University Sustainability: Signal Data

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Introduction

In July 2016, the Higher Education Quality Council of Ontario (HEQCO) published *Understanding the Sustainability of the Ontario Postsecondary System and its Institutions: A Framework* (Weingarten, Hicks & Moran, 2016). The key messages of the report were:

1. Sustainability is about more than just money. It also relates to the quality of education and the academic experience institutions can offer.
2. The best sustainability regimes are those that look forward and are designed to predict future challenges.
3. Overcoming sustainability challenges requires collaboration between government and institutions. The tools available are inextricably linked to other policies and practices, such as enrolment planning, tuition policy, funding formulas, differentiation and institutional autonomy.

The report concluded that a full appreciation of the sustainability challenge faced by Ontario postsecondary institutions and consideration of effective remedies must be informed by evidence. This includes using data to better appreciate which institutions are facing the greatest potential current or future sustainability risk and then initiating discussions with them and with government to explore options for mitigating that risk.

There are several reasons why the need to better understand sustainability risk across institutions is so pressing. Institutional fiscal challenges are intensifying. Enrolment growth has been the principal strategy for increasing revenues and we know that demographics have turned against the prospects of further enrolment growth at many institutions. This may be exacerbated as the government, in light of its own fiscal circumstances, recalibrates its ability to increase overall operating funding allocations at the same rate it has in the past (an average of 4% per year over the past 10 years[1]).

More urgently, government is in the process of renewing key policy instruments, including the ongoing review of college and university funding formulas, the negotiation of new Strategic Mandate Agreements and a fresh tuition-policy framework. If properly informed, these instruments can be crafted to address sustainability issues by, for example, managing enrolment flux, stabilizing revenues, orienting the system to meeting outcomes, and addressing productivity.

Past reviews of sustainability have tended to be undertaken at the system level. A well canvassed example over the years is the dissection of funding per student in Ontario as compared to other provinces. But the differentiated challenges faced by each of the 20 universities in the Ontario system are equally important to understand. Demographic threats, for example, vary across the province with divergent implications for institutions depending on where they draw their students. The best fitting solutions will also require institutional customization. It is important for the Ministry of Advanced Education and Skills Development (MAESD) to understand more deeply the sustainability challenges

[1] Based on data from the Council of Ontario Finance Officers (COFO). The average growth rate of operating revenues reflects the compound annual growth rate from 2004–05 to 2014–15

facing individual institutions in order to craft policies and provide funding supports that best respond to their particular risks and opportunities.

As we noted in our *Framework* paper, Ontario institutions are not likely to go bankrupt. They have shown themselves to be remarkably adept at balancing expenditures against revenues, even during times of constrained funding and when faced with a looming budgetary shortfall. Institutional sustainability challenges are more likely to impact a key shared policy priority of institutions and the provincial government: quality and the student experience. Sustainability becomes an academic issue as institutions make the necessary adaptations to keep their budgets in balance.

This paper is not an institutional accountability report. No institution is in sole or even primary control of the many variables that contribute to its sustainability outlook. Some of that control rests with governments, some with applicants or students, and some factors (like demographics) are external to all three parties. The paper does not draw conclusions regarding the status of particular universities. Rather, it is intended as a first step toward gaining a better understanding of the sustainability challenges facing the province's 20 universities so that government and institutions can work together to chart the best path forward for each institution.

Anticipating and addressing sustainability concerns for every institution creates a strong and stable foundation that enables students to graduate with the knowledge, skills, capacities and competencies that promote personal and professional success and provide appropriate economic and social returns to the public for its investment.

The Data

This report assembles data that shed light on the financial circumstances and sustainability outlook of the 20 publicly funded universities. It does not, however, establish viability thresholds or flag institutions that may have crossed them, nor does it propose trigger mechanisms for outside intervention. Moreover, there is no suggestion that any Ontario university is unsustainable at this time. While there is a sense of urgency to gain a better understanding of the sustainability landscape, there is no sense of panic about the situation at hand. The goal of undertaking a fact-based investigation of sustainability is to inform actions that will avoid panic scenarios in the future.

As the title of this report suggests, these are "signal" data. They are signals insofar as they suggest the need for a deeper dive into some of the numbers to better understand the underlying circumstances. Readers can expect a suite of future papers from HEQCO that present more comprehensive analyses, including a discussion of the options available to address the sustainability challenges revealed by those analyses.

The data presented in this report can for the most part be found in the public domain. Yet, these data have not previously been presented in a manner that is explicitly intended to inform issues of university sustainability. Sustainability clearly is a sensitive matter and institutions might justifiably be concerned that the report could be used to draw unwarranted conclusions. We have attempted to prevent such

misinterpretations by avoiding rankings and taking care not to ascribe cause or responsibility. Even so, several cautions need to be observed when reading the report.

First, although the data is the best available at this time, it has limitations. For example, the financial indicators included in the report are devoid of any agreed-upon performance thresholds. As a consequence, the comparison across the 20 institutions is only relative (how does each perform in context of the group) and not absolute (how does each perform in context of minimum performance expectations). In spite of such inevitable shortcomings, the data are sufficiently robust to provide a valid portrait in broad strokes of the risks to sustainability across the university system. The data are fit-for-purpose and to postpone the analysis while awaiting better data will leave the province and the university system less well-equipped to face an uncertain future.

Second, in selecting and presenting the data, we recognize that we will not always mirror the various approaches used among the 20 institutions to present similar information to their internal communities or boards of governors. For example, even something as seemingly straightforward as enrolment can be justifiably represented in several ways: student headcount or full-time equivalents, full-time students only or part-time as well, including or excluding non-funded students (e.g., international). In the face of these many options, choices had to be made to present a digestible report. Overall, we are satisfied that the story revealed by these data is stable regardless of what specific variants might reasonably have been selected for presentation.

Finally, in presenting data across the 20 institutions we also could not include all of the contextual commentary that might be added in a deeper conversation about them. For example, we condense information from hundreds of pages of institutional financial statements, which include copious notes, into a series of aggregate numbers reflective of overall financial health across the 20 universities. This is a necessary accommodation to produce a digestible provincial summary. As one of the desired outcomes is a more in-depth conversation with institutions, it is at that stage that additional contextual commentary can be introduced.

The Signal Indicators

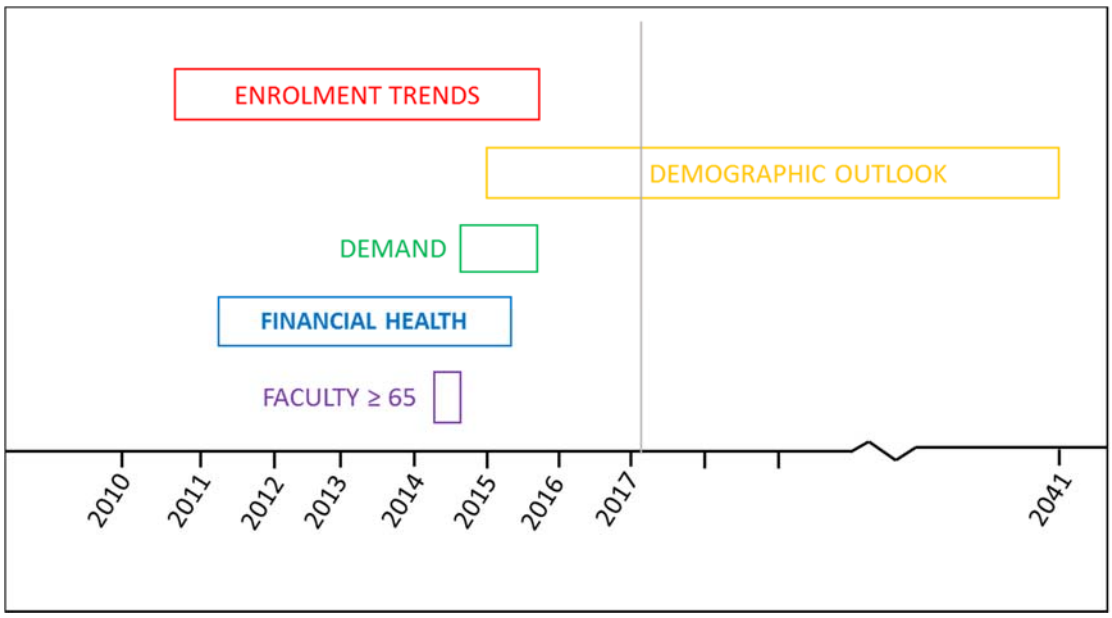
On what basis might conversations be initiated with government and with individual institutions regarding fiscal and operational vulnerabilities and their mitigation? In the pages that follow we lay out a series of signal indicators that merit investigation if one is to obtain an overview of the sustainability issues facing Ontario institutions. They include:

- Institutional **enrolment trends** over the past five years — since enrolment increases represent the best buffer institutions have against a revenue shortfall and, conversely, falling enrolment is likely to present a financial threat.
- Regional **demographic outlook** for 18-to-20 year olds — as these point to looming challenges institutions may face on the enrolment front over the next 20 years.
- A **demand** outlook for each institution based on entering marks and the institution's application to registrant ratio.

- A **financial health** summary based on a set of common indicators assembled by the universities and MAESD — these are key financial ratios that can signal the onset of difficulties for individual institutions or the system as a whole.
- The percentage of **faculty over age 65** — which we flagged in our first sustainability report as an expenditure pressure that requires deeper analysis.

These signal indicators span a range of time periods, both backward and forward looking, as illustrated in Figure 1.

Figure 1: Timeframes for Signal Indicators in this Report



At the conclusion of the report we present a summary table (Table 6) drawn from all five indicator areas, to permit an easy overview of the composite sustainability signals across the universities.

Five-Year Change in Enrolment

Enrolment growth has been the most financially rewarding strategy an Ontario university can adopt to increase its revenues. Aside from the occasional and relatively small addition of special purpose funding, the university funding formula rewards only enrolment growth. Consequently, the majority of new funding added by the province over the past 10 years has been in support of enrolment growth. Since 2005, domestic undergraduate enrolment has been funded as it materialized across the province, and the number of funded graduate places has been increased in several waves of new investment. Every additional student (domestic or international) also brings more tuition revenue to the institution. Government grants and tuition revenues constitute 86%[2] of university operating revenues. There are no other sources of additional revenues to meet inflationary costs, which at institutions are predominantly

[2] Based on data for 2014–15 from the Council of Ontario Finance Officers (COFO).

driven by increases in wage settlements. Quite simply, institutions that have grown their enrolment have also been able to grow their revenues to keep up with expenditure increases, and vice versa.[3]

In Table 1, full-time-equivalent enrolment data was used to compare institutional change in enrolment over the past three, five and 10 years. The five-year percentage change in enrolment (from 2010 to 2015) is included in the summary table (Table 6) at the conclusion of the report.

Table 1: Full-Time-Equivalent Enrolments and Trends over Time

	FTE Enrolments				% Change in Enrolment		
	2005-06	2010-11	2012-13	2015-16	10 years	5 years	3 years
Algoma	818	1,028	1,342	1,323	62%*	29%	-1%
Brock	14,156	15,693	16,574	16,801	19%	7%	1%
Carleton	20,540	22,497	24,161	26,044	27%	16%	8%
Guelph	19,379	24,725	25,948	26,909	39%	9%	4%
Lakehead	7,148	8,193	8,392	7,800	9%	-5%	-7%
Laurentian	7,062	8,062	8,073	8,041	14%	0%	0%
McMaster	22,798	26,543	27,518	27,872	22%	5%	1%
Nipissing	5,181	5,344	5,188	4,376	-16%	-18%	-16%
OCADU	2,866	3,614	4,117	4,022	40%	11%	-2%
Ottawa	27,881	34,961	37,227	37,733	35%	8%	1%
UOIT	2,880	6,761	8,164	8,649	200%*	28%	6%
Queen's	19,743	22,481	23,049	25,582	30%	14%	11%
Ryerson	23,596	28,560	30,664	36,252	54%	27%	18%
Toronto	64,831	72,882	76,954	83,368	29%	14%	8%
Trent	7,474	7,344	7,609	7,753	4%	6%	2%
Waterloo	24,102	31,387	33,555	35,568	48%	13%	6%
Western	32,743	34,995	36,203	36,901	13%	5%	2%
Laurier	12,453	15,874	17,246	17,468	40%	10%	1%
Windsor	15,215	14,675	15,083	14,736	-3%	0%	-2%
York	41,783	47,948	48,817	46,577	11%	-3%	-5%

Included in Summary

Source: MAESD. FTE enrolments includes all students — full-time and part-time, eligible and ineligible, degree and certificate. Undergraduate FTEs are for all terms and graduate FTEs are for fall and summer term.

* Ten-year trends capture start-up growth curves at two institutions: UOIT opened in September 2003; Algoma became a stand-alone university in 2008.

It is important to note that the ability of institutions to grow is often outside the direct control of the university. Government policy can shape enrolment patterns — for example, decisions on how to

[3] For a more detailed review of the enrolment-based funding formula, see HEQCO (2015) *The Ontario University Funding Model in Context*

distribute graduate growth allocations amongst the institutions, or the recent decision by government to dramatically reduce the number of teacher education spaces. This latter decision had a disproportionate impact on universities in which teacher education figured prominently in their overall enrolment mix.

Universities pursue different strategies to maintain or grow their enrolment — undergraduate or graduate, domestic or international. Appendix A presents a breakdown of the overall enrolment trends presented in Table 1 into these constituent components.

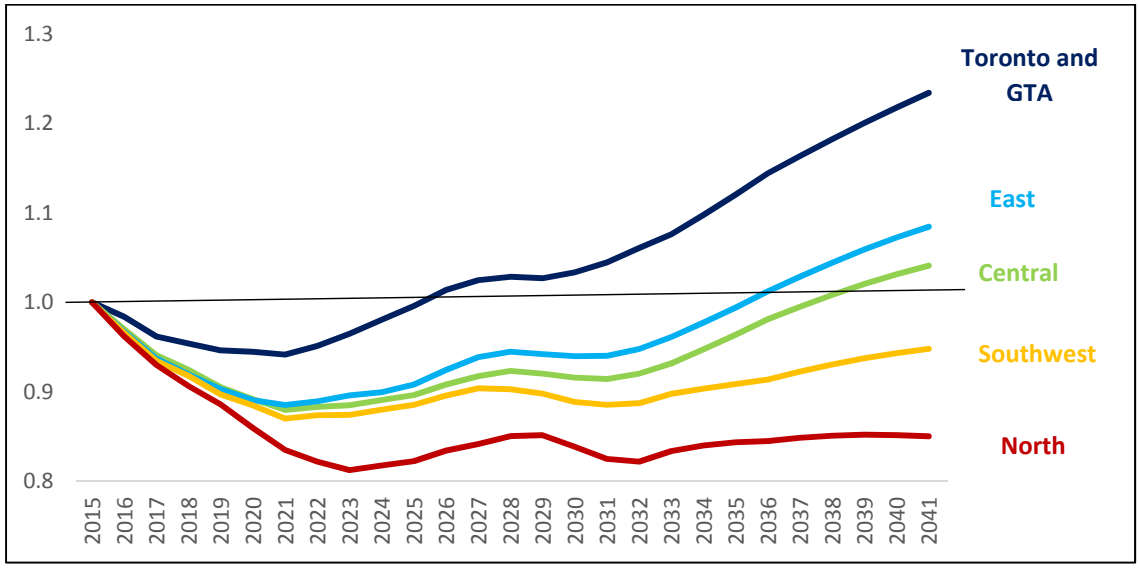
Demographic Outlook

If enrolment is an important contributor to institutional viability, then prospects for future enrolment matter.

