024-25 if the status quo is maintained (i.e., in the absence of further measures to increase revenues or decrease expenses). The baseline model shows that most colleges would soon face operating shortfalls that would grow to substantial deficits by the end of the Projection Period. On a system-wide basis, our baseline model projects an operating deficit of \$420 million by the year 2024-25, and a cumulative debt of \$1.903 billion over the entire projection period, 2015-16 to 2024-25. On a proportional basis, the deficits are projected to be larger among smaller colleges and those located in more rural and remote areas. We note that as agents of the Crown, colleges' budgets are consolidated into the provincial government's budget, consequently their deficits will increase the government deficits.

To provide colleges and policymakers with the information needed to understand what options exist to achieve a sustainable future for colleges, we have developed a series of alternative scenarios and sensitivity analyses, which illustrate how the results of the baseline model would change if various cost savings or revenue increases were achieved. In general, this analysis shows that if colleges are to avoid significant impacts on their stakeholders (e.g., students, employers, and local communities) then some combination of these actions will likely be necessary.

While PwC has not examined in detail the state of capital investment at Ontario's colleges, we note that policymakers must not lose sight of the capital challenges faced by colleges when assessing options to deal with the operating issues identified in this report. For example, we note that on a system wide basis, deferred maintenance is projected to increase from \$1.217 billion in 2015-16 to \$3.544 billion in 2024-25.

The following is a summary of our principal findings subject to the nature of our mandate, scope of review and the limitations noted in Appendix A of this report.

The Sources of Colleges' Fiscal Pressures

- Ontario's demographics mean that the traditional pool of college-age population will decline across the province, with colleges in the North expected to experience the largest declines.² Whereas colleges in some areas of the province, and in the GTA in particular, may be able to increase international student enrolment to avoid enrolment declines, it would be difficult for colleges in more rural and remote regions to recruit international students.
- Overall, revenue per student at colleges has increased by a cumulative rate of 6% between 2008-09 and 2014-15. This growth, however, was outpaced by general inflation (12%) and inflation in services³ (14%) over the same period. Colleges' revenue comes from two main sources: grant revenue (primarily from the provincial government) and tuition revenue.

¹ All years in this report refer to fiscal years from April 1 to March 31.

² See Table 1 and Table 2 for a listing of the colleges included in each region and size grouping.

³ This represents inflation in service sector prices (e.g., car repairs, haircuts), as defined by Statistics Canada.

- Grant revenue per student has declined on a cumulative basis by approximately 10% from 2008-09 to 2014-15.
- Between 2008-09 and 2014-15, tuition revenue per student has increased by 56%. This increase was driven by three factors: an increase in domestic tuition revenue per student of 34%, and an increase in international tuition revenue per student of 16%, and an increase in international student enrolment of 258%. The increase in international students enrolment has been the largest factor driving growth in colleges' tuition revenues as the average international tuition per FTE student (\$12,286) is higher than average domestic tuition per FTE student (\$3,249).
- Labour costs (including salaries and wages, benefits and pensions) constitute approximately 65% of colleges' expenses. Much of the administrative and support staff are fixed expenses, which means that the ability to reduce them in the face of lower enrolment is limited. Moreover, reductions in academic staff could impact program delivery (e.g., faculty/student ratios). Colleges have always employed a mix of full-time and part-time academic teachers in order to deliver programs. Colleges believe that the engagement of part-time teachers enhances the ability of colleges to provide students with current, relevant, hands-on knowledge directly from those still working in industry as well as providing coverage for subject expertise in specialized areas. The use of part-time teachers also provides benefits in terms of flexibility in assigning teaching duties, dealing with fluctuating demands for courses, reacting to reductions in student enrolment and easing the risks in a program start-up. Additionally, part-time teachers offer colleges some relief from cost growth due to collective agreement obligations. However, part-time employees may ultimately become unionized, which would likely have an impact on these outcomes.

Our Main Observations and Conclusions

- Colleges play a vital role in providing young people with the skills needed to find jobs, and in providing employers with the resources needed to succeed in an increasingly competitive global economy and in the face of a looming shortage of trades. However, our analysis suggests that in the absence of creative actions on the part of colleges and policymakers to address the future fiscal sustainability of the Ontario college sector, the core mandate of colleges appears to be in jeopardy.
- The fiscal constraints imposed on colleges have led them to undertake many measures to control their costs and these initiatives have been largely successful, allowing colleges to maintain balanced budgets without significant sacrifices in program delivery. Colleges will need to continue to manage expenditures aggressively to ensure that they are operating efficiently. While some areas of potential cost reduction may have already been exhausted, there are others where colleges should continue to seek opportunities for further efficiencies. This includes expanding collaboration between colleges such as sharing of services and jointly developing courses. For example, French-language colleges and those in the North have already started to collaborate in the delivery of programs to rural and remote areas where small class sizes might otherwise be uneconomical. In addition, colleges will have to accelerate the pace in which they embrace changing technology that allows for digital education delivery, which will require additional upfront investment.
- It should, however, be acknowledged that there are practical limitations to how much additional cost savings colleges can realize. At some point, reductions will adversely impact colleges' reputation and their ability to fulfil their mandate of providing students with the skills needed by the province's employers, as well as their ability to attract international students, leading to a negative impact on revenues. In addition, many northern and small colleges have expressed that they have already cut staff to the full extent possible, which means that further cuts would not be possible without having adverse effects on student learning experience.
- The provincial government could make prudent targeted investments in colleges that could substantially improve colleges' fiscal sustainability which should be cost effective for the provincial government in the

foreseeable future. For example, colleges currently have a substantial backlog of deferred maintenance. As a result, colleges' operating costs have increased as they maintain aging infrastructure and undergo expensive emergency repairs when failures occur. By targeting additional investment in colleges' facilities, the provincial government could reduce colleges' costs in the future and improve colleges' ability to manage unforeseen risks should they occur. This will reduce the need for colleges and the provincial government to deal with a bigger issue on an emergency basis, which will be more costly and require a large amount of funds within a short period of time. Another example is investments targeted at renewable energy production and energy conservation would also be consistent with the provincial governments desire to reduce greenhouse gas emissions. We note that in assessing the return on investment for the Government of making the above and other investments in colleges, it is important to consider that better facilities contribute to the development of well-prepared graduates, which will help to address emerging skill shortages in the economy and reduce instances of poverty amongst Ontarians.

- As noted above, colleges' revenues have been increasing at a slower rate than inflation, which is not sustainable.
 - The provincial government should consider increasing the level of funding provided to colleges and/or reforming the college funding formula to provide colleges with more stable funding and greater flexibility in light of the changing demographic picture. For example, a funding formula that is less sensitive to the level of enrolment (e.g., a gradual reduction in funding when enrolment declines) will allow colleges facing declining enrolment to better plan during the transition period which will enable them to apply best practices in their reactions to the new conditions, rather than risk a financial crisis.
 - Similarly, some of the constraints that the provincial government has reconfirmed it will impose on colleges with respect to tuition fee increases could be relaxed to allow colleges greater flexibility in setting tuition fees for particular programs at levels that better reflect their costs of delivery.
- Colleges should also continue to seek out partnerships in their local communities to provide education and services that are relevant to employers. In that respect the provincial government may have a role to play in reducing barriers and allowing colleges to move "at the speed of business." For example, we understand that colleges feel constrained by provisions which require approval for any incremental liabilities that colleges may enter in to. Because this approval process can, in some cases, take several months, it hampers colleges ability to move quickly in entering into partnerships with the private sector and results in lost opportunities for them. Given the fiscal constraints that colleges are facing and the limited ability of the provincial government to provide financial support, the provincial government should consider exploring developing policy guidelines that will streamline this process in particular circumstances, thus providing colleges with the ability to seek new ways to deal with their financial challenges without further burdening the public purse.

We conducted a sensitivity analysis on the baseline model to estimate the change that would need to take place in each of the major assumptions of the baseline model in order to achieve a balanced budget by varying one factor (e.g., if the entire shortfall were to be made up through additional grant revenue). The results of this sensitivity analysis are set out below.

Model Assumption	Required Change, 2014-15 to 2024-25
Grant Funding	Increase total grant funding by an annual rate of 2.1%, or funding per Domestic FTE by 2.3% compared to baseline projections
Domestic Tuition	Increase domestic tuition fees at an annual rate of 6.2%
Labour Costs	Decrease staffing levels by 13.1% by 2024-25
International Student Enrolment	Increase international student enrolment by 7.1% annually

Given the size of the projected deficits, there is likely no single measure that colleges and policymakers can realistically take to ensure their future fiscal sustainability. The required increases in any individual revenue stream or decreases in individual cost areas are too large to be practical, and would likely endanger colleges' continued viability. Instead, a combination of actions will need to be considered. We have prepared a set of illustrative examples showing how balanced budgets may be achieved through combination of changes. We note that our report does not comment on the optimal combination that best balances the interests of various stakeholders (including students, employees, communities, and taxpayers), as we believe that this should be the choice of policymakers.

Introduction

We have been retained by Colleges Ontario to conduct an analysis of the fiscal sustainability of Ontario’s twenty-four public colleges. The purpose of this assessment is to provide a high-level overview of the colleges’ current financial situation, and to analyze how the fiscal position of the colleges may change over the next ten years under several alternative scenarios (the “Assessment”).

The focus of this Assessment is on the common issues faced by the colleges regarding fiscal sustainability, rather than specific issues affecting particular institutions. Our analysis does, however, analyze sets of colleges grouped by size (Small, Medium and Large) and region (Central, Eastern, Northern and Western), which are factors that drive some of the variability that exists among colleges. Tables 1 and 2 provide a breakdown of Ontario colleges by size and region.

Table 1: Colleges Grouped by Size

Small	Medium	Large
Boréal	Conestoga	Algonquin
Cambrian	Durham	Centennial
Canadore	Fleming	Fanshawe
Confederation	Georgian	George Brown
Lambton	La Cité	Humber
Loyalist	Niagara	Mohawk
Northern	St. Clair	Seneca
Sault	St. Lawrence	Sheridan

Table 2: Colleges Grouped by Region

Central	East	North	West
Centennial	Algonquin	Boréal	Conestoga
George Brown	Durham	Cambrian	Fanshawe
Georgian	Fleming	Canadore	Lambton
Humber	La Cité	Confederation	Mohawk
Seneca	Loyalist	Northern	Niagara
Sheridan	St. Lawrence	Sault	St. Clair

The remainder of this Assessment summarizes our findings regarding the recent history and context of the current fiscal situation, sets out the rationale behind our baseline model assumptions, discusses the sensitivity of our results by exploring several alternative scenarios and assumptions, and provides our overall conclusions and recommendations.

PwC’s compensation is not contingent on any action or event resulting from the use of the Assessment. This Assessment is subject to the limitations noted in Appendix A to this report.

The following are PwC staff who contributed to this study:

Michael Dobner – Partner, Leader of PwC Economics Practice

Jake Dwhyte – Manager, Economist

Sasa Cabric – Associate, Economist

Scope of Review

To prepare this Assessment, we have reviewed and, where appropriate, relied upon various documents and sources of information.

By general classification, these sources include:

- Financial information regarding colleges' fiscal position provided by Colleges Ontario based on data from the Ontario Ministry of Advanced Education and Skills Development;
- Population projections prepared by the Ontario Ministry of Finance;
- Desktop research regarding the college sector in Ontario and Canada; and
- Interviews and discussions with Colleges Ontario, College Employer Council, and college executives.

A list of sources and articles used for the purpose of this Assessment is available in Appendix B.

We note that PwC relied upon the completeness, accuracy, and fair presentation of all information, data, advice, opinions or representations obtained from various sources which were not audited or otherwise verified by us.

Historical Context of Colleges Fiscal Position

In order to better understand the background to the colleges' current situation, we conducted interviews with executive staff at each of Ontario's 24 colleges. This section of our Assessment was informed by those interviews and reflects our understanding based on those discussions.

Ontario's first colleges were founded over 50 years ago, and since that time the college system has grown significantly, while constantly adapting to the changing needs of the communities and students that they serve. The Ontario Colleges of Applied Arts and Technology Act, 2002, states the colleges' mandate as follows:

“to offer a comprehensive program of career-oriented post-secondary education and training to assist individuals in finding and keeping employment, to meet the needs of employers and the changing work environment and to support the economic and social development of their local and diverse communities”

In common with other public institutions, colleges work to fulfil their mandate using the public and private funds available to them. In the case of the colleges, government grants account for approximately 45% of their operating budget. However, growth in grant funding over the past decade has not kept pace with inflation and enrolment growth. As a result, many colleges have faced increasing fiscal pressure. Colleges have responded to this pressure by undertaking various initiatives to control costs and, where possible, increase revenues. While these initiatives have generally allowed colleges to maintain balanced budgets, their capacity to realize further efficiencies in the future is currently limited.

The sources of colleges' fiscal pressures fall into three main categories:

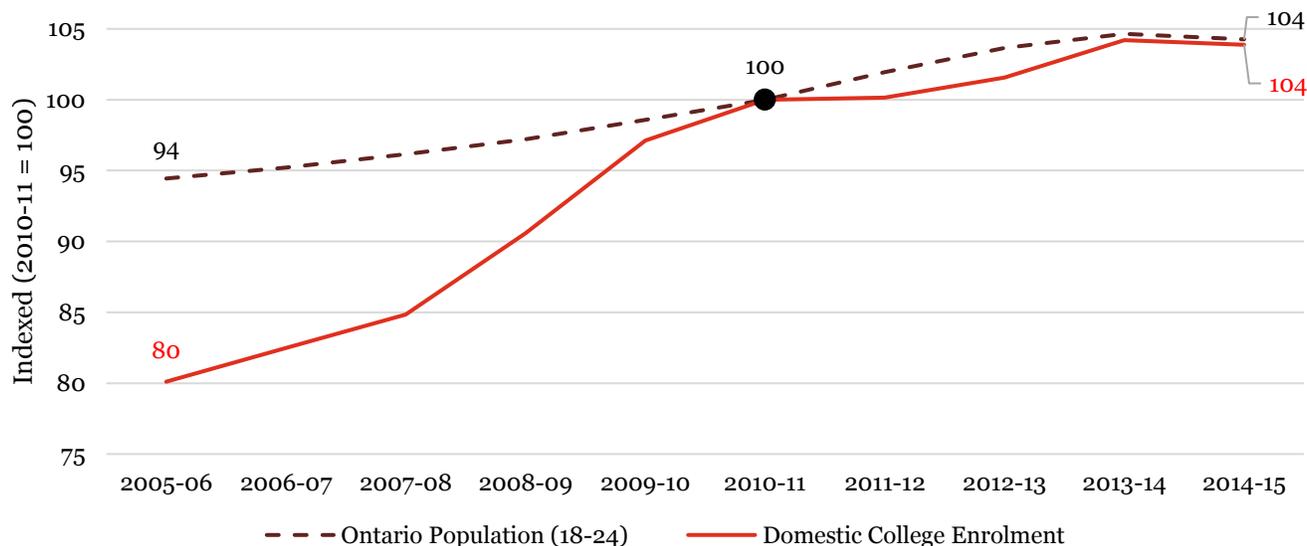
- **Demographics:** Ontario's population is aging, causing growth in the number of college-age students to slow or to turn negative in many regions of the province, and while this has already affected domestic enrolment at some colleges, its impact is expected to increase and spread to most Ontario colleges over the next decade.
- **Revenues:** The level of government funding per student received by colleges has approximately remained unchanged, while many expense items have been growing at a rate commensurate with general inflation. At the same time, regulations have constrained colleges' ability to increase tuition or raise revenues from other sources.
- **Expenses:** Over the last decade, colleges have taken various steps to control and reduce their expenses, but have faced a growing backlog of deferred maintenance, and new program and reporting requirements introduced by the provincial government without associated increases in revenues.

Demographics

Students of all ages attend Ontario’s colleges, but the greatest concentration is among those aged 18-24 years old. In the academic year of 2014-15 this age group of students represented approximately 80% of colleges’ domestic student enrolment.

Colleges have seen significant growth in domestic student enrolment over the past decade, with average growth of 30% between 2005-06 and 2014-15, compared with growth in the Ontario population aged 18-24 of only 10%. However, most of this growth occurred in the first five years of that period. As demonstrated in Figure 1 below, domestic student enrolment at colleges grew by approximately 4% between 2010-11 and 2014-15, consistent with the Ontario’s growth in population aged 18-24 years old. This may suggest that college domestic participation rates of this age group have reached a ceiling under government policy and socio-economic conditions of recent years.⁴

Figure 1: Domestic Enrolment vs Ontario Population, Indexed (2010-11 = 100)⁵



Colleges’ experiences have differed depending on their size and the region of the province where they are located. Figure 2 shows that while Northern colleges saw some growth in domestic student enrolment between 2005-06 and 2009-10, most of the growth early in the period has been erased by more recent declines. Colleges in the other regions of Ontario have continued to experience growth since 2010-11. This trend has been led by Eastern colleges.

⁴ It is possible that in the future the socio-economic conditions and/or government policy will change such that overall enrolment rate will increase or decrease among certain age groups. For example, a major recession that substantially increases the unemployment rate may lead to higher enrolment rates. As well, higher government funding to low income families may increase the enrolment rate.

⁵ Statistics Canada Table 051-0001: Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual; Set of Full Enrolment Reports: Survey of Full College Activity (Unweighted FTE's) - MTCU Summary, 2005/06 - 2014/15 (“College Enrolment Data”).

As many of the Small colleges are also located in the North, it is unsurprising that their enrolment growth over the decade lagged Medium and Large colleges, as shown in Figure 2 and Figure 3.

Figure 2: Domestic Enrolment by College Region, Indexed (2010-11 = 100)⁶

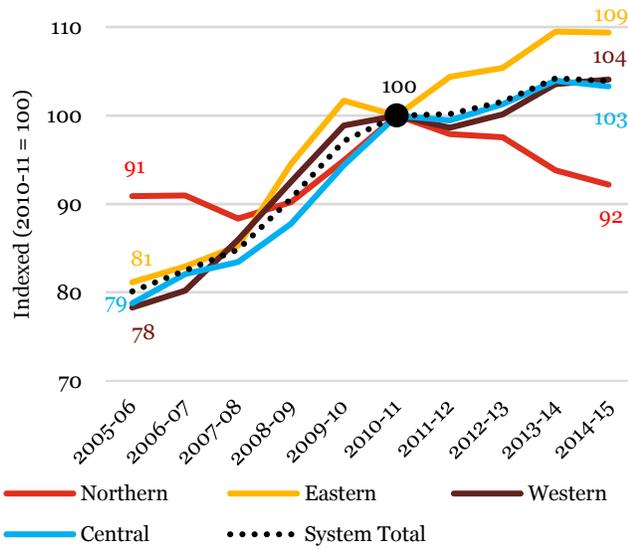
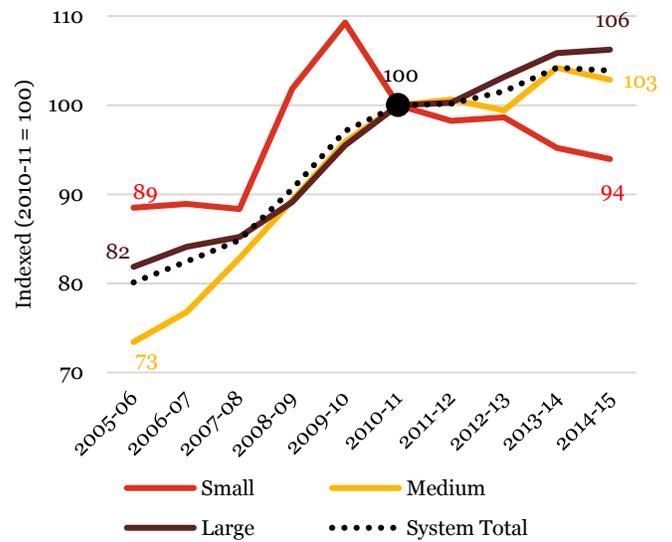


Figure 3: Domestic Enrolment by College Size, Indexed (2010-11 = 100)⁶



⁶ College Enrolment Data.

Faced with slowing growth, and in some cases declines, in domestic student enrolment, Ontario’s colleges have sought to supplement their enrolment with international students. In addition to easing the financial burden created by otherwise slowing growth, increasing international student enrolment has been attractive to colleges for reasons such as increased campus diversity and the ability to charge higher tuition rates.

The share of overall enrolment represented by international students has grown among all college groups, as shown in Figure 4 and Figure 5 below. Large and Central colleges had the highest proportion of international students in 2014-15, reaching 14% and 17% of total enrolment, respectively. While the proportion of international students is lower among other college groups, all colleges have seen growth in the number of international students. Small and Northern colleges have seen international enrolment grow to 7% and 9% in 2014-15, from less than 1% in 2005-06.

Figure 4: International Enrolment as a Percentage of Total Enrolment, by College Region⁷

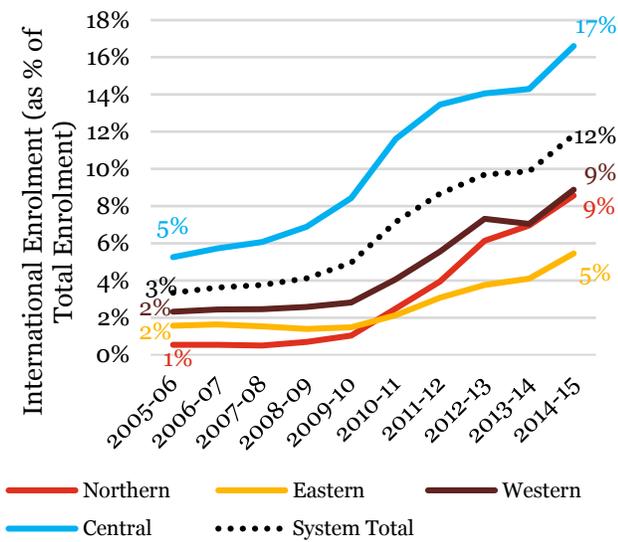
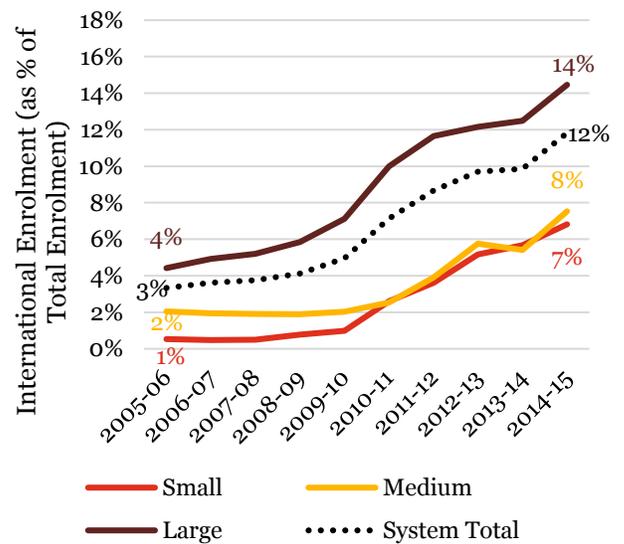


Figure 5: International Enrolment as a Percentage of Total Enrolment, by College Size⁷



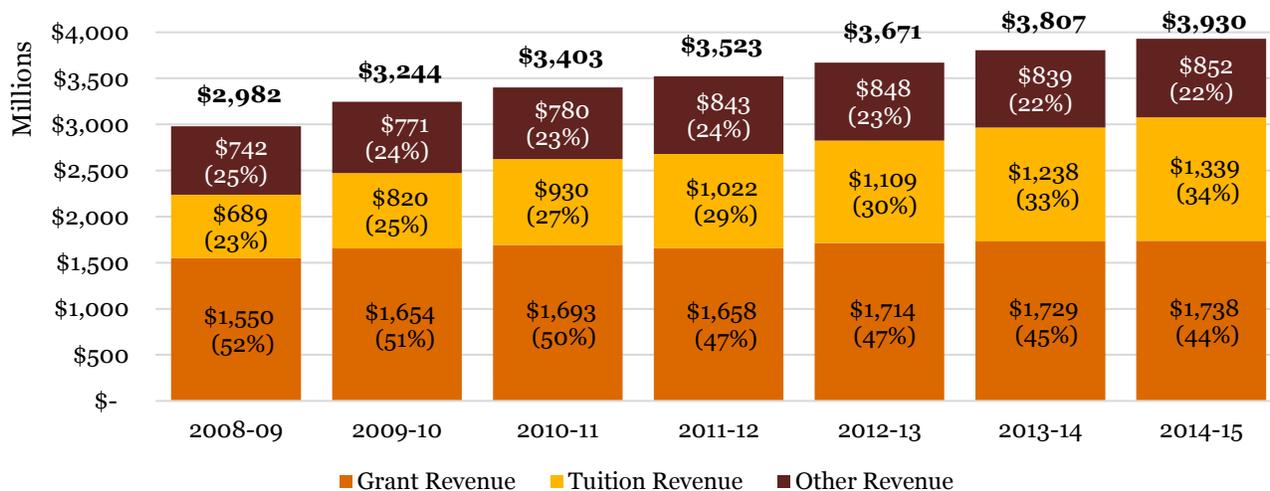
⁷ College Enrolment Data.

Revenues

The two main sources of colleges’ revenues are grant revenue from the government (primarily the provincial government) and tuition revenue from students. Grant revenue represented 48% of colleges’ total revenues, on average, between 2008-09 and 2014-15, while tuition fees represented an average of 29% of total revenues.⁸

However, these proportions have changed over time. In 2008-09, grant revenue was 52% of total revenues, while tuition revenue’s share was 23%. By 2014-15, grant revenue’s proportion of total revenue had declined to 44%, while tuition revenue had increased to 34%.

Figure 6: Composition of Total Revenue⁹



⁸ Information in a comparable format regarding the colleges’ accounts is not available for years prior to 2008-09, as in those years the reporting system was different than the existing one.

⁹ Aggregate CFIS Account Balance Reports, 2008-09 to 2014-15, for each of the 24 Colleges (“CFIS Data”).

Figure 7: Tuition Revenue, Breakdown of Domestic vs International Share¹⁰

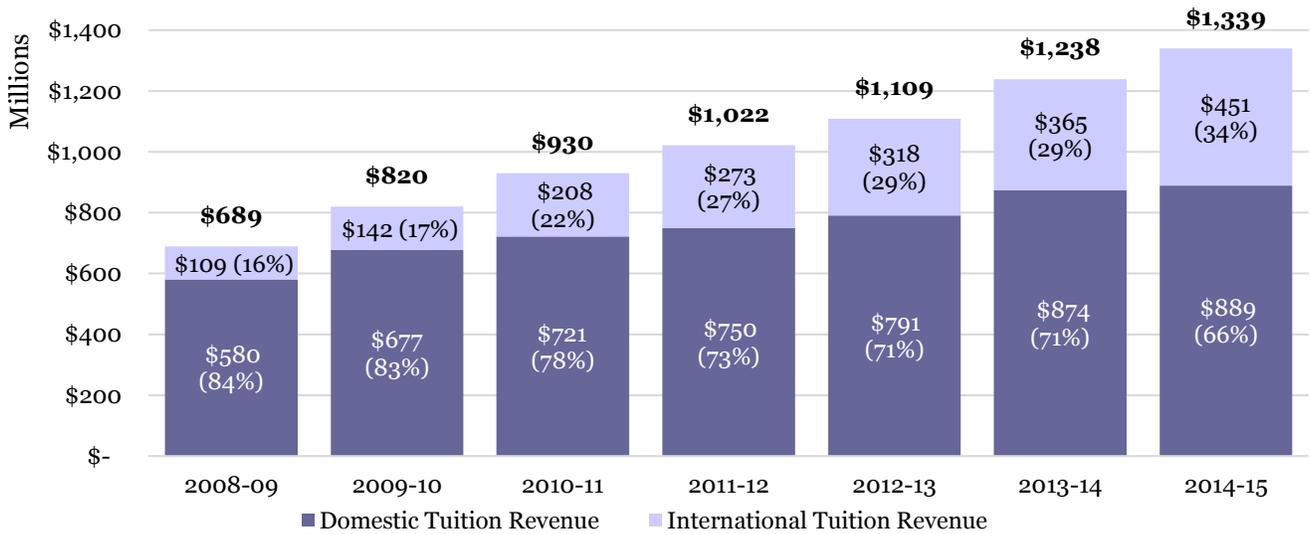
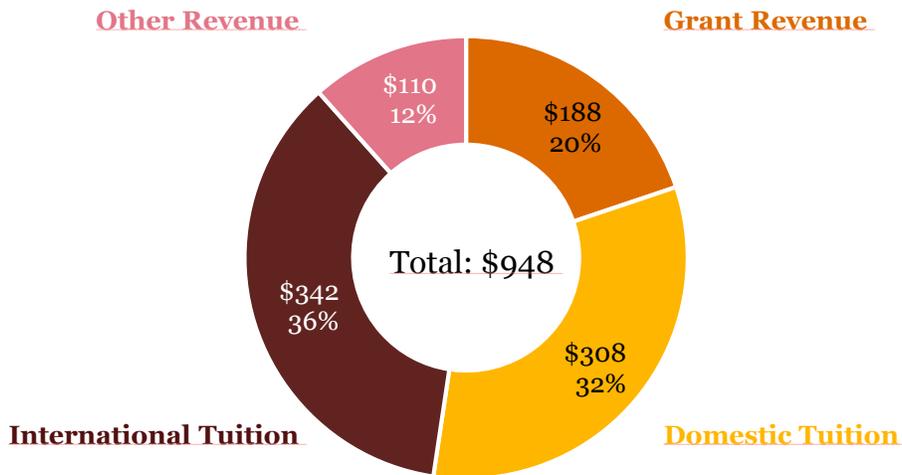


Figure 8: Increase in Revenue by Source, 2008-09 to 2014-15 (\$ millions)



This shift in the relative importance of grant revenue to tuition revenue over time has been consistent across all groups of colleges, as shown in Figure 9 and Figure 10 below. These figures also show that across all years, Northern and Small colleges have had a greater dependency on grant revenue (i.e., grants represent a larger proportion of their total revenues) than other colleges. Central and Large colleges show the least dependence on grant revenue, with tuition revenue accounting for a larger share of overall revenues, compared to other regions and size groups.