The projected number of university entrants aged 18 to 20 years old[4] in the province will drop from about 559,000 in 2015 to 507,000 in 2021, a reduction of 9%. It will not recover to 2015 levels until the year 2033. Overall, for the next two decades, demography will not contribute to enrolment growth as it has in the past and may even threaten the enrolment level for the province as a whole.

Demographic trends vary sharply across the province. The Greater Toronto Area (GTA), on the one end, will experience a small and short contraction in university-aged population before continuing to grow. At the other extreme, the student pool in northern Ontario will not recover. Figure 2 shows Ontario's 18-to-20-year-old population projections at the regional level, disaggregated into five regions tracked by the Ontario Ministry of Finance.

Figure 2: Ontario Regional Population Projections, 18 – 20 Year Olds



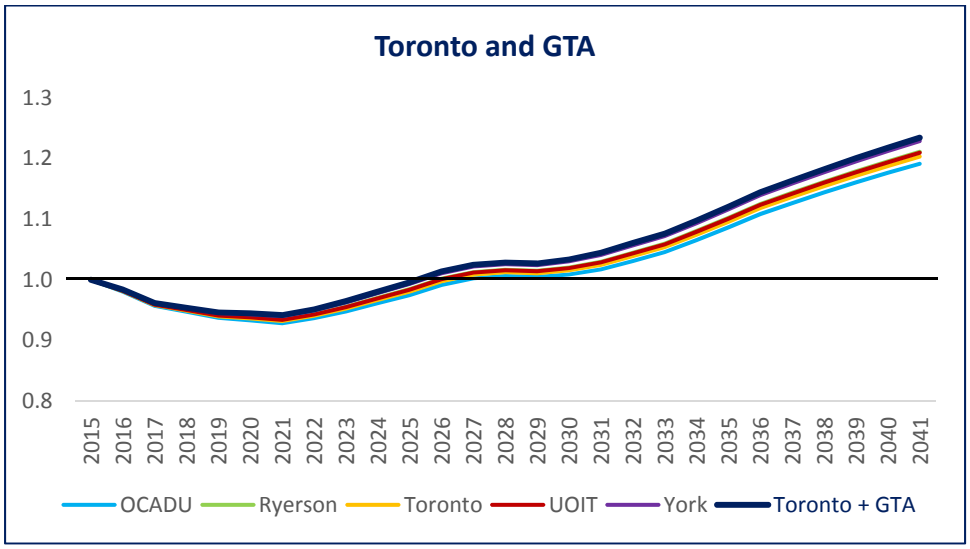
Source: Ontario Ministry of Finance

[4] Compared to other provinces, Ontario has a relatively high proportion of 18–24 year olds, and a relatively low proportion of older students attending our universities (HEQCO, 2013).

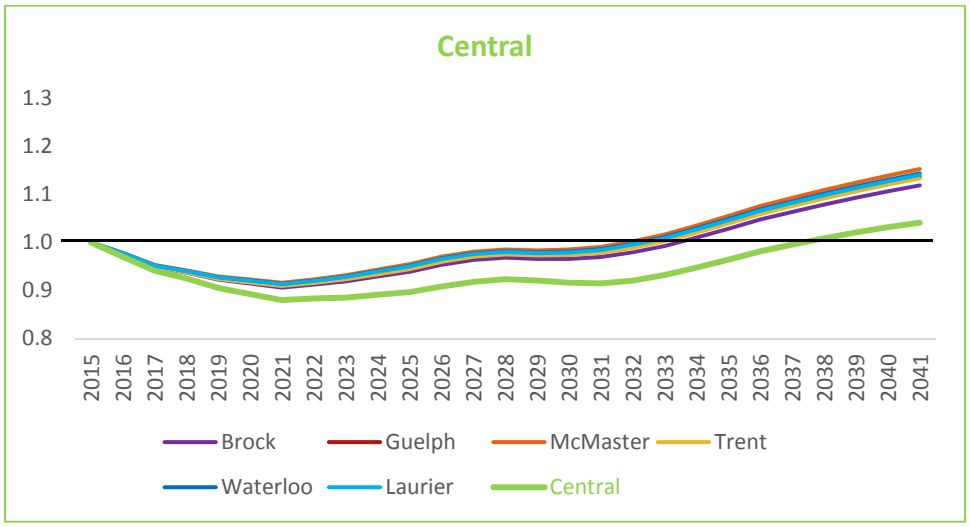
Provincial demographic forecasts do not speak to the opportunities and trends associated with the enrolment of students from other provinces or international students. However, Ontarians represent the majority of first year, full-time undergraduate students entering our 20 universities[5].

We recognize that institutions draw students from all regions of the province, in proportions unique to each. For reference, in Appendix B we show the proportion of incoming undergraduate students at each university by region of origin. To model a unique demographic forecast for each institution, we then applied the Ministry of Finance's regional population projections to each university's distribution of incoming students. The projections are shown in Figures 3.1 to 3.5, following. We have grouped the universities by their home (main campus) region, and for each region also provided the regional reference projection from Figure 2. Appendix B includes more detail about the methodology for calculating the projected enrolments.

Figure 3.1 to 3.5: Institutional Demographic Projections by Region



[5] The Council of Ontario Universities CUDO database reports that in fall 2014 the percentage of first-time, first year, full-time students from Ontario ranges from 73% to 97% across the twenty universities.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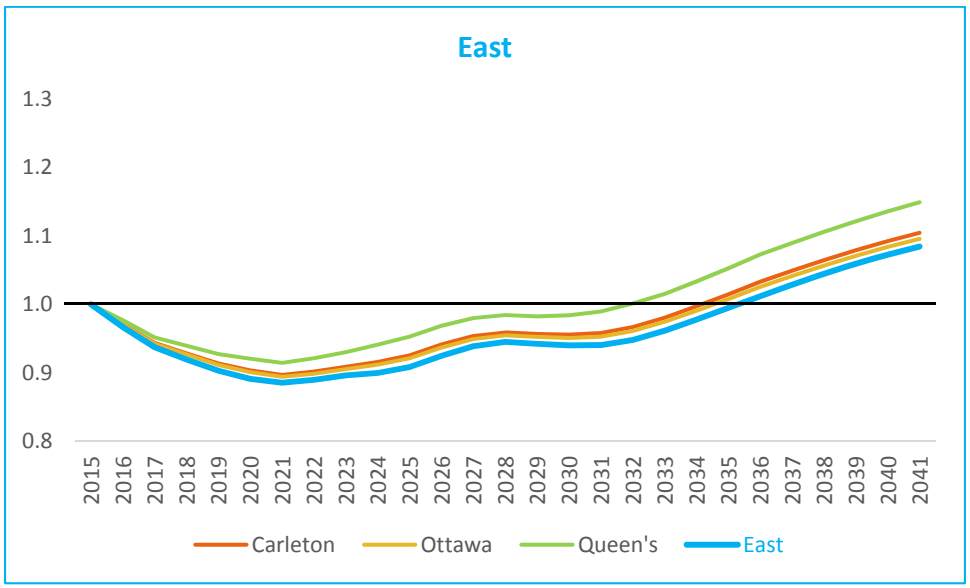
Waterloo
Laurier
Central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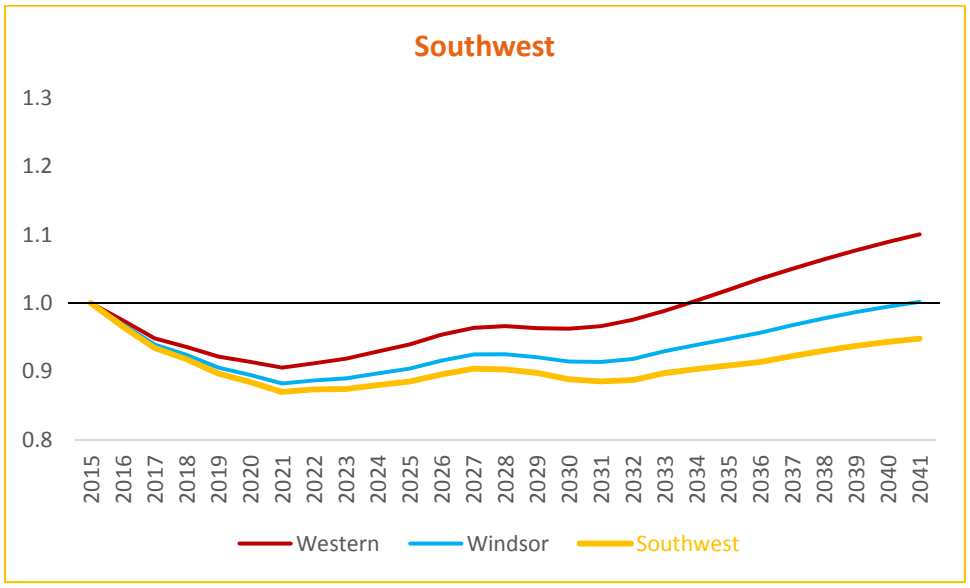
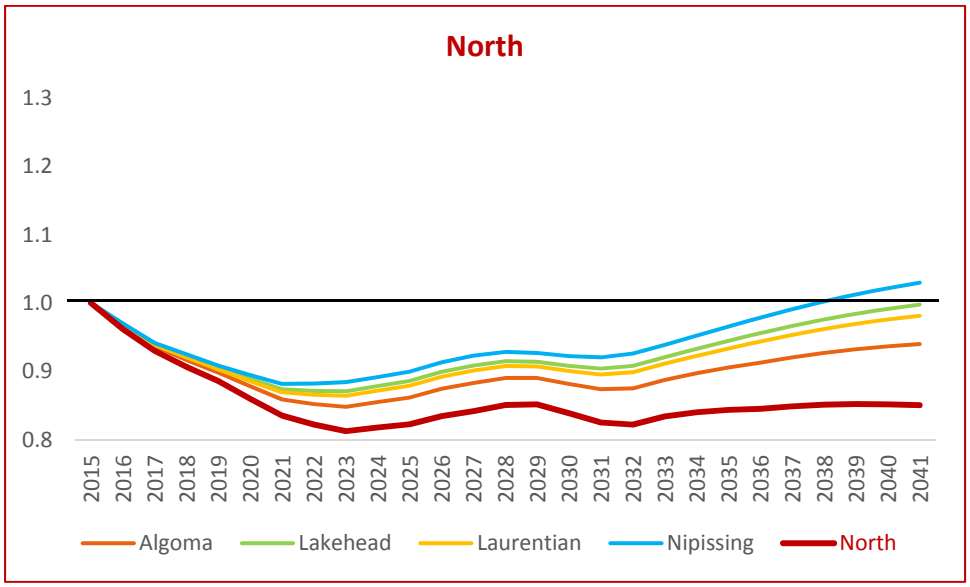




Demographic Outlook Summary

To summarize these results for the purposes of our overall summary table at the conclusion of this report, Table 2 shows the modelled demographic percentage change by institution from 2015 to:

- 2021 — when the Ontario 18-20-year-old population projections are at their lowest
- 2033 — when the 18-20-year-old population is expected to recover at the provincial level
- 2041 — the final year in the Ministry of Finance's population forecast

Table 2: Percentage Change in Demographic Projections from 2015 to:

	2021	2033	2041
Algoma	-14%	-11%	-6%
Brock	-9%	-1%	12%
Carleton	-10%	-2%	10%
Guelph	-9%	1%	14%
Lakehead	-13%	-8%	0%
Laurentian	-13%	-9%	-2%
McMaster	-8%	2%	15%
Nipissing	-12%	-6%	3%
OCADU	-7%	5%	19%
Ottawa	-11%	-3%	10%
UOIT	-7%	6%	21%
Queen's	-9%	2%	15%
Ryerson	-7%	6%	21%
Toronto	-7%	5%	20%
Trent	-9%	0%	13%
Waterloo	-9%	1%	14%
Western	-9%	-1%	10%
Laurier	-9%	1%	14%
Windsor	-12%	-7%	0%
York	-6%	7%	23%
		Included in Summary	

Source: Ministry of Finance and MAESD.

The next section of the report, demand outlook, will examine additional indicators that address the potential for universities to overcome their local demographic environment.

Demand Outlook

Regional demographics aside, are some institutions in higher demand than others? Our recently published university differentiation report incorporated an index of student demand for each of the 20 universities, composed of the following five indicators (Jonker & Hicks, 2016):

- The application to registrant ratio for each university
- The percentage of applicants who made the university their first choice
- The percentage of students from other provinces

- The percentage of students who are international students
- The percentage of new students with high-school averages over 75%

Following consultations with the university community, we have focussed on two of these five indicators for inclusion in this report as additional indicators (beyond demographics) of institutional demand. Both of these are flags for the degree of "buffer room" provided by potential additional students that are available to an institution regardless of its demographic outlook.

Percentage of New Students with High School Averages over 75%

For the most part, each of the universities in Ontario offers acceptances to its pool of applicants on the basis of entering (high school) marks. Marks are readily and universally available, are a simple filter to apply to winnow the applicant pool, and are generally accepted as a good predictor of success at university. They also serve as an indicator of demand, as they reflect student preference. Universities that attract students with higher entering averages have a deeper reserve pool of qualified students from which to draw.

Table 3 shows the percentage of students entering each of Ontario's public universities with high-school marks above 75%. To test whether different program offerings at the universities influence this measure, we also examined the distribution of high-school marks for only arts and science entrants, a common programming core for all universities, save OCADU. The results were similar.

Application to Registrant Ratio

Ontario operates a centralized application service for all 20 public universities. Prospective students select the institutions to which they wish to apply. This allows for an analysis of which institutions are in higher demand. The most straightforward measure of this demand would be the ratio of individual *applicants* to registrants.

Unfortunately, the data made available to us by the universities do not support the calculation of this ratio but rather only the less precise ratio of total *applications* to registrants. This ratio is more difficult to interpret because individuals can submit up to three applications to one institution. The number of applications is thus greater than the number of applicants.

In the absence of better data from the universities, we utilize the available applications to registrants data to represent a generalized picture of the demand (see Table 3). We would welcome the release of the more meaningful data by the universities.

Table 3: Demand Outlook

	Entering Marks > 75%	Application: Registrant Ratio
Algoma	72%	5:1
Brock	83%	6:1
Carleton	87%	6:1
Guelph	99%	7:1
Lakehead	73%	5:1
Laurentian	83%	5:1
McMaster	100%	8:1
Nipissing	84%	6:1
OCADU	85%	3:1
Ottawa	95%	7:1
UOIT	76%	6:1
Queen's	100%	7:1
Ryerson	95%	8:1
Toronto	98%	6:1
Trent	77%	6:1
Waterloo	100%	6:1
Western	100%	8:1
Laurier	88%	7:1
Windsor	83%	5:1
York	88%	6:1
	Included in Summary	

Source: Common University Data of Ontario (CUDO). Data is based on the fall of 2014 for full-time entering students in an undergraduate program.