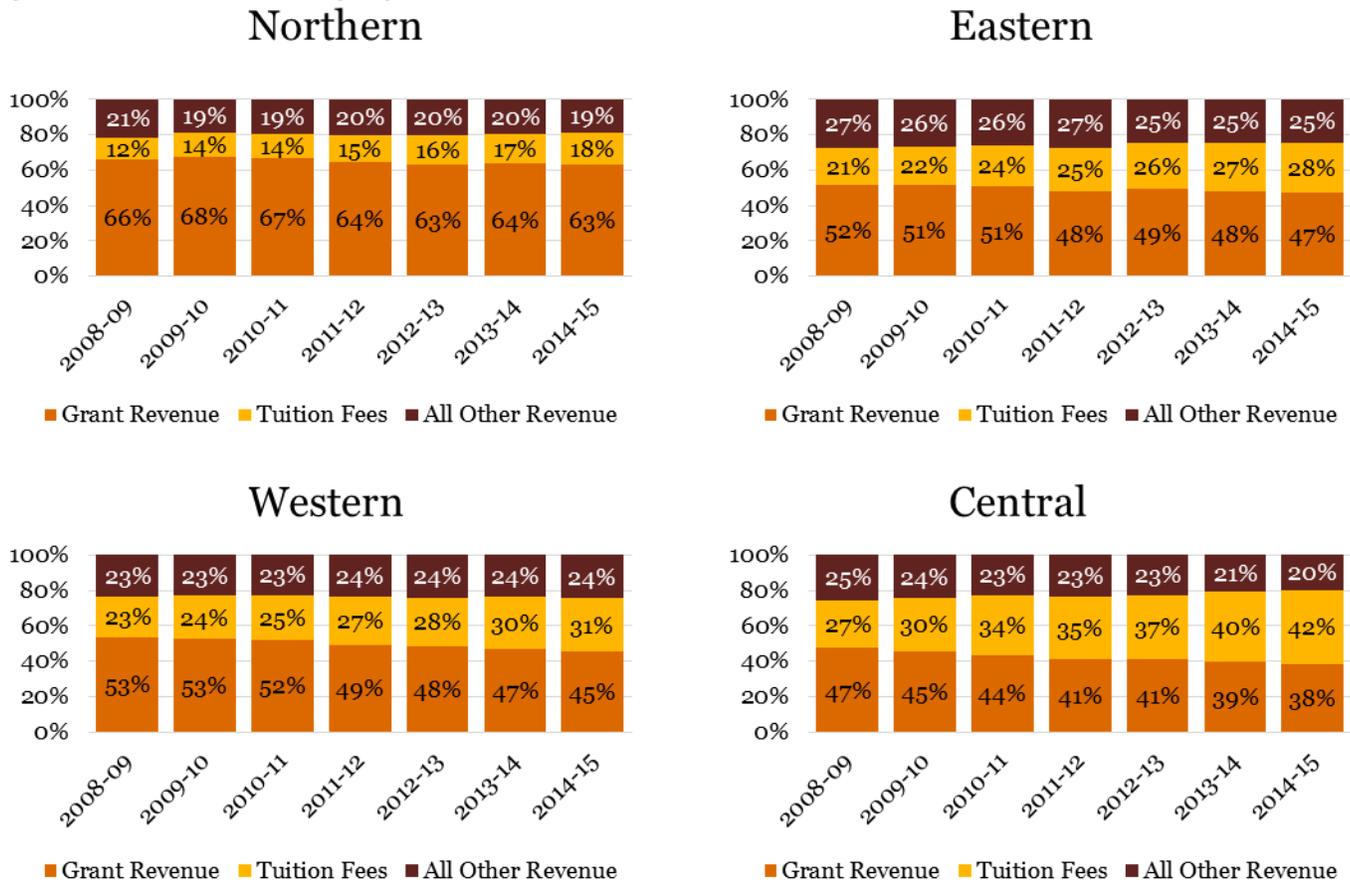
This relationship between size and the relative importance of grant revenue reflects factors such as the economies of scale that come with institutions operating with a larger number of students, as well as the greater proportion of

¹⁰ CFIS Data.

international students (bringing with them higher tuition fees) at Large and Central colleges. Additionally, we note that 2014-15 operating grant revenue per FTE student in Ontario was approximately 40% lower than the average among other provinces.¹¹

The category “Other Revenue” includes student fees (i.e., not collected through tuition fees), contractual fees, and ancillary revenues. These Other Revenues remained relatively constant as a portion of total revenues for all of the college groupings, with the exception of Large or Central colleges, which experienced slight declines in Other Revenues as a proportion of total revenues.

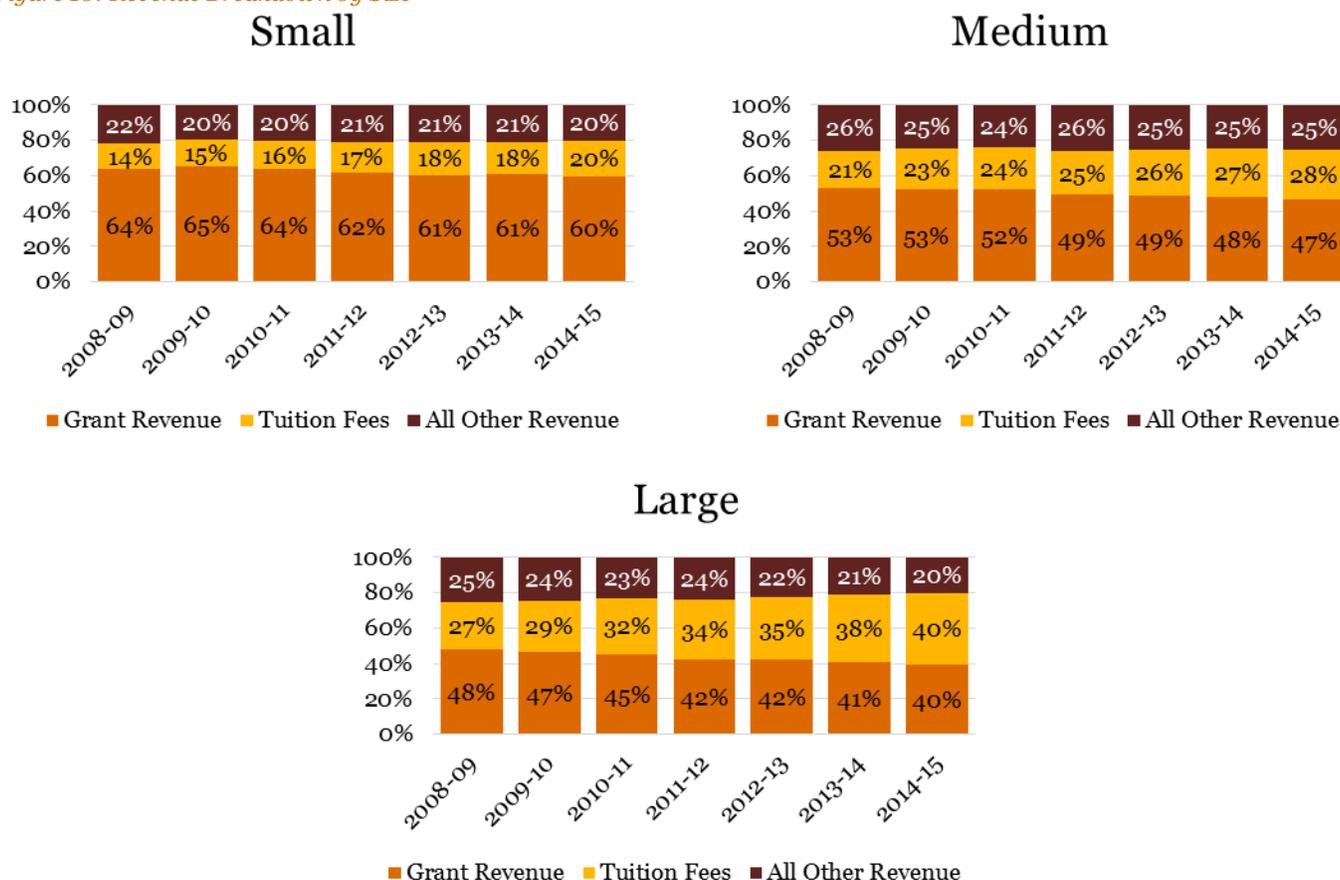
Figure 9: Revenue Breakdown by Region (\$ in Billions)¹²



¹¹ Based on data received from Colleges Ontario. See for example, “College Resources Environmental Scan 2015”, p.6.

¹² CFIS Data.

Figure 10: Revenue Breakdown by Size



A closer look at the breakdown of tuition fees between domestic and international students shows that on a system-wide basis, the proportion of tuition fees obtained from international students has more than doubled in the past seven years, from 16% in 2008-09 to 34% in 2014-15 as shown in Figure 7 above.

Indeed, one of the largest areas of revenue growth for colleges has been in tuition fees associated with increases in international student enrolment. Between 2008-09 and 2014-15, international enrolment at Ontario’s colleges increased from approximately 10,300 to 36,700.

Changes in the amount of tuition revenues collected by colleges is driven by two factors: changes in student enrolment and per-student tuition fees. Tuition fee growth for domestic students is constrained by provincial government policy (recently reconfirmed as capped at 3%)¹³, while colleges are free to set international student tuition fees as they deem appropriate.¹⁴

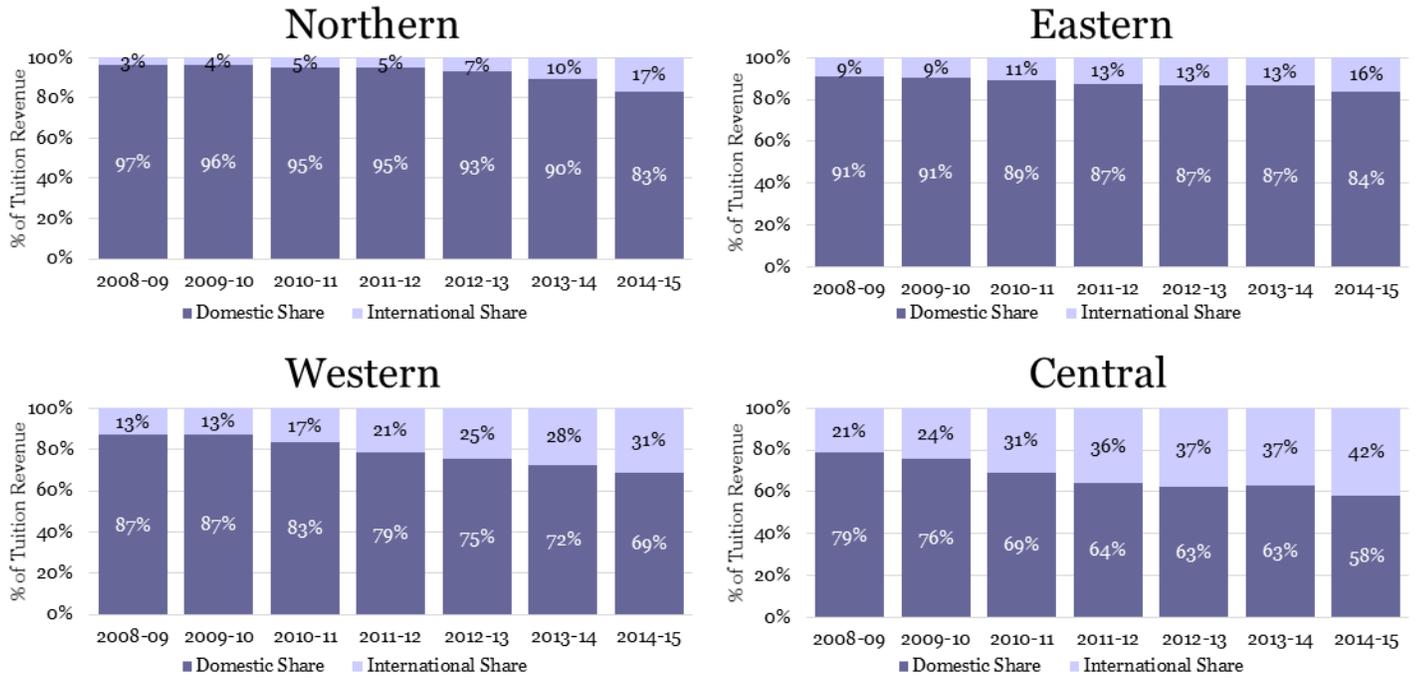
The international share of tuition revenues has increased as a proportion of total tuition revenues between 2008-09 and 2014-15. Though the level of international tuition revenue for Northern and Small colleges remained relatively low (when compared to other sizes and regions), the proportion of total tuition revenue increased from 3% to 17%

¹³ Ministry of Advanced Education and Skills Development. Memorandum on “Extended Tuition Fee Framework & Technical Working Groups on Tuition Related Issues.” December 15, 2016.

¹⁴ We note that the colleges’ international student tuition fees are offset by the International Student Recovery Fee, which reduces colleges’ operating grants by \$750 per international student.

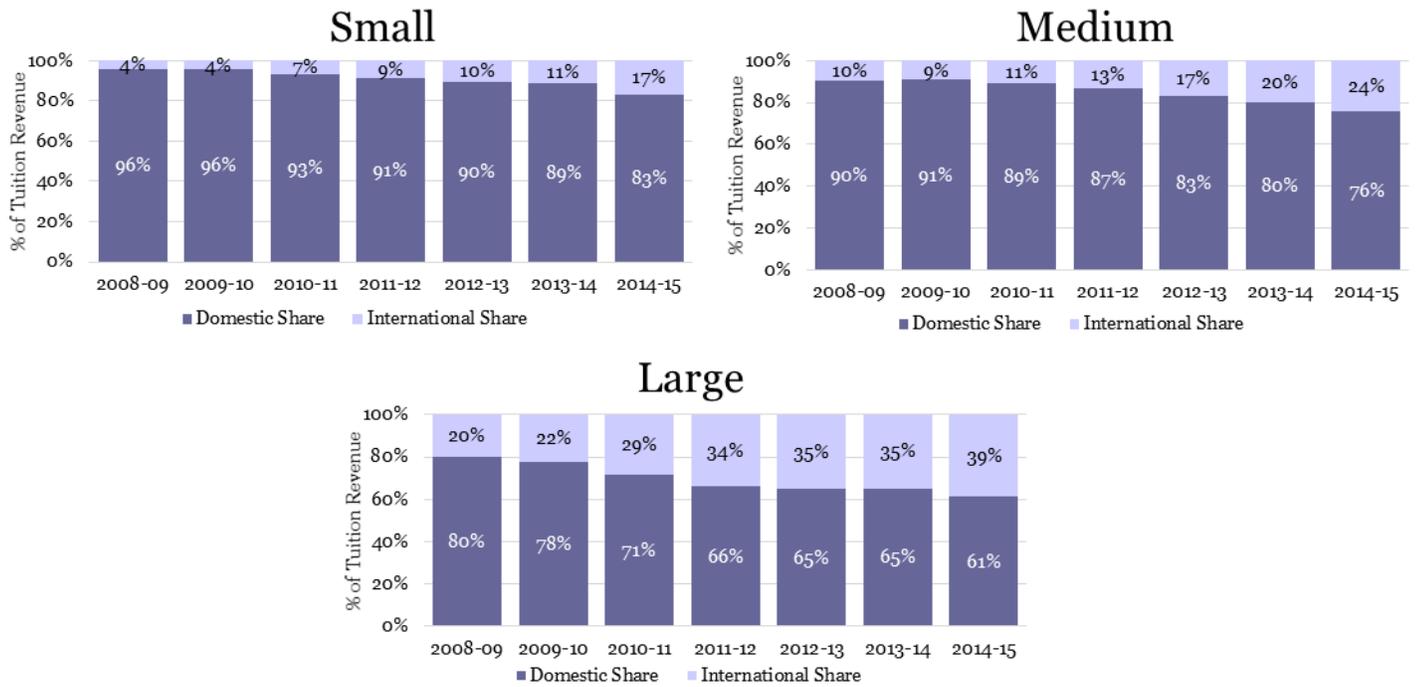
for Northern colleges, and from 4% to 17% for Small colleges. As seen below, the proportion of total tuition revenues made up by international tuition has increased from around 20% to 40% for Central and Large colleges.

Figure 11: Domestic vs International Tuition Revenue by Region¹⁵



¹⁵ CFIS Data.

Figure 12: Domestic vs International Tuition Revenue by Size¹⁶

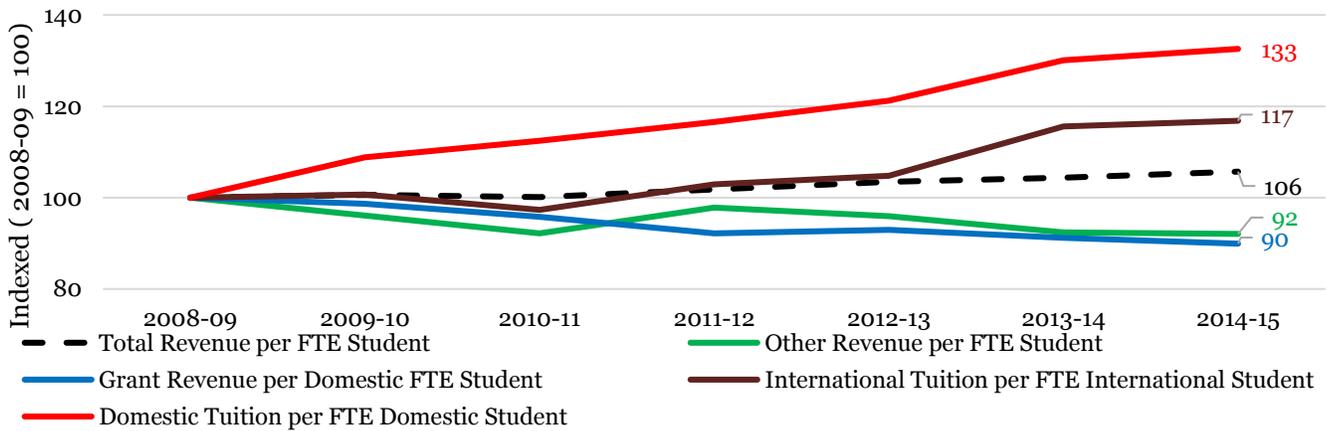


¹⁶ CFIS Data.