Financial Health Indicators

A working group of representatives from the Council of Ontario Universities (COU), Council of Senior Administrative Officers (CSAO), Council of Ontario Finance Officers (COFO) and MAESD has developed a suite of financial health indicators for the universities. In its words, these are:

> **The Net Income/Loss Ratio:** A financial performance metric that measures the percentage of an institution's revenues that actually contributes to its net assets. It provides insight into how well an institution is able to manage its expenses. The objective of this ratio is to track trends in an institution's net earnings.

The Primary Reserve Ratio: A measure of financial viability that compares expendable net assets to total expenses and provides an indication of an institution's financial strength and flexibility by determining how many days an institution could function using only its financial resources that can be expended without restrictions.

The Viability Ratio: A basic determinant of an institution's financial health, as it provides an indication of the funds on hand that can be used should an institution need to settle its long-term obligations.

The Interest Burden Ratio: A measure of debt affordability that compares the level of current debt service with the institution's total expenses. It examines the percentage of total expenses used to cover an institution's cost of servicing its debt.

The Net Operating Revenues Ratio: A financial performance metric that provides an indication of the extent to which institutions are generating positive cash flows in the long run to be financially sustainable.

Appendix C provides additional details on the definition of each of the five indicators.

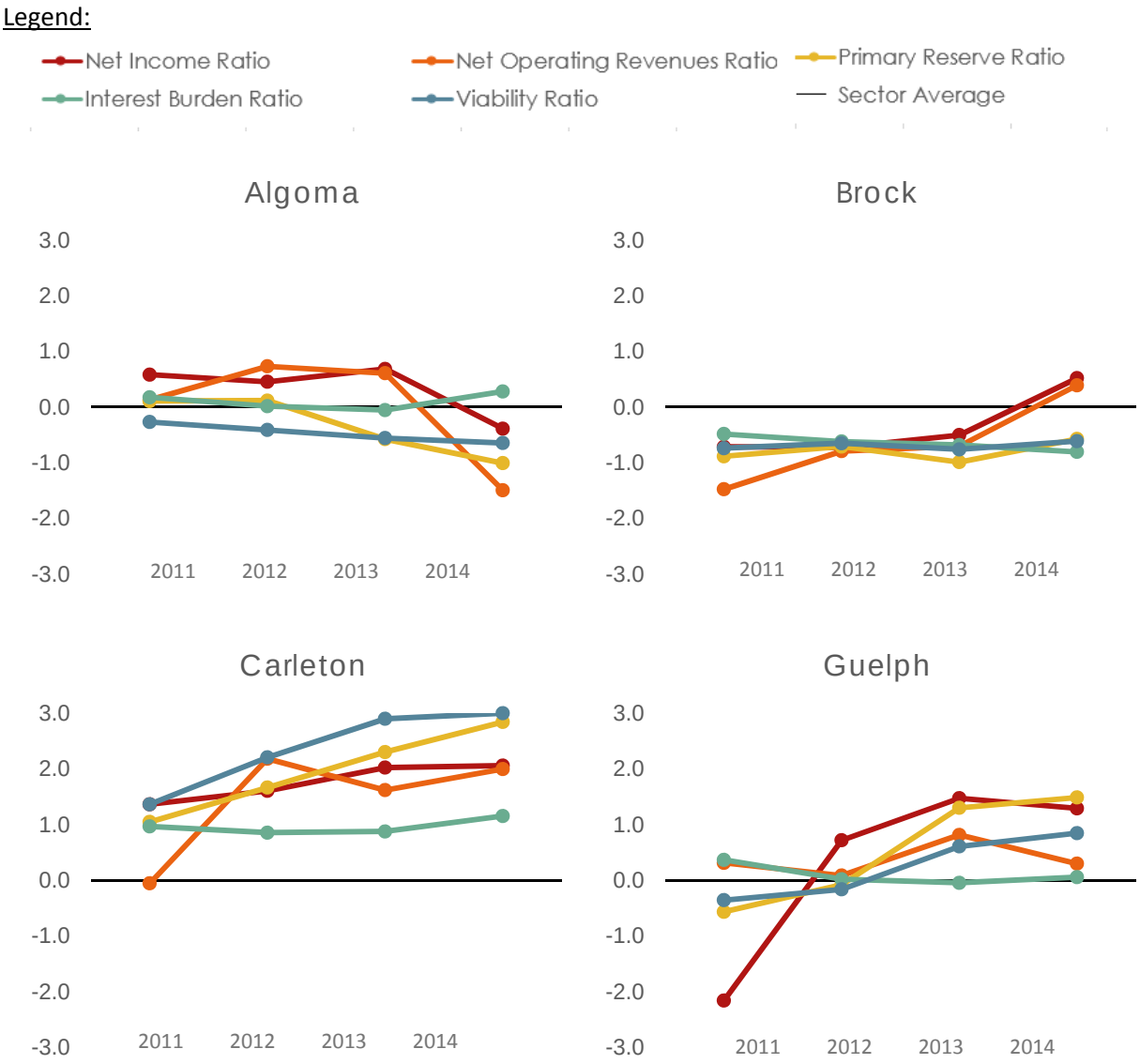
Trends in Financial Health Metrics — from 2011–12 to 2014–15

In Figures 4.1 through 4.20 we visually summarize four years of financial health data (provided in Appendix C) for each of the 20 universities. The figures show trend lines for each of the ratios defined above.

In the absence of a benchmark or threshold to indicate whether an institution's financial performance is at risk (these have not yet been developed and approved by the sector) we simply compare each institution's financial health ratios to the system average. Therefore, a negative ratio does not necessarily indicate that an institution's financial health is at risk, only that it is below the system average. We encourage the ministry and the universities to complete the work they have done in selecting and defining financial health indicators by also assigning thresholds of healthy performance to each indicator.

In order to visually overlay the indicators, in Figures 4.1 through 4.20, each of the five financial health ratios have been standardized so that a score of 0 represents the sector average across all four years. A score above 0 reflects above average performance while a score below 0 reflects below average performance. The Y-axis scale represents units of standard deviation.