On a system-wide basis, colleges’ per-student revenues have increased by a cumulative 6% between 2008-09 and 2014-15. The components of this increase are shown in Figure 13 below.

As can be seen from Figure 13, declines in per-student grant revenues have generally been offset by increases in domestic and international student tuition fees, leading to an overall increase in total revenue per FTE student over the past seven years. However, this growth in revenue per student was outpaced by general inflation (12%) and inflation in services (14%), on a cumulative basis, over the same period.¹⁷

Figure 13: Revenue per Student by Category¹⁸



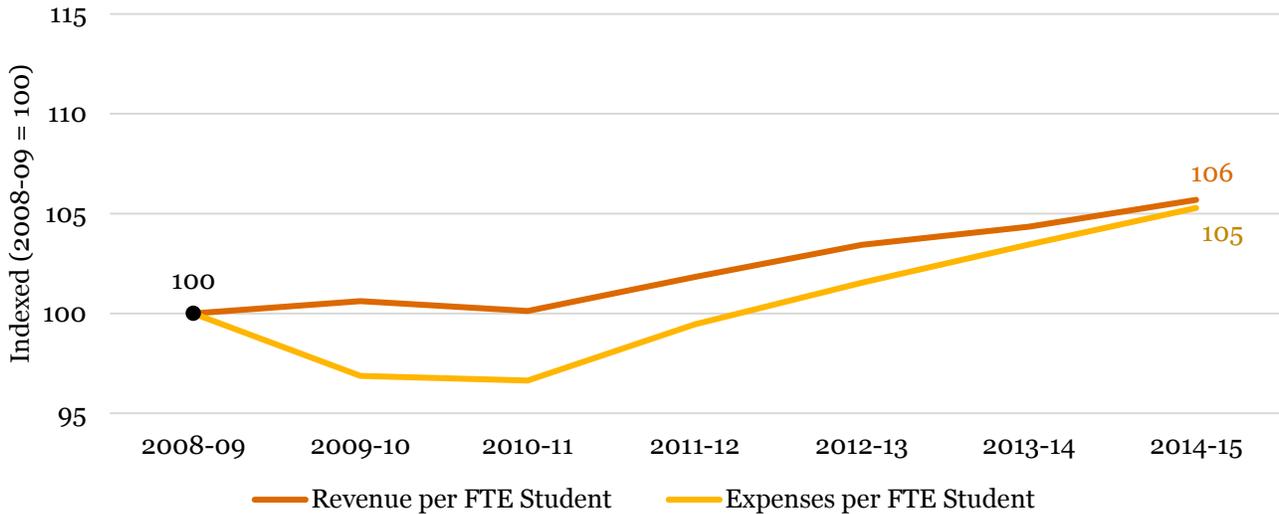
¹⁷ Statistics Canada Table 326-0021: Consumer Price Index (“Inflation Data”).

¹⁸ CFIS Data; College Enrolment Data; Statistics Canada Table 326-0021.

Expenses

As agents of the Crown, colleges are generally required to maintain balanced budgets and not go in to deficit. It is therefore unsurprising that colleges' revenues and expenses have generally followed similar growth trends, as shown in Figure 14 below.

Figure 14: Revenue and Expenses per FTE Student¹⁹

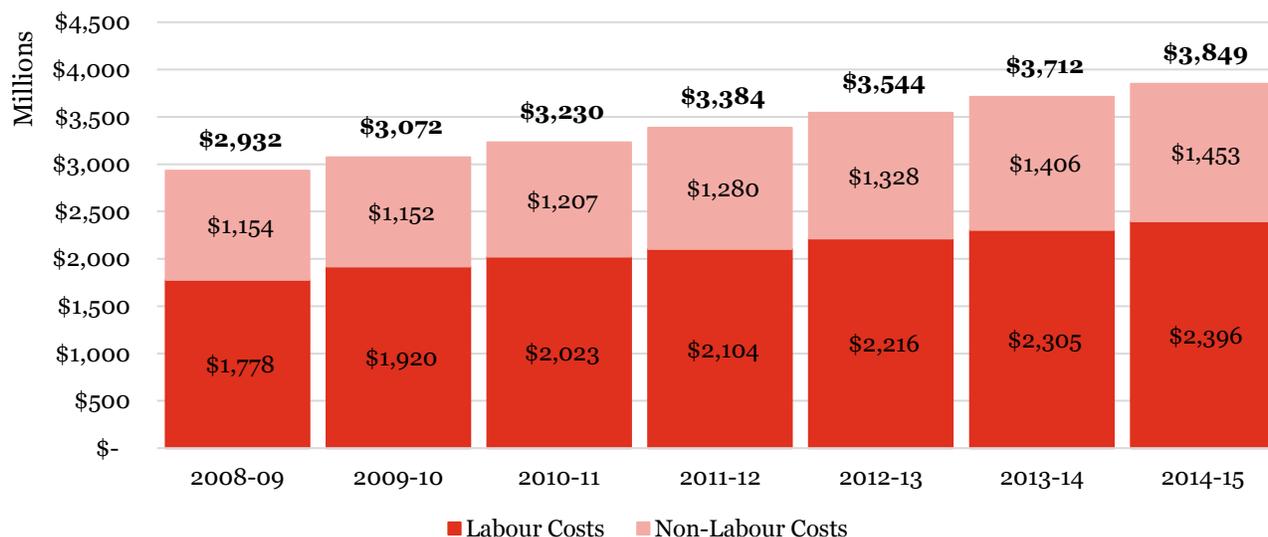


Given that most of the colleges' cost items (e.g. utilities and maintenance) have long-term trends similar to general inflation, and given the recent relatively slow growth in revenue (i.e., below general inflation rate), colleges have had to find ways to control cost items in an attempt to maintain balanced budgets.

A large proportion of colleges expenses are semi-fixed costs, meaning that they are fixed over certain ranges of activity levels (e.g., enrolment), but change once certain thresholds are reached. The most important cost item in this category is labour costs (i.e., salaries, wages, benefits and pension expenses), which averaged to approximately 62% of total costs over the reviewed period, as shown below in Figure 15.

¹⁹ CFIS Data; College Enrolment Data.

Figure 15: Labour and Non-Labour Expenses at Colleges²⁰



Compensation for full-time staff at colleges is negotiated through collective bargaining agreements, which include prescribed increases for employee salaries. Part-time staff, on the other hand, are not currently covered by any collective bargaining agreements, so colleges set the terms of their employment at each individual institution. Compensation for full-time employees includes group insurance benefits and membership in a province-wide pension plan. Part-time employees do not receive group insurance benefits and membership in the pension plan is optional.

On a per FTE employee basis, labour costs (including salaries and wages, benefits and pensions) have increased at an average rate of 2.6% per year over the period 2005-06 to 2014-15. Over the same time period, the average annual increase in general educational services labour costs in Ontario was 2.7%.²¹ When looking at the annual base wage increases (i.e., excluding benefits and pensions) negotiated for those employees covered by collective agreements, the average annual increase for full-time academic and for full-time support staff was 2.0% and 2.3%²², respectively. Over the same time period, the average annual increase for collective agreements in the broader public sector in Ontario was 2.0%²³. As the average annual growth rates in Table 3 below show, total labour expenses (i.e. wages, benefits, and pensions) for full-time employees have generally grown at a faster pace than those for part-time employees, but it should be noted that the expenses for full-time employees includes benefits and pension costs in addition to salaries and wages.

²⁰ CFIS Data.

²¹ Statistics Canada Table 281-0063: Survey of Employment, Payrolls and Hours (SEPH), employment and average weekly earnings (including overtime) for all employees by North American Industry Classification System (NAICS), seasonally adjusted, annual (“Statistics Canada SEPH Historical Wage Data”)

²² We understand from the College Employers Council that these are the average historic collective bargaining agreement rates from 2005-06 to 2014-15.

²³ Collective Bargaining Highlights December 2015, p.9.

Table 3: Average Annual Growth in Total Labour Expenses by Staff Category²⁴

Staff Category	Average Annual Growth 2005-06 to 2014-15
Academic – FT	3.0%
Academic – PT	2.8%
Administrative – FT	2.7%
Administrative – PT	0.5%
Support – FT	3.5%
Support – PT	2.6%
Total	2.6%

Colleges have always employed a mix of full-time and part-time employees in order to deliver programs. The current distribution of employees across staffing categories is shown in Table 4. According to colleges, the engagement of part-time employees provides the ability to have faculty directly involved in relevant industries, offers greater flexibility in terms of assigning teaching duties, assists in dealing with fluctuating demands in student enrolment and minimizes risks in introducing a new program at a college. Generally, the compensation of part-time employees differs from full-time employees and therefore the usage of part-time employees offers colleges some relief from cost growth when compared to the collective agreement obligations for full-time employees. However, many of these factors could be impacted in the event that these employees unionize in the future.

Table 4: College Staffing Levels (Headcount), 2015-16²⁵

Staffing Category	Full-Time	Part-Time	Total
Academic Staff	7,494	15,400	22,894
Support Staff	7,462	12,629	20,091
Administrative Staff	2,825	n.a.	2,825
Total	17,781	28,029	45,810

In addition to controlling labour costs, colleges have undertaken actions to realize efficiencies and reduce other cost items, such as:

- Undertaking program evaluation initiatives to identify programs that are not core to their offerings and where net costs exceed the benefits to students and the communities served;
- Consolidating their operations, closing campuses and divesting of buildings to trim operating costs and reduce deferred maintenance costs;
- Outsourcing non-core service delivery, such as housekeeping, security, residence management and cafeteria operations; and

²⁴ CEC Staffing and CFIS Compensation Data 2005-2015 (“Colleges Staffing & Compensation Data”). Note that these increases reflect cost of living increases, as well as increases for promotion and movement up salary grids.

²⁵ 2015-16 headcount figures were provided by the College Employer Council.

- Automating various processes and systems (e.g., financial reporting tools and parking services) to eliminate unnecessary labour costs.

Colleges have also cooperated among themselves to control costs. Some of the cost-saving initiatives that colleges have collectively engaged in include:

- Collective bargaining with full-time employees;
- Sharing the risks and costs of providing employee pension plan and group insurance benefits;
- Provincial procurement partnerships to allow for better economies of scale in purchasing; and
- Collaboration in the development and delivery of academic programs and services, especially in rural and remote communities.

It should be noted that some of the cost cutting activities taken by colleges, may lead to additional costs in the long-term. The most significant example of this relates to the maintenance of colleges' facilities. With limited funding specifically allocated to capital projects, colleges have postponed facility replacement and modernization, and, in some cases, maintenance. The result is that colleges will require significant funds to overhaul their facilities at some point in the future, and, in the meantime, their operating budgets will be impacted by increased maintenance costs as a result of aging infrastructure.

Further, at the same time that colleges have sought to reduce their expenses and realize efficiencies in their operations, the provincial government has introduced new reporting requirements (e.g., usage of ancillary fee revenue) and student service requirements (e.g., accommodating students with disabilities and developing sexual violence policies and protocols), which have resulted new costs for colleges. While colleges generally view these as worthy initiatives, in most cases they have not been accompanied by additional funding, causing increased strain on colleges' budgets.

Baseline Model

The baseline model assumptions have been developed to demonstrate how the fiscal situation of Ontario's colleges will evolve over the coming decade, 2015-16 to 2024-25 (the "Projection Period"), if no further actions are taken. This is an unlikely scenario, as the provincial government may alter its funding formula and colleges will continue to seek ways to adapt to whatever funding that they receive. However, this baseline highlights the magnitude of the gap that will need to be filled by some combination of reduced costs and increased revenues.

Baseline Model Assumptions

Domestic Student Enrolment

The overall demographic picture in Ontario is one of an aging population. This trend is particularly acute in northern and rural communities. As the population ages, the number of potential domestic students in what have traditionally been college age groups will decline.

Eighty percent of students attending colleges are between the ages of 18 and 24. The Ministry of Finance projects that across Ontario, the size of this age group will decline by 7.3% between 2015 and 2025.²⁶

In certain areas of the province, the declines are expected to be even larger. Regions in the province's north are expected to see declines in the 15 to 24 age group of 16.8% between 2015 and 2025.²⁷ Contrast this with the GTA where small increases of 0.6% are projected over the same period.²⁸

Under the current funding formula, colleges' operating grants from the provincial government are based on domestic enrolment,²⁹ so a decline in domestic enrolment, all else equal, would lead to reduced grant funding. Further, declining domestic enrolment would mean fewer students paying domestic tuition fees.

To project how these changing demographics might affect Ontario's colleges, we have estimated domestic student enrolment using population projections produced by Ontario's Ministry of Finance and have assumed that colleges will continue to attract students at the same rates as in 2014-15.³⁰

These assumptions generally result in a decline in domestic student enrolment at colleges over the Projection Period.

²⁶ Statistics Canada Table 051-0001: Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual

²⁷ Census division data is produced in 5 year age groupings, which is why the 15 to 24 age group was considered instead of 18 to 24.

²⁸ Ontario 2011 Census Divisions and Census Consolidated Subdivisions. We have considered specific regions of the province with notable demographic trends. For the GTA region, we consider the Peel, York and Toronto census divisions, which are home to several of the Central colleges: Centennial, George Brown, Seneca, Humber and Sheridan colleges. For the north region we considered the Nipissing, Manitoulin, Sudbury, Greater Sudbury, Timiskaming, Cochrane, Algoma, Thunder Bay, Rainy River and Kenora census divisions, which are home to all of the Northern region schools.

²⁹ A description of the College Funding Formula is provided in Appendix C.

³⁰ Weighted average change in enrolment by age group was calculated based on projected age-specific changes in population by census divisions (i.e., the provincial sub-regions used in our analysis) that represented at least 10% of a college's total domestic enrolment, with the remainder of the weighting being represented by age-specific changes at the provincial level (Source: College Enrolment Data).

Figure 16: Projected Total FTE Student Enrolment, by Category³¹

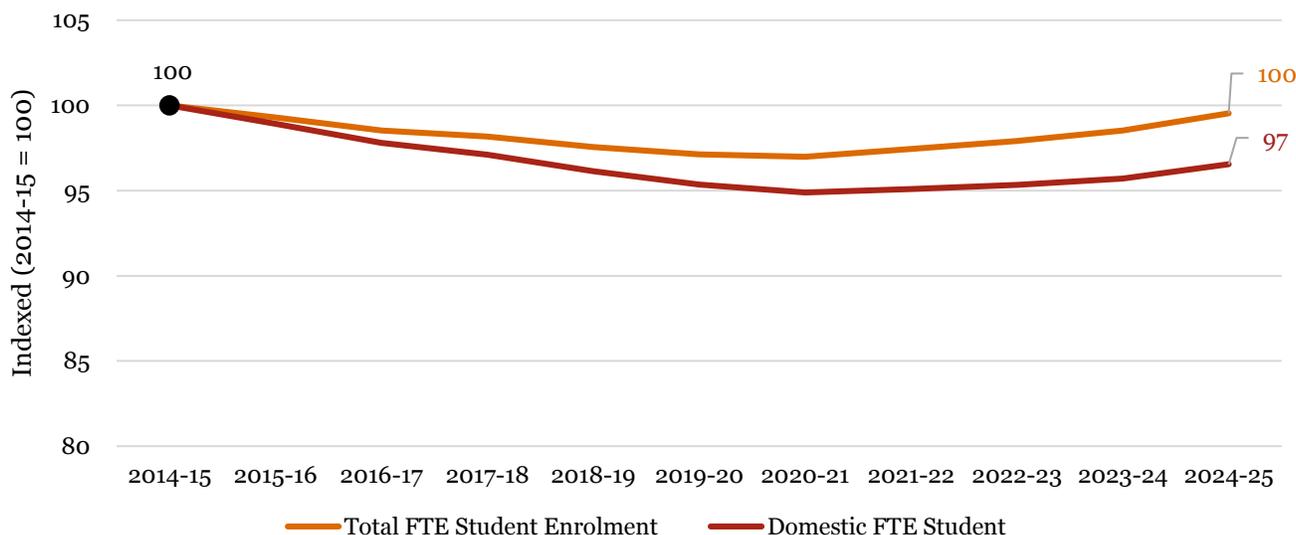


Table 5: Projected Domestic FTE Student Enrolment, by Region³²

Domestic	2014-15	2024-25	Aggregate Change	Average Annual % Change
Northern	19,253	17,255	(1,998)	-1.1%
Eastern	60,709	58,049	(2,660)	-0.4%
Western	70,599	66,136	(4,463)	-0.7%
Central	122,956	122,609	(347)	0.0%

Table 6: Projected Domestic FTE Student Enrolment, by Size³³

Domestic	2014-15	2024-25	Aggregate Change	Average Annual % Change
Small	27,109	24,341	(2,768)	-1.1%
Medium	79,514	74,587	(4,927)	-0.6%
Large	166,894	165,121	(1,772)	-0.1%

As seen below in Figure 17, all of the regions experience a dip in domestic FTE student enrolment, with varying recoveries starting approximately at the academic year 2020-21. By the end of the Projection Period, central region schools recover to 2014-15 enrolment level, while northern region schools experience a 10% drop in domestic FTE student enrolment by 2024-2025.

³¹ Set of Ontario Population Projections: Statistics Canada Ontario Population Projections, 2013-2041 (“Ontario Population Projections”).

³² Ontario Population Projections.

³³ Ontario Population Projections.

Figure 17: Projected Domestic FTE Student Enrolment, by Region³⁴

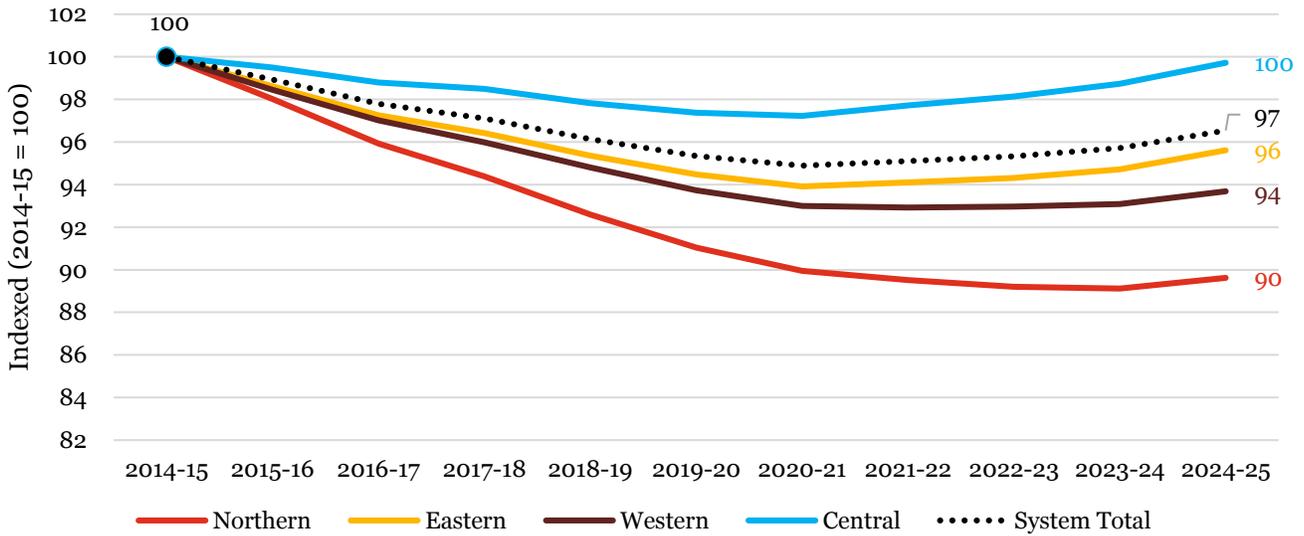
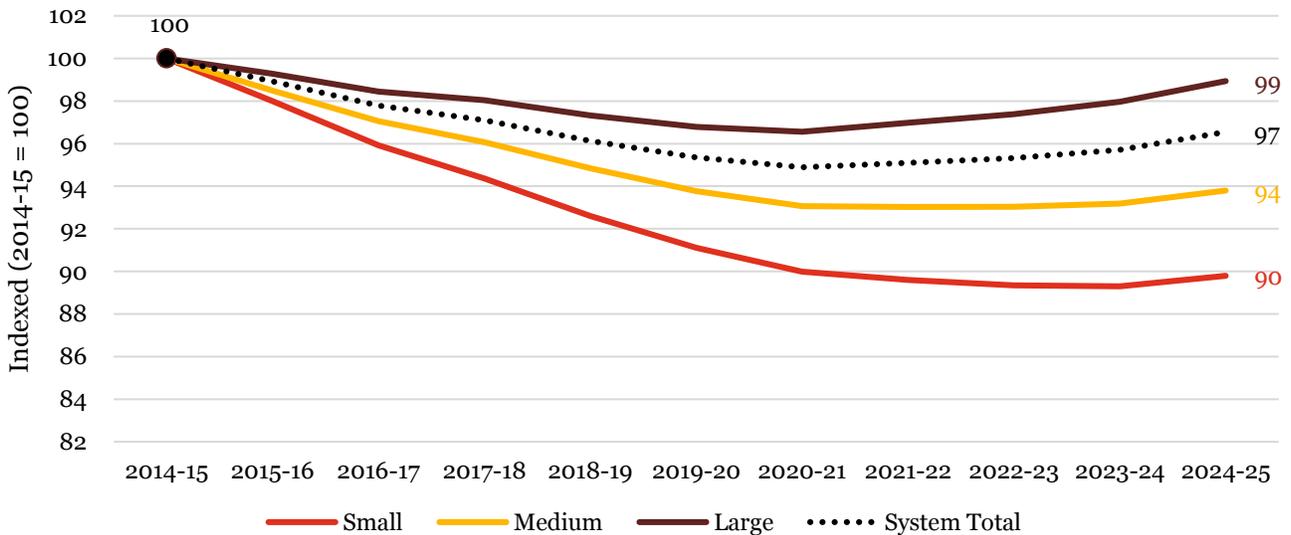


Figure 18 shows a similar picture, with large colleges almost fully recovering to current domestic FTE student levels, and small colleges experiencing 10% drops in domestic enrolment by 2024-25.

Figure 18: Projected Domestic FTE Student Enrolment, by Size³⁵



International Student Enrolment

While growth in domestic student enrolment has stalled, and in some cases begun to decline, international enrolment has been increasing and is expected to continue to increase over the Projection Period. For the purposes of this baseline model, we have projected international enrolment growth of 2% per year.

³⁴ Ontario Population Projections.

³⁵ Ontario Population Projections.

On a system-wide basis, this means that international enrolment will grow from 12% of total enrolment in 2014-15, to 14% in 2024-25.

Figure 19: Projected International FTE Student Enrolment, by Region

International	2014-15	2024-25	Aggregate Change	Average Annual % Change
Northern	1,803	2,198	395	2.0%
Eastern	3,500	4,266	766	2.0%
Western	6,880	8,387	1,507	2.0%
Central	24,488	29,851	5,363	2.0%

Figure 20: Projected International FTE Student Enrolment, by Size

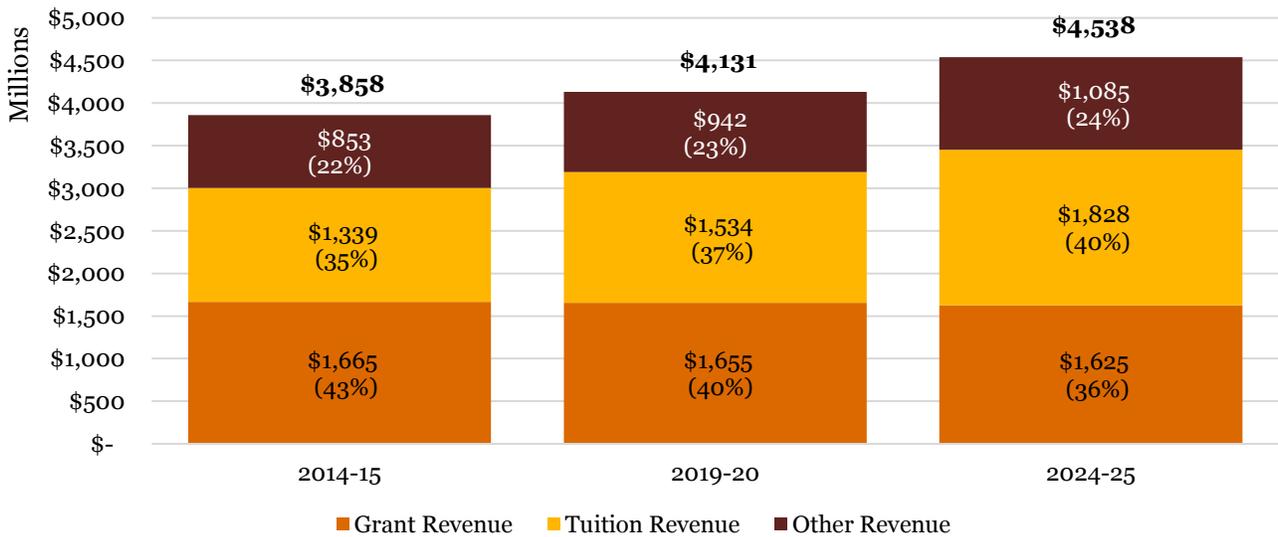
International	2014-15	2024-25	Aggregate Change	Average Annual % Change
Small	1,984	2,418	434	2.0%
Medium	6,475	7,894	1,418	2.0%
Large	28,212	34,390	6,178	2.0%

Revenue

Domestic tuition fees are assumed to grow at 3% per year, consistent with the provincial government’s recent announcement. Given that international tuition fees have not been constrained by policy historically and are therefore more likely to reflect market rates, we have assumed that international tuition will grow at the lower rate of 2% per year.

As a whole, the baseline model projects that the college system will experience a significant shift in the source of its revenues. Specifically, Figure 21 shows that grant revenue will drop from 43% of total revenue in 2014-15 to 36% by the end of the 2024-25. This will lead to a greater reliance on tuition revenues, which increase from 35% of total revenue in 2014-15 to 40% by 2024-25.

Figure 21: Projected Revenue Makeup, System Total³⁶



The charts below break down projected revenues, by category, for the various regional and size grouping. Figure 22 shows that Western colleges are projected to see a 6 percentage point increase in tuition revenue as a portion of total revenue, which is paired with an 8 percentage point decrease in grant revenue, by 2024-25. Figure 23 shows that Large colleges are projected to see a 5 percentage point increase in tuition revenue as a portion of total revenue, which is paired with a 7 percentage point decrease in grant revenue, by the end of the Projection Period.

³⁶ The Grant Revenue and Total Revenue figures are by design inconsistent with the totals shown in previous figures. For the purposes of our projections, we excluded two CFIS line items: “Grant Revenue Capital” and “Recognition of Deferred Revenue & Restricted Funds”. We understand that these two items are awarded to colleges on a one-off basis and therefore do not follow any sort of annual trends. To avoid distorting our projections, we have excluded these items, which on a system-wide basis account for \$71,660,196, or 1.8% of total revenue. We recognize that this slightly understates the total revenues of the colleges, but, in our opinion, the exclusion of these items makes our projections a better base for analysis.

Figure 22: Projected Revenue Makeup, by Region

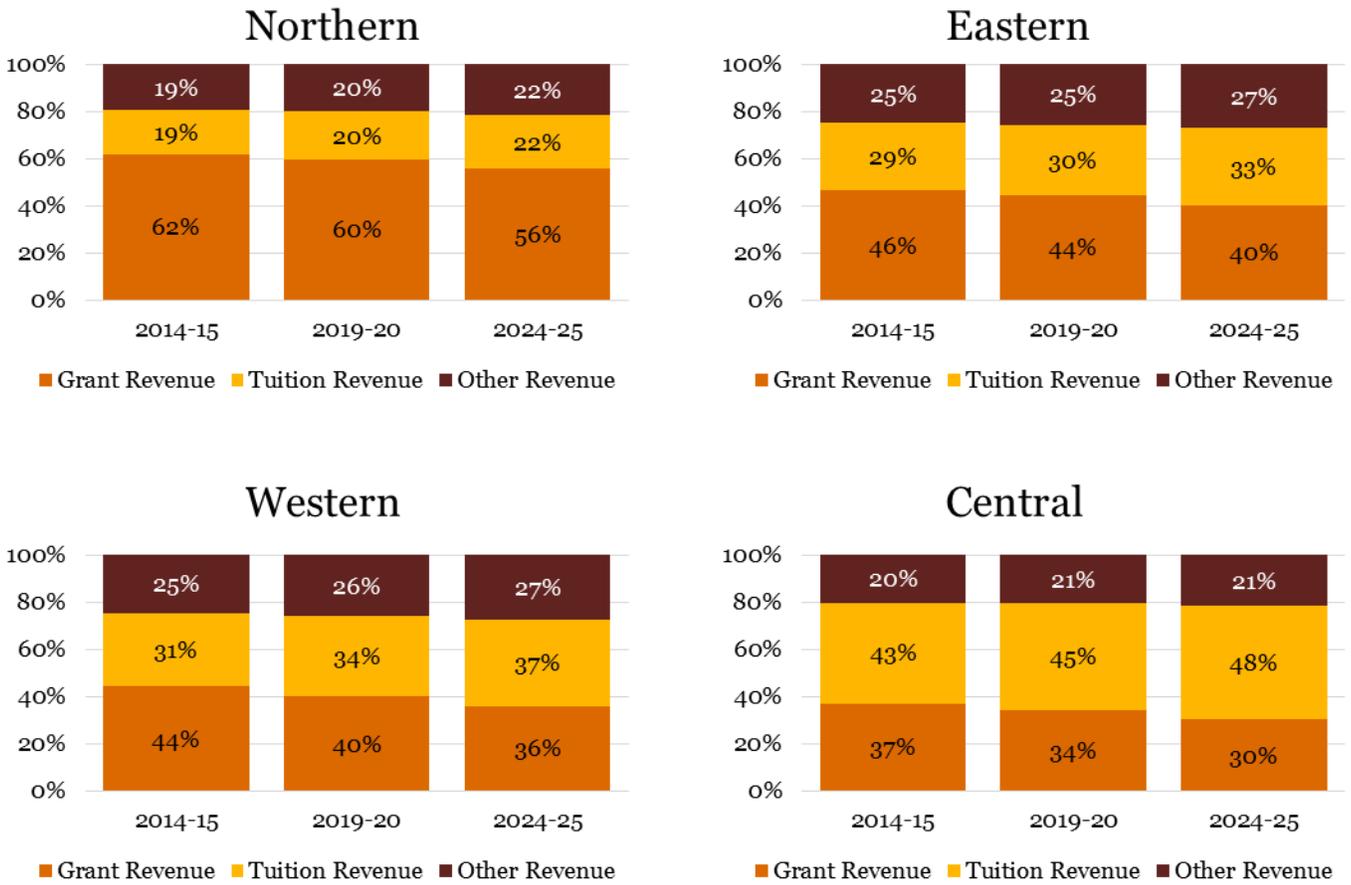
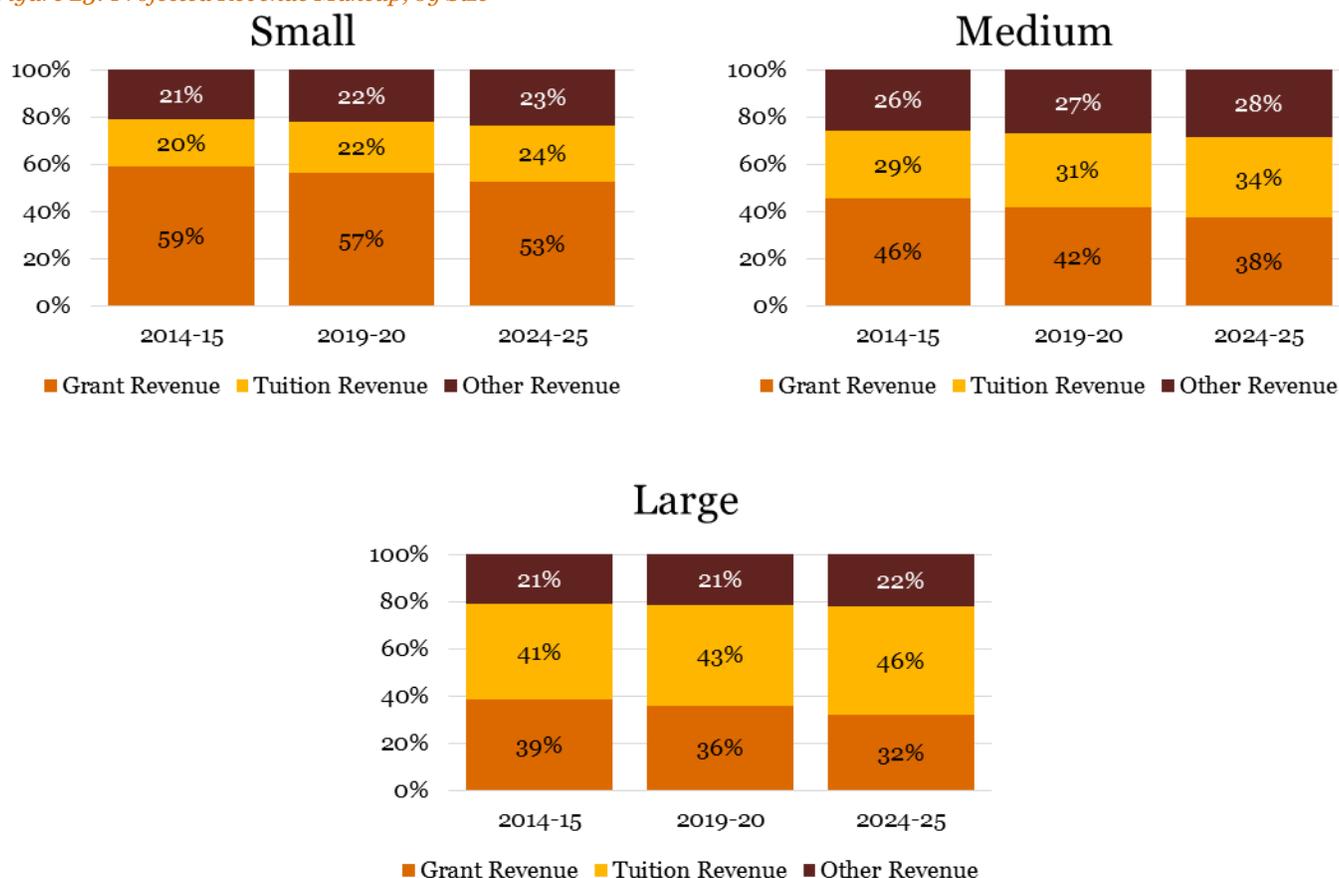