Figures 4.1 to 4.20: Trends in Financial Health Metrics 2011–12 to 2014–15



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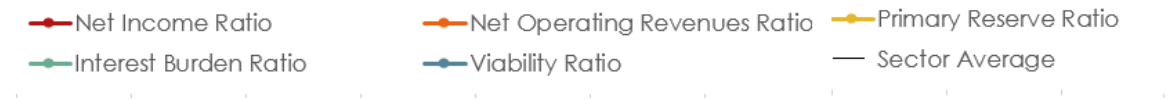
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Net Operating Revenues Ratio
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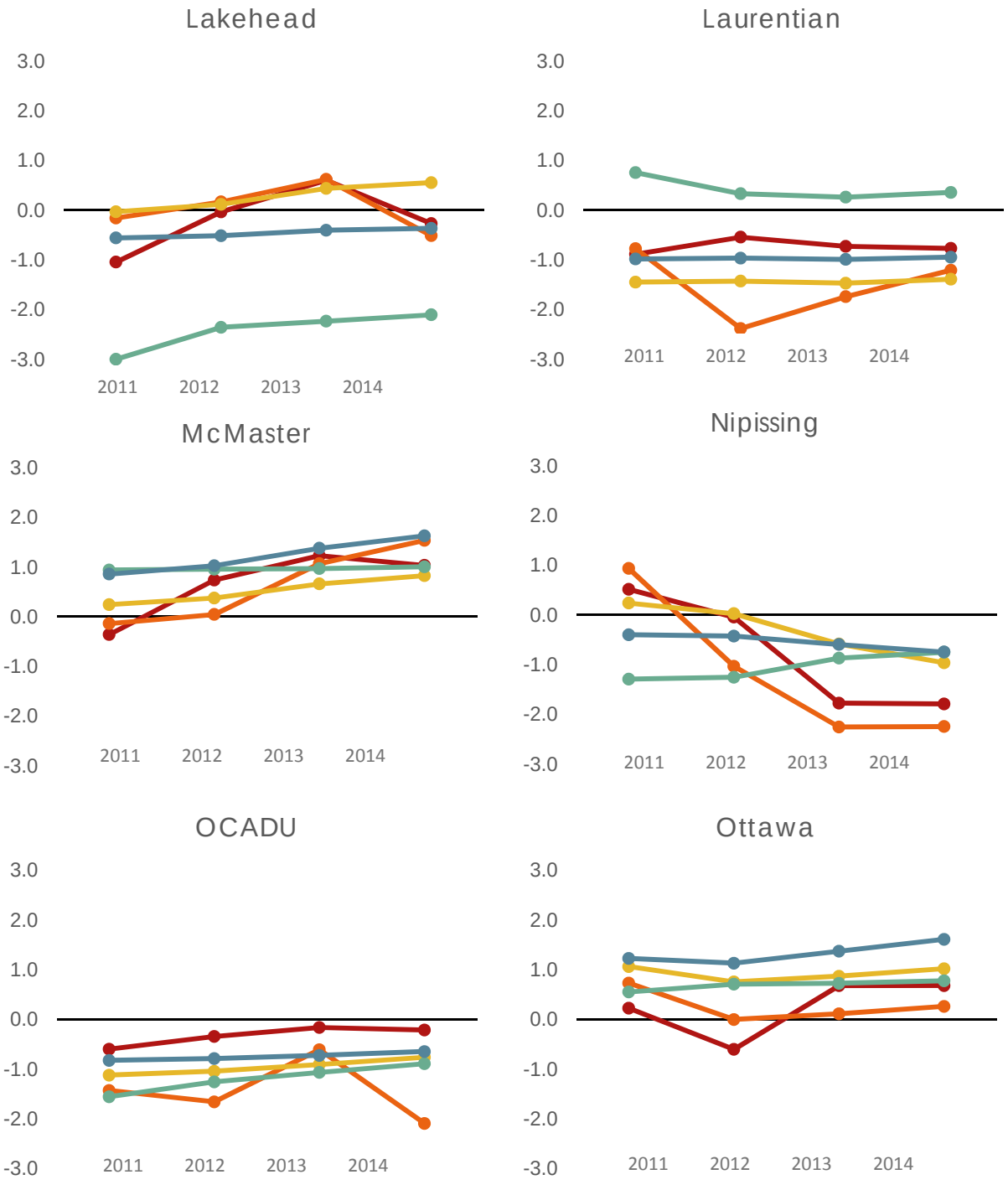
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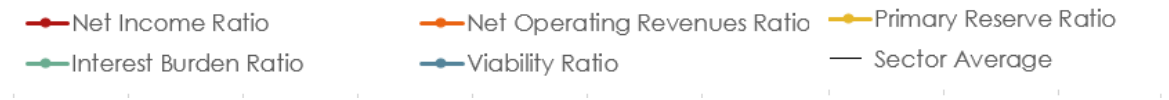
Net Income Ratio
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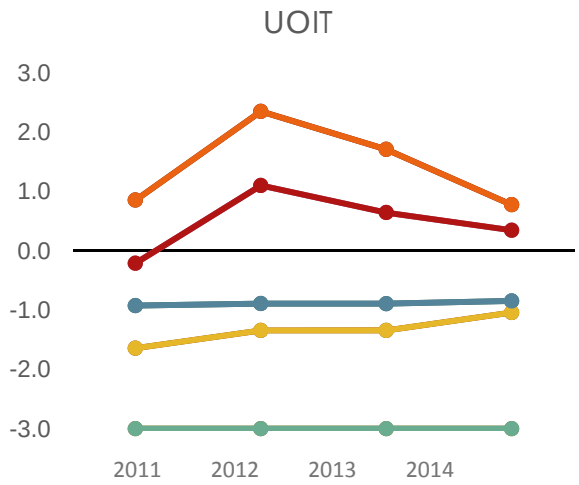
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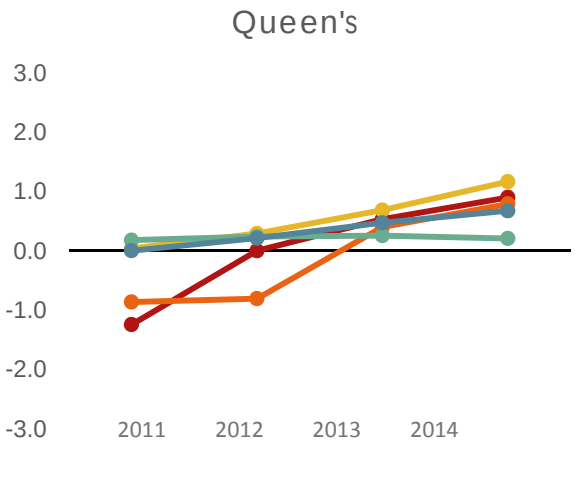
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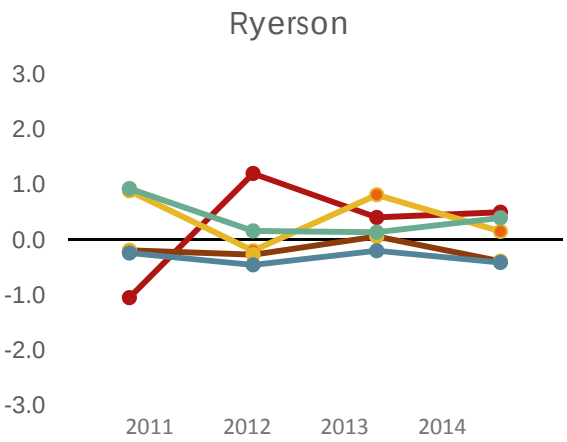
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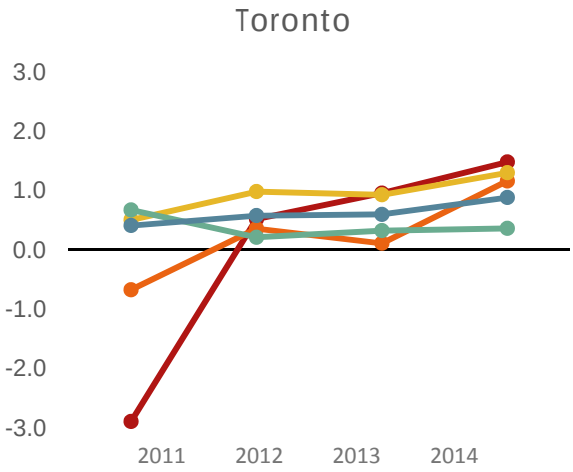
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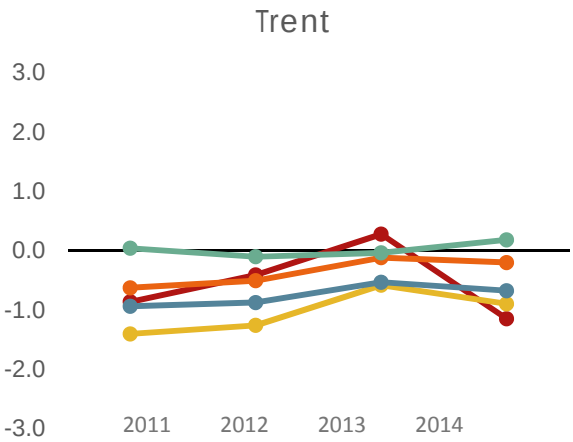
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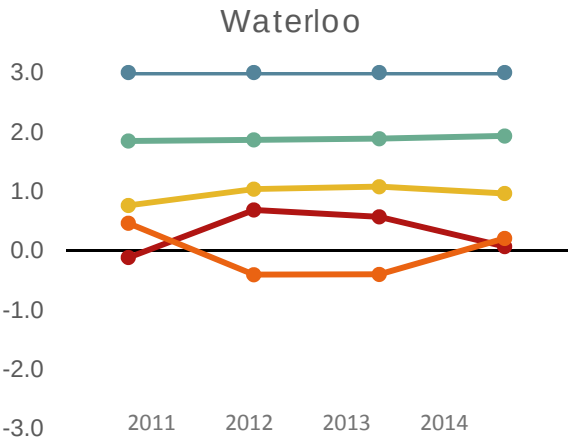
Waterloo
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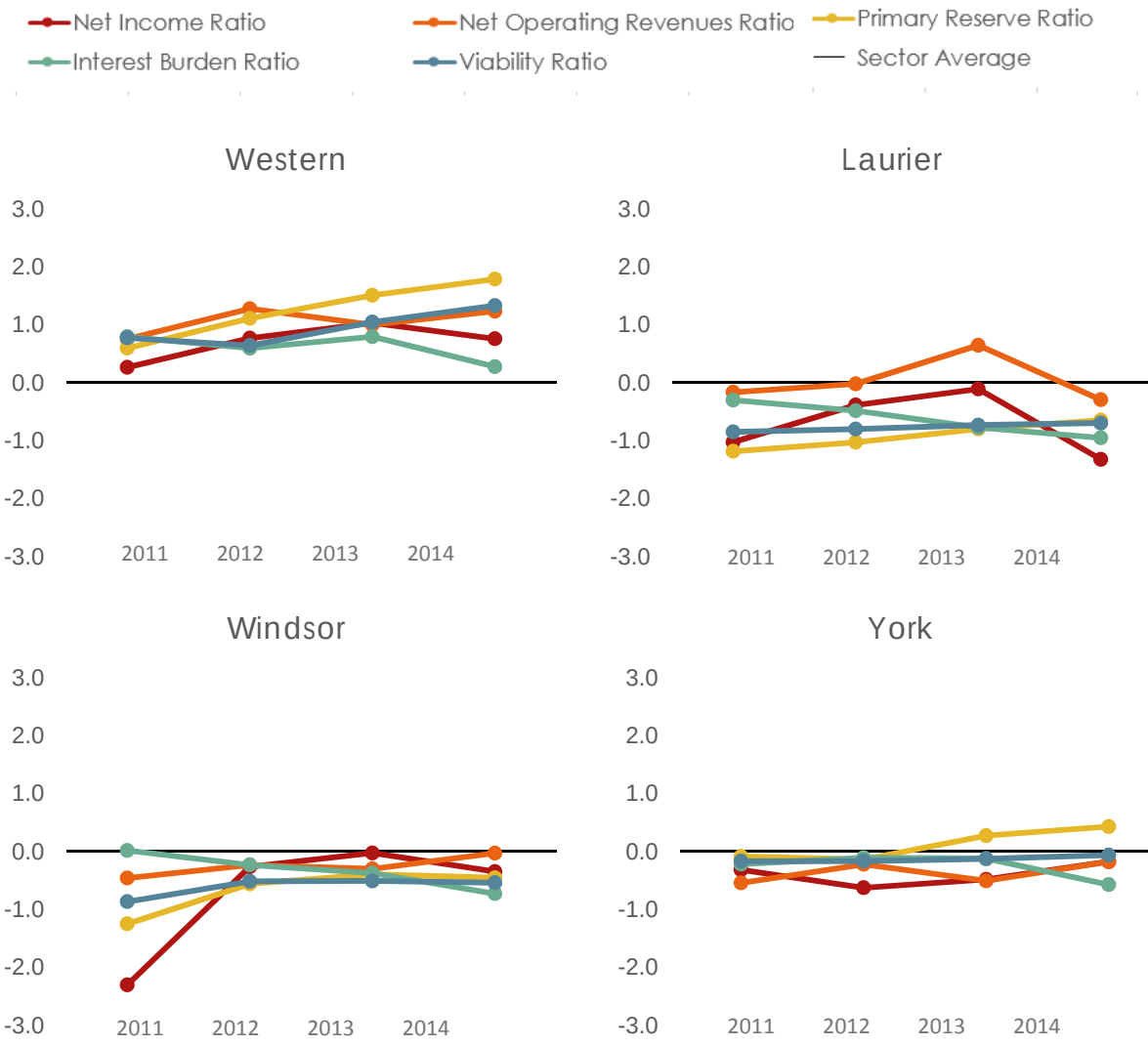