Figure 23: Projected Revenue Makeup, by Size



Regarding grant revenues, our baseline model calculates operating grant revenues assuming that average funding per student will remain constant at current levels,³⁷ with domestic student funding projected using the current funding formula. Other grant revenue (e.g., special purpose grants, but excluding the capital grants) is assumed to remain fixed at current levels. We understand the capital grants are project specific, and given that we have not engaged in an analysis of future specific projects and their likelihood of receiving grants, we have excluded capital grant revenue from our projections.

All other revenues are assumed to change with total enrolment and the change in total expenses.³⁸

Expenditure

As indicated previously, the majority of colleges’ expenses relate to labour costs (i.e., salaries, wages, benefits and pension expenses), representing approximately 65% of total expenses.

Over the past 10 years, salary and wages, benefits and pension expenses have increased by 2.6% per year, on average, across all colleges. This number is consistent with our research of general labour cost increases in Ontario.³⁹ Thus, for the purpose of our baseline model, we assumed that this relationship between college labour cost and general labour costs will continue in the future. According to our research, Ontario employee salaries and

³⁷ The current funding level per weighted funding unit, \$4,277.45, is held constant over the Projection Period.

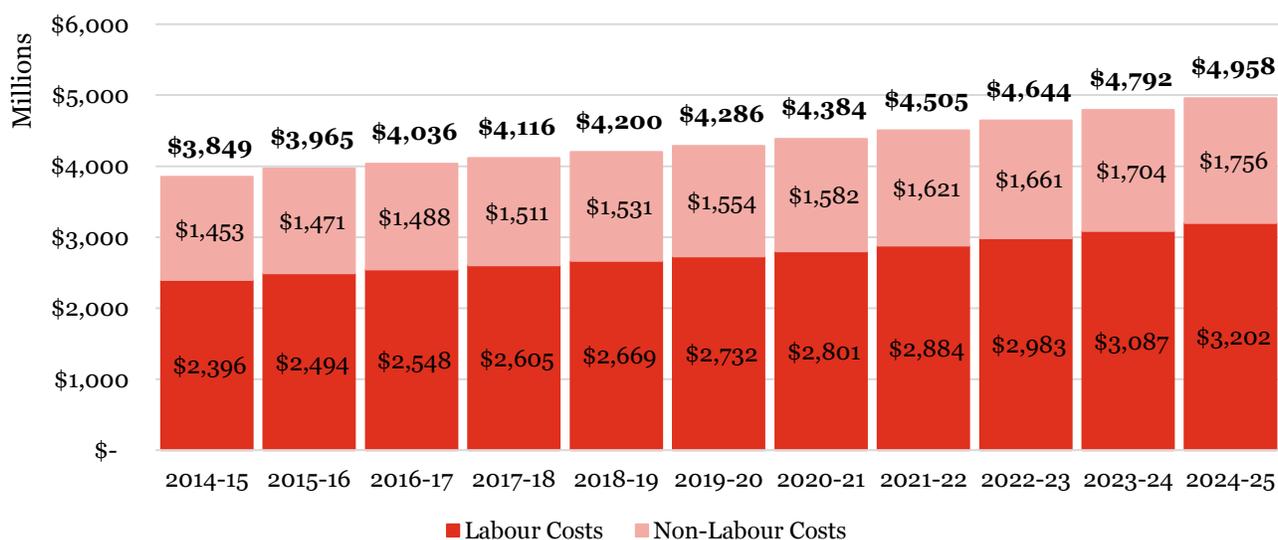
³⁸ These are all revenues that do not come from tuition or grant fees, which include items such as student fees and ancillary revenues.

³⁹ See, for example, Statistics Canada SEPH Historical Wage Data.

wages are expected to grow on average at the same rate, 2.6% per year, over the Projection Period.⁴⁰ We calculated historical increases in salaries and wages for each staff category and have assumed that these expenses will continue to grow at these historical rates throughout the Projection Period. Further, we have assumed that benefit and pension expenses will grow at these same rates. The model also assumes that part-time employee groups continue to be non-unionized, thus a risk exists that the compensation for these employees may grow at a different rate than the historical pattern should one or both of these groups (part-time academic and support staff) unionize.

Over the Projection Period, the ratio of labour costs compared to all non-labour costs grows slightly from 62% in 2014-15 to 65% in 2024-25. This breakdown of labour costs as a percentage of total expenses is consistent across all region and size groupings.

Figure 24: Breakdown of Labour Costs versus Non-Labour Costs, System Total⁴¹



The baseline model assumes that the proportion of full-time and part-time staff in each category will remain unchanged throughout the Projection Period, but staff levels will follow enrolment levels.⁴² While this is a simplifying assumption, as some colleges may have additional capacity in the event of an enrolment increase, or be unable to reduce staff in the event of a decline, this is not an unreasonable baseline assumption on a system-wide basis.

All other expenses (e.g., transportation and supplies) were assumed to change with total enrolment and general inflation.⁴³

Capital investment and/or deferred maintenance requirements have not been incorporated into the operating budget projections. However, Appendix D shows that deferred maintenance per FTE Student is projected to reach \$12,330 by 2024-25.

⁴⁰ Conference Board of Canada Provincial Outlook 2015: Long Term Economic Forecast, p. 76.

⁴¹ CFIS Data.

⁴² We have incorporated a lag into our estimates, such that 25% of the change occurs in the first year, with the remaining 75% occurring in the second year.

⁴³ These are all expenses that do not come from labour-related expenditures, which include items such as transportation and supplies.

Net Revenue⁴⁴

The assumptions and analysis underling our baseline model result in a negative trend for net revenues. The base year of our projections, 2014-15, starts off with a system-wide surplus of \$8 million.⁴⁵ However, by the end of the Projection Period, Figure 25 shows that rising expenses far exceed revenues, leading to a system-wide deficit of \$420 million by the year 2024-25.

Figure 25: Projected Net Revenue Position, System Total

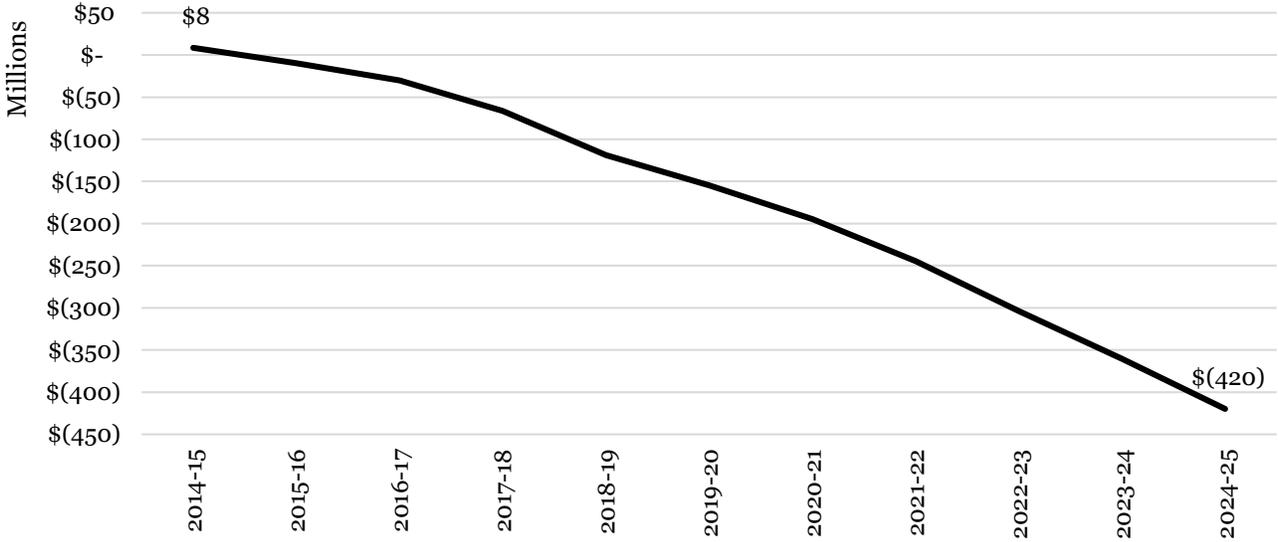


Figure 26 and Figure 27 show the fiscal position of colleges as broken down by region and size groupings. As of 2014-15, northern and small colleges were experiencing deficits, which are projected to reach \$69 and \$85 million, respectively, by 2024-25. Large colleges are projected to run surpluses until around 2017-18, but these surpluses turn into significant deficits of \$171 million by 2024-25.

⁴⁴ For the purposes of our projection, “net revenue” refers to the sum of grant revenue, tuition fees, and other student fees (i.e. ancillary revenues), less salaries and wages, employee benefits, and other expenses (i.e. transportation and communication expenses).

⁴⁵ We note again that this number is lower than the actual reported 2014-15 CFIS figure, as we chose to leave some revenue components out to increase the accuracy of our projections.

Figure 26: Projected Net Revenue Position, by Region

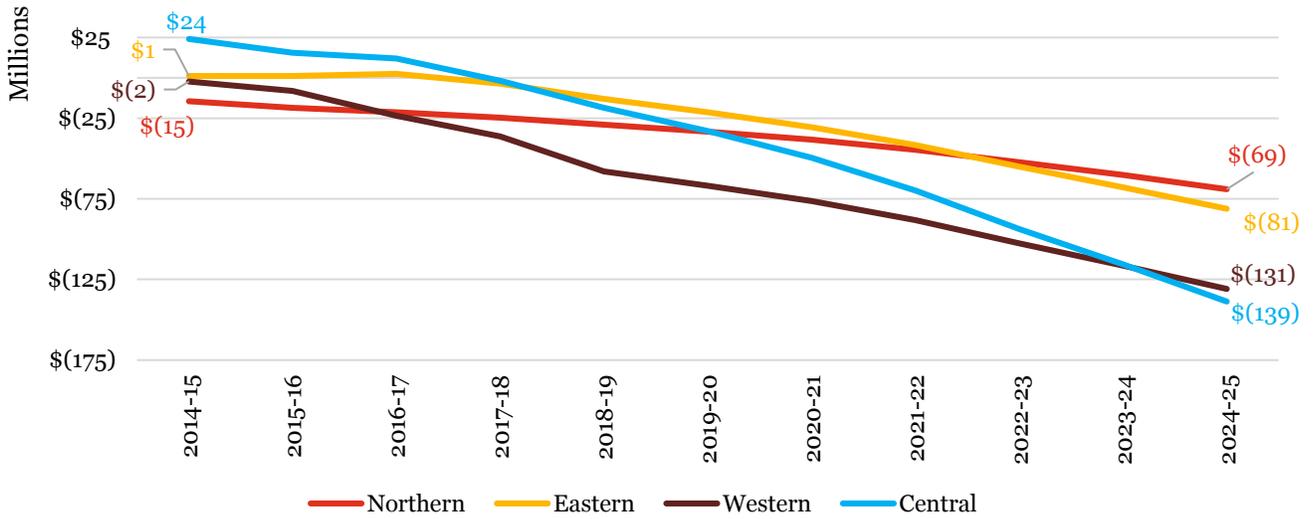
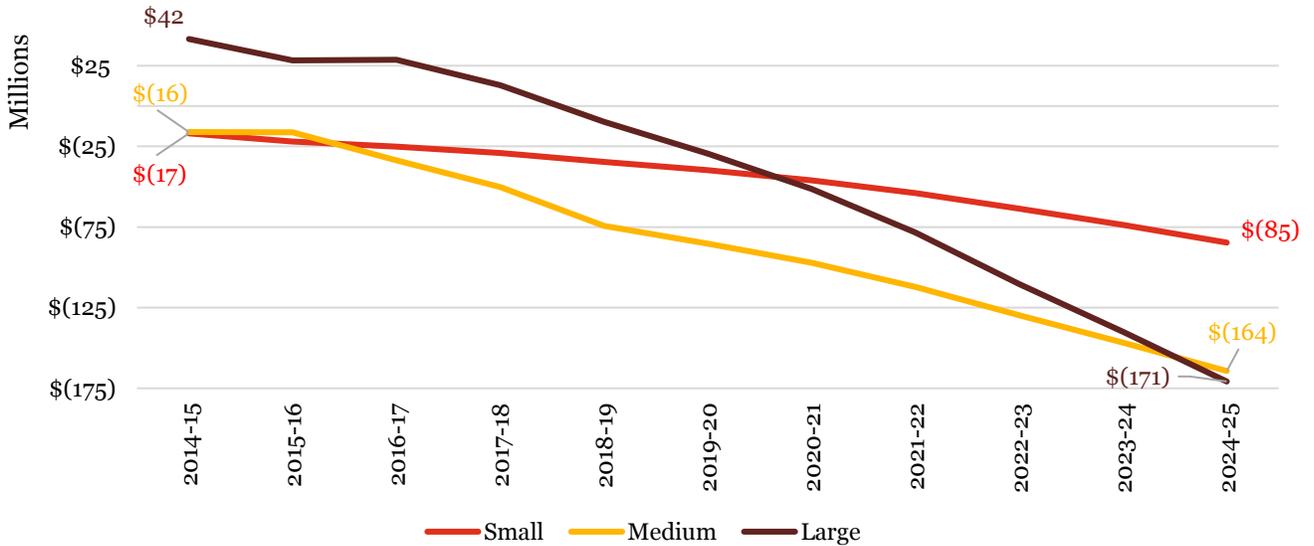


Figure 27: Projected Net Revenue Position, by Size



Projection Model Sensitivity Testing

As shown above, the baseline model assumptions result in a projected system-wide deficit of approximately 10% of revenues by 2024-25. To put this deficit in context, we have analyzed the extent to which individual components of the baseline model would need to change in order to bring the system into balance. As shown below, changes of individual components of this magnitude are unlikely to be realistic. We recognize that the required increases in any individual revenue stream or decreases in individual cost areas are too large to be practical, and would likely endanger colleges' continued viability. However, these sensitivity analyses are helpful in framing the discussion of the magnitude of the projected shortfall and the urgent need to come up with creative solutions that will not require the drastic measures suggested in our analysis.

The section following this one presents alternative scenarios showing how a combination of several changes could tackle the projected deficit.

In our sensitivity analysis, we have assessed changes in the following components:

- Grant funding
- Domestic tuition growth rate
- Labour costs
- International student enrolment

Grant Funding

We understand that the provincial funding formula is currently under review and there are a number of proposals for how the formula might be adjusted. The baseline model has assumed that the level of grant funding will remain constant on a per-student basis. The analysis below shows that in the baseline model, there is an overall projected decrease in grant funding of 0.2% per annum (i.e., a cumulative decrease of 2.4% over the Projection Period), which results from an overall decline in the number of domestic student enrolment.

To achieve a fiscal balance by relying exclusively on the grant funding from the provincial government, an annual increase of 2.1% on a system-wide basis (i.e., 22.8% over the Projection Period) would be required. We demonstrate what these increases would mean in terms of average grants per domestic student⁴⁶ in Table 8 which shows that grant funding would need to increase to \$7,076 in 2019-2020 and \$7,745 in 2024-25. The necessary breakeven grant funding per student on a region and size basis are shown in Table 9 and Table 10.

⁴⁶ Note that this includes all domestic FTEs, not just those that are funded through the provincial operating grant.

Table 7: Annual Grant Funding Increase Necessary to Reach Breakeven by 2024-25

Breakdown	Projected Annual Grant Funding Increase/(Loss)	Cumulative Grant Funding Increase for Breakeven	Average Annual Grant Funding Increase for Breakeven
System Total	-0.2%	22.8%	2.1%
Northern	-0.5%	25.0%	2.3%
Eastern	0.0%	21.8%	2.0%
Western	-1.0%	21.9%	2.0%
Central	0.2%	23.1%	2.1%
Small	-0.5%	23.6%	2.1%
Medium	-0.9%	24.7%	2.2%
Large	0.2%	21.4%	2.0%

Table 8: Historical Grant per FTE Student, System Total⁴⁷

	System Total
Grant per Domestic FTE Student, 2008-09	\$ 6,373
Grant per Domestic FTE Student, 2014-15	\$ 6,089
Breakeven Grant per Domestic FTE Student, 2019-20	\$ 7,076
Breakeven Grant per Domestic FTE Student, 2024-25	\$ 7,745

Table 9: Historical Grant per FTE Student, by Region

	Northern	Eastern	Western	Central
Grant per Domestic FTE Student, 2008-09	\$ 11,898	\$ 6,357	\$ 5,832	\$ 5,710
Grant per Domestic FTE Student, 2014-15	\$ 12,028	\$ 6,177	\$ 5,878	\$ 5,236
Breakeven Grant per Domestic FTE Student, 2019-20	\$ 14,771	\$ 7,216	\$ 6,924	\$ 5,967
Breakeven Grant per Domestic FTE Student, 2024-25	\$ 16,774	\$ 7,871	\$ 7,649	\$ 6,466

Table 10: Historical Grant per FTE Student, by Size

	Small	Medium	Large
Grant per Domestic FTE Student, 2008-09	\$ 9,692	\$ 6,307	\$ 5,710
Grant per Domestic FTE Student, 2014-15	\$ 10,941	\$ 6,200	\$ 5,248
Breakeven Grant per Domestic FTE Student, 2019-20	\$ 13,353	\$ 7,384	\$ 5,975
Breakeven Grant per Domestic FTE Student, 2024-25	\$ 15,065	\$ 8,242	\$ 6,440

Domestic Tuition Growth

The baseline model assumes that domestic tuition per student will grow at a rate of 3% per year for the Projection Period, consistent with the provincial government's recent announcement. This results in average domestic tuition fees of approximately \$4,388, as shown in Table 11 below.

⁴⁷ System-wide Baseline Grant per Domestic FTE Student in 2024-25 is projected to be \$6,155, which is 0.2% lower on an annual basis than the system-wide grant per domestic FTE Student in 2014-15 due to a small overall decline in the number of FTE Students. In order to eliminate the deficit by the end of the projection period, the grant per domestic FTE student would need to increase by 2.1% per annum compared to its 2014-15 level, or 2.3% per annum compared to the Baseline 2024-25 level.

To eliminate the deficit through domestic tuition, the tuition per domestic student would have to increase at a rate of 6.2% per annum, resulting in average domestic tuition per college student of \$5,977 by 2024-25. This compares to our baseline forecast (increasing at 3% per annum) average domestic tuition, which reaches \$4,388 by the end of the projection period. To put that number in context, average university tuition in 2014-15 was \$7,868 per student.⁴⁸

We note that northern and small colleges face relatively larger deficits. Since domestic tuition fees are less than 20% of total revenue for these colleges, it limits the effectiveness of raising college revenues.

Table 11: Domestic Tuition Sensitivity

Scenario	Annual Domestic Tuition Increase	Implied Annual Tuition Increase	Net Revenue by 2024-25	Average Domestic Tuition in 2014-15	Average Domestic Tuition by 2024-25
Baseline	3.0%	\$ 114	\$ (419,826,856)	\$ 3,249	\$ 4,388
Breakeven	6.2%	\$ 273	\$ -	\$ 3,249	\$ 5,977

Labour Expenses

As discussed above, labour costs (i.e., salaries, wages, benefits and pension expenses) represent approximately 65% of colleges operating expenses.

As of 2014-15, there were 35,304 FTEs (including full-time and part-time) employed at colleges. These employees can be categorized academic, administrative, or support employees. Throughout the Projection Period, the number of employees is expected to slightly dip and then return to current levels, reaching 35,374 by 2024-25.

Table 12: Labour Expense Sensitivity

	2014-15			2024-25		
	FTEs with			FTEs with		
	Baseline FTEs	13.1% staff cut	Difference	Baseline FTEs	13.1% staff cut	Difference
FT Academic	7,446	6,470	(976)	7,461	6,483	(978)
PT Academic	7,712	6,701	(1,011)	7,727	6,714	(1,013)
FT Administrative	2,683	2,331	(352)	2,688	2,336	(352)
PT Administrative	1,067	927	(140)	1,069	929	(140)
FT Support	7,526	6,539	(987)	7,541	6,552	(989)
PT Support	8,870	7,707	(1,163)	8,888	7,722	(1,165)
Total	35,304	30,676	(4,628)	35,374	30,737	(4,638)

To achieve a balanced budget by the end of the Projection Period, exclusively through staff size cuts, colleges will need to reduce their staff size by approximately 13.1%, representing over 4,600 FTE employees.⁴⁹ If this labour reduction was consistent across staff categories, that would result in a decrease of approximately 1,000 full-time and 1,000 part-time academic staff system wide by the end of the Projection Period.

However, as a result of such labour reduction, there would likely be a reduction in the number of programs that colleges could offer and the services that they can provide. Many of the courses offered by colleges (especially small and medium colleges) are single section offerings – meaning that there is only a single professor offering a

⁴⁸ Statistics Canada: University Tuition Fees, 2015/16 (Source: <http://www.statcan.gc.ca/daily-quotidien/150909/dq150909b-eng.htm>)

⁴⁹ Assumes that staffing cuts would be evenly distributed throughout the period, implying an annual staffing reduction of about 1.3% of 2014-15 staffing levels each year.

particular course – such that a reduction in the number of academic staff will likely lead to fewer courses being offered. Further, service offerings require a minimum level of administration and support staff to remain viable. If the number of administration and support staff is reduced it may also lead to a reduction in course offerings. A decrease in program offerings at colleges has implications that could affect the wider community. For example, it has been noted that distance is a barrier to college attendance,⁵⁰ and Ontario college students tend to stay in the communities in which they graduate.⁵¹ This suggests that fewer course offering will lead to lower attendance and/or intensify migration from relatively remote/smaller communities of young people who could have contributed to the economy of such communities. Furthermore, a reduction in course offerings could result in a further decline in enrolment at that college, resulting in a further pressure on college revenues.

As the colleges in remote communities (namely, the northern and small colleges) would have to make relatively deeper cuts in their spending to reach breakeven, employment cuts would need to be relatively more drastic than in other regions of the province. However, many northern and small colleges have expressed that they have already cut staff to the full extent possible, which means that further cuts would not be possible without having adverse effects on student learning experience.

International Student Enrolment

As discussed, the proportion of international student enrolment at Ontario’s colleges has generally increased over the past decade. Assuming that colleges do not face any constraints in increasing international enrolment and colleges would not incur significant incremental costs, Table 11 below shows that, on a system-wide basis⁵², international student enrolment would need to increase by 7.1% in order to offset the projected deficit in 2024-25.

Table 13: International FTE Students Required to Reach Breakeven by 2024-25

Scenario	International FTE Students, 2024-25	Implied Annual Growth Rate
Baseline	44,702	2.0%
Implied International Student Increase	72,740	7.1%

We note that attracting international students, especially at the increased rates necessary to offset projected deficit, carries risks of its own, and depends on many factors outside of colleges’ control (e.g., visa policy and geopolitics). Table 14 highlights this risk by showing that if international enrolment were to decline to 50% of baseline model’s projected level (for whatever reason), the annual system-wide deficit in 2024-25 would increase from \$420 million to \$490 million.

Table 14: Net Revenue as a Result of a 50% Decrease in International Tuition by the Year 2024-25

Scenario	2014-15	2019-20	2024-25
Baseline Net Revenue	\$ 8,459,153	\$ (154,571,529)	\$ (419,826,856)
50% Reduction in International Enrolment	\$ 8,459,153	\$ (200,898,460)	\$ (489,661,599)
Difference	\$ -	\$ (46,326,930)	\$ (69,834,743)

⁵⁰ CSA, OSTA-AECO, OUSA. “Breaking Barriers – A Strategy for Equal Access to Higher Education”, p.14.

⁵¹ Junor and Usher. “The Price of Knowledge 2004 – Access and Student Finance in Canada”, p.315.

⁵² As indicate earlier in this report, there are variations between colleges in different regions as to their ability to attract international students. Thus this may not be an alternative for some colleges.

As is the case with potentially raising domestic tuition at northern and small colleges, raising international tuition rates would have a limited impact on the overall fiscal picture, as these remote colleges have far fewer international students than schools in other parts of the province (such as the central colleges).

Alternative Scenarios

As the analysis of the previous section shows, there does not appear to be any single factor that on its own could be changed that would be both reasonable and would eliminate the projected deficit as of 2024-25. However, some combination of changes may accomplish that without requiring extreme measures.

The alternative scenarios presented below provide several illustrative examples for cumulative impact of multiple changes, and is not meant to fully reflect the spectrum of alternatives. The choice of what combination of assumptions best balances the interest of various stakeholders (including students, employees, communities, and taxpayers) is one of policy and is beyond the scope of this report.

In developing these scenarios we have considered the cumulative effect of changes in two or more of the following assumptions of the baseline model:

- Growth rate of tuition for domestic students
- Growth rate of international student enrolment
- Changes in staffing levels across all employee categories
- Growth rate of annual grant funding for domestic students

Table 15: Summary of Breakeven Scenarios

Alternative	Domestic Tuition	Labour Costs*	International Enrolment	Grant Funding
1	↑ 5.0%	↓ 5.4%	n.a.	n.a.
2	↑ 5.0%	n.a.	↑ 4.4%	n.a.
3	↑ 4.5%	↓ 4.2%	↑ 3.5%	n.a.
4	↑ 4.0%	↓ 4.1%	n.a.	↑ 1.0%
5	↑ 4.0%	n.a.	↑ 3.9%	↑ 1.0%
6	↑ 4.0%	↓ 2.0%	↑ 3.0%	↑ 1.0%

* Reductions in labour costs reflect total changes over the Projection Period, while all other changes in the table are presented as annual growth rates.

It is important to note that the alternative scenarios set out below reflect the impact on a system-wide basis. The financial impact of these changes may be felt to a greater or lesser extent in certain regions or among colleges of a particular size within the province. Further, there may be significant differences in the impact that the scenarios below would have on program delivery at any individual college. However, disparate impacts on individual colleges could be mitigated by changes to the provincial government's funding model to recognize this variation such that a balanced budget could be achieved on a system-wide basis as well as at individual colleges.

Alternative 1: Adjust Domestic Tuition Growth Rate and Staffing Levels

Alternative 1 shows that a balanced budget could be achieved over the Projection Period if the annual growth rate in domestic tuition per student were increased from the baseline model assumption of 3% up to 5%, in combination with a cumulative decrease in staffing levels of 5.4% over the Projection Period.⁵³

⁵³ Assumes that staffing cuts would be evenly distributed throughout the period, implying an annual staffing reduction of about 0.5% of 2014-15 staffing levels each year.

This staffing reduction would represent a total of 1,924 FTEs (including 826 academic FTEs) compared to 2015-16 staffing levels.

The implied tuition fee in the last year of our projection period resulting from a 5% annual increase in domestic tuition per student is \$5,318.

Alternative 2: Adjust Domestic Tuition Growth Rate and International Enrolment Growth Rate

Under Alternative 2, a balanced budget could be achieved over the Projection Period if the annual growth rate in domestic tuition per student were increased from the baseline model assumption of 3% up to 5%, in combination with an increase in the growth rate of international students from 2% in the baseline model to 4.4%.

Over the entire Projection Period, this increase in international student enrolment would represent 26% more international student FTEs enrolled in the Ontario college system than under the baseline model.

The implied tuition fee in the last year of our projection period resulting from a 5% annual increase in domestic tuition per student is \$5,318.

Alternative 3: Adjust Domestic Tuition Growth Rate, International Enrolment Growth Rate, and Staffing Levels

Alternative 3 shows that a balanced budget could be achieved over the Projection Period if the annual growth rate in domestic tuition per student were increased from the baseline model assumption of 3% up to 4.5%, the growth rate of international students was increased to 3.5% from 2% in the baseline model, and there was a cumulative decrease in staffing levels of 4.2% over the Projection Period.⁵⁴

This staffing reduction would represent a total of 1,485 FTEs (including 637 academic FTEs) compared to 2015-16 staffing levels.

The implied tuition fee in the last year of our projection period resulting from a 4.5% annual increase in domestic per student tuition is \$5,070.

Over the entire Projection Period, this increase in international student enrolment would represent 16% more international student FTEs enrolled in the Ontario college system than under the baseline model.

Alternative 4: Adjust Domestic Tuition Growth Rate, Staffing Level, and Grant Funding

Alternative 4 shows that a balanced budget could be achieved over the Projection Period if the annual growth rate in domestic tuition per student were increased from the baseline model assumption of 3% up to 4%, in combination with a cumulative decrease in staffing levels of 4.1%,⁵⁵ as well as an increase in grant funding of 1% per year over the Projection Period.

This staffing reduction would represent a total of 1,461 FTEs (including 627 academic FTEs) compared to 2015-16 staffing levels.

⁵⁴ Assumes that staffing cuts would be evenly distributed throughout the period, implying an annual staffing reduction of about 0.4% of 2014-15 staffing levels each year.

⁵⁵ Assumes that staffing cuts would be evenly distributed throughout the period, implying an annual staffing reduction of about 0.4% of 2014-15 staffing levels each year.

The implied tuition fee in the last year of our projection period resulting from a 4% annual increase in domestic tuition per student is \$4,833.