Source: MAESD, COU, and COFO; HEQCO analysis

Additional Notes to Figures 4.1 through 4.20:

To visually overlay the indicators, each of the five financial health ratios has been standardized to have a mean of 0, representing the sector average, and a standard deviation of 1. The system average represents the average across all four years. The standardized scores reflect the number of standard deviations each institution is above (if positive) or below (if negative) the four-year sector average. A score above 0 relects above average performance while a score below 0 reflects below average performance.

Extreme outliers were removed when calculating the system average. Results for UOIT's interest burden ratio and Waterloo's viability ratio are excluded from the system average.

Data for scores above or below 3 have been capped. This includes the following:

- Carleton — the viability ratio for 2014 and 2015
- Lakehead — the interest burden ratio for 2011
- UOIT — the interest burden ratio for all four years
- Toronto — the net income ratio for 2011
- Waterloo — the viability ratio for all four years

Financial Health Indicators Summary

For the purposes of our summary table we simplify the data presented above by way of the two variables included in Table 4 that summarize for each university:

(1) Of the five financial health indicators, the number that were above the system average for each of the four years. We emphasize again that, in the absence of any agreed upon performance thresholds, the score of any particular institution must be interpreted only as relative to that of the other 19 rather than an absolute indicator of good or poor financial health.
(2) The number of financial health indicators that show an improvement over the four year period.

Table 4: Summary of Financial Health Indicators (out of 5)

	Are above the sector 4-year average in				**Have improved from 2011 to 2015**
	2011-12	2012-13	2013-14	2014-15	
Algoma	4	4	2	1	1
Brock	0	0	0	2	5
Carleton	4	5	5	5	5
Guelph	2	3	4	5	5
Lakehead	0	2	3	1	4
Laurentian	1	1	1	1	4
McMaster	3	5	5	5	5
Nipissing	3	1	0	0	1
OCADU	0	0	0	0	4
Ottawa	5	3	5	5	3
UOIT	1	2	2	2	5
Queen's	3	4	5	5	5
Ryerson	2	2	4	3	1
Toronto	3	5	5	5	5
Trent	1	0	1	1	4
Waterloo	4	4	4	5	3
Western	5	5	5	5	4
Laurier	0	0	1	0	2
Windsor	1	0	0	0	4
York	0	0	1	1	5

Included in Summary

Growth in Faculty over Age 65

Mandatory retirement was eliminated in Ontario in 2006. In the 10 years since, the percentage of

faculty over age 65 has increased from less than 2% to more than 10%. In our first sustainability paper, we noted that this issue needs a deeper analysis. Quite simply, given that, on average, faculty members with greater seniority typically have higher salaries, an increased number of faculty remaining beyond the traditional retirement age will have significant cost implications. Thus, the more faculty choosing to remain employed by the university beyond age 65, the less expenditure flexibility the institution has to hire younger faculty who are paid considerably less. The opportunities for faculty renewal is consequently also constrained. Table 5 shows the percentage of full-time faculty at each Ontario university who are over the age of 65.