Alternative 5: Adjust Domestic Tuition Growth Rate, International Enrolment Growth Rate, and Grant Funding

Under Alternative 5, a balanced budget could be achieved over the Projection Period if the annual growth rate in domestic tuition per student were increased from the baseline model assumption of 3% up to 4%, in combination with an increase in the growth rate of international students from 2% in the baseline model to 3.9%, as well as an increase in grant funding of 1% per year over the Projection Period.

Over the entire Projection Period, this increase in international student enrolment would represent 20% more international student FTEs enrolled in the Ontario college system than under the baseline model.

The implied tuition fee in the last year of our projection period resulting from a 4% annual increase in domestic tuition per student is \$4,833.

Alternative 6: Adjust Domestic Tuition Growth Rate, International Enrolment Growth Rate, and Staffing Levels

Alternative 6 shows that a balanced budget could be achieved over the Projection Period if the annual growth rate in domestic tuition per student were increased from the baseline model assumption of 3% up to 4%, the growth rate of international students was increased to 3% from 2% in the baseline model, a cumulative decrease in staffing levels of 2.0%,⁵⁶ and an increase in grant funding of 1% per year over the Projection Period.

This staffing reduction would represent a total of 703 FTEs (including 302 academic FTEs) compared to 2015-16 staffing levels.

The implied tuition fee in the last year of our projection period resulting from a 4% annual increase in domestic per student tuition is \$4,833.

Over the entire Projection Period, this increase in international student enrolment would represent 10% more international student FTEs enrolled in the Ontario college system than under the baseline model.

⁵⁶ Assumes that staffing cuts would be evenly distributed throughout the period, implying an annual staffing reduction of about 0.2% of 2014-15 staffing levels each year.

Conclusions and Recommendations

Conclusions

Colleges have a necessary role in educating Ontario's young people

Colleges play a vital role in providing young people with the skills needed to find jobs, and in providing employers with the resources needed to succeed in an increasingly competitive global economy and in the face of a looming shortage of trades.⁵⁷ However, our analysis suggests that in the absence of creative actions on the part of colleges and policymakers to address the future fiscal sustainability of the Ontario college sector, the core mandate of colleges appears to be in jeopardy.

Given the size of the projected deficits that colleges will experience under the baseline model, there is likely no single measure that colleges and policymakers can take to ensure the colleges' future fiscal sustainability. Instead, a combination of actions will need to be considered. Maintaining the status quo not only runs the risk of compromising colleges' capacity to fulfil their mandate, but also hinders their ability to manage unforeseen events. For example, a significant drop in international enrolment due to external factors (e.g., a change in federal government immigration policy) could lead to a revenue shortfall at colleges resulting in layoffs, deterioration of facilities, and an overall drop in educational quality for the remaining students.

Colleges will need to continue to manage costs aggressively

The fiscal constraints imposed on colleges have led them to undertake many measures to control their costs and these initiatives have been largely successful, allowing colleges to maintain balanced budgets without significant sacrifices in program delivery. Colleges will need to continue to manage expenditures aggressively to ensure that they are operating efficiently. While some areas of potential cost reduction may have already been exhausted (e.g., costs of further increasing proportion of part-time staff further at some colleges could outweigh the incremental benefits), there are others where colleges should continue to seek opportunities for further efficiencies. This includes expanding collaboration between colleges such as sharing of services and jointly developing courses. For example, French-language colleges and those in the North have already started to collaborate in the delivery of programs to rural and remote areas where small class sizes might otherwise be uneconomical. In addition, colleges will have to accelerate the pace in which they embrace changing technology that allows for digital education delivery, which will require additional upfront investment.

It should, however, be acknowledged that there are practical limitations to how much additional cost savings colleges can realize. At some point, additional cost reductions would force colleges to cut their program offerings, thus reducing opportunities available to prospective college students, some of whom may give up on college education, as it has been shown that college students have a significant preference for attending colleges in close proximity to their home. This would adversely impact colleges' reputation and their ability to fulfil their mandate of providing students with the skills needed by the province's employers, as well as their ability to attract international students, leading to a negative impact on revenues. Given that there are looming shortages of skilled employees in various occupations, this could have carry-on negative impacts on the provincial economy.

⁵⁷ For example, see "The Need to Make Skills Work: The Cost of Ontario's Skills Gap", Conference Board of Canada, June 2013, ("The Conference Board of Canada estimates that skills gaps associated with low educational attainment among many Ontarians cost the provincial economy up to \$24.3 billion annually in foregone GDP" [p.10]).

Recommendations

The provincial government has the ability to increase colleges' flexibility through changes in policy

In their effort to serve local communities, colleges must adapt to changing demand for program offerings. Because Ministry approval is required for new program offerings, colleges' ability to adapt to market demand is sometimes hampered by the speed with which program approval can be obtained. To increase colleges flexibility in the face of students' and employers' changing needs, the provincial government could consider measures which would speed up the approval process for certain programs, especially where there is support for the offerings from private sector employers.

Colleges should also continue to seek out partnerships in their local communities to provide education and services that are relevant to employers. In that respect the provincial government may have a role to play in reducing barriers and allowing colleges to move "at the speed of business." For example, we understand that colleges feel constrained by provisions which require approval for any incremental liabilities that colleges may enter in to. Because this approval process can, in some cases, take several months, it hampers colleges ability to move quickly in entering into partnerships with the private sector and results in lost opportunities for them. Given the fiscal constraints that colleges are facing and the limited ability of the provincial government to provide financial support, the provincial government should consider exploring developing policy guidelines that will streamline this process in particular circumstances, thus providing colleges with the ability to seek new ways to deal with their financial challenges without further burdening the public purse.

The provincial government should consider allocating new targeted investments into colleges

Additionally, the provincial government could make prudent targeted investments in colleges that could substantially improve colleges' fiscal sustainability which should be cost effective for the provincial government in the foreseeable future. For example, colleges have a substantial backlog of deferred maintenance. As a result, colleges' operating costs have increased as they maintain aging infrastructure and undergo expensive emergency repairs when failures occur. By targeting additional investment in colleges' facilities, the provincial government could reduce colleges' costs in the future and improve colleges' ability to manage unforeseen risks should they occur. This will reduce the need for colleges and the provincial government to deal with a bigger issue on an emergency basis which will be more costly and require a large amount of funds within a short period of time. Investments targeted at renewable energy production and energy conservation would also be consistent with the provincial governments desire to reduce greenhouse gas emissions. We note that in assessing the return on investment for the Government of making the above and other investments in colleges, it is important to consider that better facilities contribute to the development of well-prepared graduates, which will help to address emerging skill shortages in the economy and reduce instances of poverty amongst Ontarians.

As noted above, colleges' revenues have been increasing at a slower rate than inflation, which is not sustainable. The provincial government should consider increasing the level of funding provided to colleges and/or reforming the college funding formula to provide colleges with more stable funding and greater flexibility in light of the changing demographic picture. For example, a funding formula that is less sensitive to the level of enrolment (e.g., a gradual reduction in funding when enrolment declines) will allow colleges facing declining enrolment to better plan during the transition period which will enable them to apply best practices in their reactions to the new conditions, rather than risk a financial crisis. Similarly, some of the constraints that the provincial government currently imposes on colleges with respect to tuition fee increases could be relaxed to allow colleges greater flexibility in setting tuition fees for particular programs at levels that better reflect their costs of delivery.

Appendix A: Limitations

To conduct this Assessment, PwC relied upon the completeness, accuracy, and fair presentation of all information, data, advice, opinions or representations obtained from various sources which were not audited or otherwise verified. These sources (collectively, the “Information”) are listed in the Scope of Review section of this report.

The findings of this Assessment are conditional upon such completeness, accuracy and fair presentation of the Information, which has not been verified independently by PwC. Accordingly, we provide no opinion, attestation or other form of assurance with respect to the results of this Assessment.

This Assessment has been prepared for the Colleges Ontario for their exclusive use. PwC disclaims any contractual or other responsibility to other persons who may use or rely on this Assessment.

Receipt of new data or facts: PwC reserves the right at its discretion to withdraw or make revisions to this Assessment should we receive additional data or be made aware of facts existing at the date of the Assessment that were not known to us when we prepared this Assessment. The findings are as of August 1, 2016 and PwC is under no obligation to advise any person of any change or matter brought to its attention after such date, which would affect our findings.

Our Assessment must be considered in its entirety by the reader, as selecting and relying on only specific portions of the analyses or factors considered by us, without considering all factors and analyses together, could create a misleading view of the processes underlying this review and the conclusions there from. The preparation of an economic analysis is a complex process and it is not appropriate to extract partial analyses or make summary descriptions. Any attempt to do so could lead to undue emphasis on a particular factor or analysis.

Use limitations: Any use that a third party makes of this report or reliance thereon, or any decision made based on it, is the responsibility of such third party. PwC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken, based on this report.

Appendix B: Scope of Review

- Ontario 2011 Census Divisions and Census Consolidated Subdivisions
- Statistics Canada Table 326-0021: Consumer Price Index, Annual (“Inflation Data”)
- Statistics Canada Table 051-0001: Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual
- Conference Board of Canada Provincial Outlook 2015: Long Term Economic Forecast
- “The Need to Make Skills Work: The Cost of Ontario’s Skills Gap”, The Conference Board of Canada, June 2013
- Colleges Ontario Facilities Standards and Inventory, March 2013
- CEC Staffing and CFIS Compensation Data 2005/06-2014/15 (“Colleges Staffing & Compensation Data”).
- Collective Bargaining Highlights December 2015
- Set of Full Enrolment Reports: Survey of Full College Activity (Unweighted FTE's) - MTCU Summary, 2005/06 - 2014/15 (“College Enrolment Data”).
- Set of CFIS Reports: Aggregate CFIS Account Balance Reports, 2008/09 - 2014/15 (“CFIS Data”)
- Colleges Ontario, “College Resources Environmental Scan 2015.”
- Ministry of Advanced Education and Skills Development. Memorandum on “Extended Tuition Fee Framework & Technical Working Groups on Tuition Related Issues.” December 15, 2016.
- Enrolment by Region 2015 Excel File
- COFSI Adjusted Deferred Maintenance (based on VFA "Funding/FCI Report")
- MTCU 2015-16 Final Grant Allocations to Colleges
- MTCU 2015-16 Technical Document: College Operating Grants Allocations
- Set of Ontario Population Projections: Statistics Canada Ontario Population Projections, 2013-2041 (“Ontario Population Projections”)
- Statistics Canada: University Tuition Fees, 2015/16 (Source: <http://www.statcan.gc.ca/daily-quotidien/150909/dq150909b-eng.htm>)
- Ontario Ministry of Training, Colleges and Universities, Enrolment Reporting and Audit Guidelines 2015-16
- Statistics Canada Table 281-0063: Survey of Employment, Payrolls and Hours (SEPH), employment and average weekly earnings (including overtime) for all employees by North American Industry Classification System (NAICS), seasonally adjusted, annual (“Statistics Canada SEPH Historical Wage Data”)

- Junor and Usher, “The Price of Knowledge 2004 – Access and Student Finance in Canada”
- CSA, OSTA-AECO, OUSA. “Breaking Barriers – A Strategy for Equal Access to Higher Education”

Appendix C: Provincial College Funding Formula

The provincial government provides colleges with the majority of their operating grants based on the College Funding Formula (“CFF”). The CFF provides “Base Funding” and “Growth Funding” based on enrolment at a particular college.

Weighted Funding Units (“WFUs”) are the measure of a college’s enrolment used for funding purposes. The calculation of WFU is a weighted measure of the college’s FTEs, where the weights used are determined by the provincial government and are intended to provide relatively more funding for programs that are more expensive to deliver.⁵⁸

A college’s Base Funding and Growth Funding are calculated using the units described in the following table:

Measure	Acronym	Description	Formula for 2015-16
Base Reference Units	BRUs	Average WFUs for 2005-06, 2006-07 and 2007-08. This three-year average over a fixed period is used in the calculation of Base Funding and Growth Funding.	$BRU = \frac{WFU_{2005-06} + WFU_{2006-07} + WFU_{2007-08}}{3}$
Base Units	BUs	Moving three-year average of WFUs with a two-year slip. BUs are used to calculate Base Funding.	$BU_{2015-16} = \frac{WFU_{2011-12} + WFU_{2012-13} + WFU_{2013-14}}{3}$
Growth Units	GUs	Moving two-year average of WFUs with a two-year slip. GUs are used to calculate Growth Funding.	$GU_{2015-16} = \frac{WFU_{2012-13} + WFU_{2013-14}}{2} - BRU$
Base Funding			$\text{Base Funding Rate} \times \min(BRU, BU_{2015-16})$
Growth Funding			$\text{Growth Funding Rate} \times GU_{2015-16}$

As the formulas above show, every college receives Base Funding, calculated using the lesser of its BRUs or BUs, with growing colleges receiving additional Growth Funding. The funding formula is designed such that the base and growth funding rates can differ. In practice, however, the same rate has been used for both. IN 2015-16, the funding rate was \$4,277.45.

Because of the two-year slip incorporated in the CFF formulas, there is a delay between changes in enrolment and changes in the level of funding.

⁵⁸ Ontario Ministry of Training, Colleges and Universities, Enrolment Reporting and Audit Guidelines 2015-16 (<http://www.tcu.gov.on.ca/pepg/documents/EnrolmentReportingandAuditGuidelines2015-2016.pdf>)

Appendix D: Capital Investment and Deferred Maintenance

While the focus of this Assessment is on the financial operating position of colleges, issues relating to capital expenditures are also a significant element in fully understanding the financial pressures faced by colleges. As colleges and policymakers decide what actions to take in order to tackle projected fiscal deficits, colleges' capital challenges cannot be ignored.

For example, insufficient investment in equipment and technology by Ontario's colleges has been identified by the Conference Board of Canada as a contributing factor to the gap between the skills of Ontario's labour force and those demanded by employers⁵⁹. A 2012 analysis of Ontario colleges' facilities also noted that there was a shortage in space available to deliver the colleges' programs and services.⁶⁰

In this regard, one of the largest and most pressing issues faced by colleges with respect to capital investment is deferred maintenance. On a system-wide basis, deferred maintenance was estimated to be \$1.217 billion in 2015-16, and is projected to increase to \$3.544 billion by 2024-25. To put this in terms of deferred maintenance per FTE (using the enrolment projections from the baseline model), the level of deferred maintenance per FTE in 2015-16 was \$3,925 and is projected to increase to \$11,477 by 2024-25.

The tables below set out the average deferred maintenance per FTE student at colleges during the Projection Period by size and region.

Figure 28: Deferred Maintenance per FTE Student, by Grouping

	2015-16	2019-20	2024-25
System Total	\$ 3,925	\$ 6,189	\$ 11,477
Northern	\$ 10,807	\$ 16,645	\$ 28,975
Eastern	\$ 3,799	\$ 6,254	\$ 13,541
Western	\$ 4,095	\$ 6,743	\$ 12,328
Central	\$ 2,908	\$ 4,471	\$ 8,211
Small	\$ 9,283	\$ 15,254	\$ 27,264
Medium	\$ 4,002	\$ 6,423	\$ 13,566
Large	\$ 3,092	\$ 4,809	\$ 8,665

⁵⁹ "The Need to Make Skills Work: The Cost of Ontario's Skills Gap", The Conference Board of Canada, June 2013, p.31 ("Colleges find it difficult to provide students with access to leading-edge, industry-relevant equipment and technology. The Conference Board estimates that in 2012, Ontario industry investments in machinery and equipment averaged \$5,267 per full-time employee equivalent. This amount is higher in some sectors (such as manufacturing) and much lower in others (such as accommodation and food services)—but also lower than spending by industry as a whole in many competitor countries. By contrast, Ontario colleges managed to invest only \$69.28 per full-time student equivalent—merely 1.3 per cent of the spending by Ontario industry. Ontario college students do not have enough access to the equipment and technology that constitute key elements of industry-relevant experiential learning").

⁶⁰ Colleges Ontario Facilities Standards and Inventory, March 2013, pp.1-2 ("Ontario's 24 colleges use approximately 16.5 million assignable square feet of building space to deliver their wide array of programmes and services. This is approximately 3.1 million assignable square feet below the Lower End of Range guideline set by COFSI, an 18% shortfall...The above figures and percentages are aggregated at the provincial level and should be viewed as indicative of a systemic challenge around space").