Table 5: Faculty Over Age 65 by University

University	2014			2009			% Point Change over 5 years
	65+	Total	% 65+	65+	Total	% 65+	
Algoma	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Brock	63	582	10.8%	33	567	5.8%	5.0%
Carleton	81	843	9.6%	39	819	4.8%	4.8%
Guelph	45	756	6.0%	21	792	2.7%	3.3%
Lakehead	30	330	9.1%	12	288	4.2%	4.9%
Laurentian	42	366	11.5%	21	384	5.5%	6.0%
McMaster	105	984	10.7%	54	1299	4.2%	6.5%
Nipissing	12	198	6.1%	6	171	3.5%	2.6%
OCADU	15	138	10.9%	9	108	8.3%	2.5%
Ottawa	126	1247	10.1%	39	1257	3.1%	7.0%
UOIT	12	276	4.3%	3	150	2.0%	2.3%
Queen's	84	777	10.8%	48	819	5.9%	5.0%
Ryerson	117	1023	11.4%	48	900	5.3%	6.1%
Toronto	288	2721	10.6%	201	2661	7.6%	3.0%
Trent	15	225	6.7%	15	246	6.1%	0.6%
Waterloo	63	1194	5.3%	36	1026	3.5%	1.8%
Western	138	1464	9.4%	81	1437	5.6%	3.8%
Laurier	51	573	8.9%	21	522	4.0%	4.9%
Windsor	63	483	13.0%	33	525	6.3%	6.8%
York	234	1485	15.8%	129	1443	8.9%	6.8%
			Included in Summary				

Source: Statistics Canada's University and College Academic Staff System and National Faculty Data Base. Includes full-time faculty with an academic rank.

Summary Table

Table 6 summarizes the sustainability data presented above by drawing together selected elements, each of which has been highlighted in the previous sections:

5 Year % Change in Enrolment: The percentage change in enrolment between 2010 and 2015. The larger the value, the more revenue generating enrolment growth has taken place.

Demographic Outlook by 2033: The projected percentage change in 18–20 year olds for each university, applying today's distribution of region of origin for incoming students. The larger the value the more favourable the demographic outlook.

Demand Outlook: The percentage of students entering each of the universities with high-school marks above 75%, and the application to registrant ratio for each institution. The higher the values, the better the demand outlook for the institution.

Financial Health Indicators: The number of an institution's financial health indicator scores in 2014–15 exceeding the system average, and the number of financial health indicator scores that increased over the most recent four-year period. The higher the value, the better the relative financial health indicator outlook for the institution.

% Faculty over 65: The percentage of faculty over age 65 at each university. A higher value suggests an additional pressure on compensation costs.

Table 6: Summary Table —
Signals of Enrolment Demand, Financial Sustainability and Expenditure Challenge

	5 year % change in enrolment	Projected demographic change to 2033	Demand		Financial Health Indicators (out of 5)		% Faculty over 65
			A:R Ratio	Entering Marks > 75%	# above system average	# improved over 4 years	
Algoma	29%	-11%	5:1	72%	1	1	n/a
Brock	7%	-1%	6:1	83%	2	5	11%
Carleton	16%	-2%	6:1	87%	5	5	10%
Guelph	9%	1%	7:1	99%	5	5	6%
Lakehead	-5%	-8%	5:1	73%	1	4	9%
Laurentian	0%	-9%	5:1	83%	1	4	11%
McMaster	5%	2%	8:1	100%	5	5	11%
Nipissing	-18%	-6%	6:1	84%	0	1	6%
OCADU	11%	5%	3:1	85%	0	4	11%
Ottawa	8%	-3%	7:1	95%	5	3	10%
UOIT	28%	6%	6:1	76%	2	5	4%
Queen's	14%	2%	7:1	100%	5	5	11%
Ryerson	27%	6%	8:1	95%	3	1	11%
Toronto	14%	5%	6:1	98%	5	5	11%
Trent	6%	0%	6:1	77%	1	4	7%
Waterloo	13%	1%	6:1	100%	5	3	5%
Western	5%	-1%	8:1	100%	5	4	9%
Laurier	10%	1%	7:1	88%	0	2	9%
Windsor	0%	-7%	5:1	83%	0	4	13%
York	-3%	7%	6:1	88%	1	5	16%

Next Steps

As we noted at the outset, we are not undertaking this exercise to chastise, intervene or police institutions, or to dissect their internal management practices. We are simply responding to the shared sense of threat and challenge throughout the system regarding financial sustainability and its potential impact on educational quality and the student experience. We have assembled a suite of signal indicators of sustainability to start a conversation with universities and government about the pressures institutions face, the strategies they are using to meet them and the tools they need from government to do so.

References

Council of Ontario Universities. (2016). *Universities: Helping Ontarians Prosper, 2016 Provincial Pre-Budget Submission.* Retrieved from: http://cou.on.ca/wp-content/uploads/2016/01/COU-2015-16-Pre-Budget-Submission-FN.pdf

Higher Education Quality Council of Ontario. (2015). *The Ontario University Funding Model in Context.* Toronto: Higher Education Quality Council of Ontario.

Higher Education Quality Council of Ontario. (2013). *Performance Indicators: A report on where we are and where we are going.* Toronto: Higher Education Quality Council of Ontario.

Jonker L. and Hicks, M. (2016). *The Differentiation of the Ontario University System: where are we now and where should we go?* Toronto: Higher Education Quality Council of Ontario.

Weingarten, H. P., Hicks, M. & Moran, G. (2016). *Understanding the Sustainability of the Ontario Postsecondary System and its Institutions: A Framework*. Toronto: Higher Education Quality Council of Ontario.

Appendix A: Five year enrolment trends – additional detail

Table 1 in this report shows the five-year trend in full-time equivalent enrolment for the 20 universities. Universities can and do pursue different strategies to maintain or grow their enrolment — undergraduate or graduate, domestic or international. For further insight into the variety of patterns of enrolment change across the institutions, the Tables A1 and A2 following break the overall enrolment trend shown in Table 1 into these constituent components. The totals shown in Tables A1 and A2 are the same as the total enrolment shown in Table 1.

Table A1: Undergraduate vs Graduate FTE Enrolment Trends over Time

	Undergraduate			Graduate			Total		
	2010	2015	5 year % change	2010	2015	5 year % change	2010	2015	5 year % change
Algoma	1,028	1,323	29%	0	0	n/a	1,028	1,323	29%
Brock	14,538	15,437	6%	1,155	1,364	18%	15,693	16,801	7%
Carleton	19,474	22,500	16%	3,022	3,544	17%	22,497	26,044	16%
Guelph	22,370	24,557	10%	2,355	2,352	0%	24,725	26,909	9%
Lakehead	7,601	6,924	-9%	592	876	48%	8,193	7,800	-5%
Laurentian	7,547	7,424	-2%	515	617	20%	8,062	8,041	0%
McMaster	23,067	24,130	5%	3,476	3,742	8%	26,543	27,872	5%
Nipissing	5,205	4,185	-20%	139	191	38%	5,344	4,376	-18%
OCADU	3,555	3,805	7%	59	217	266%	3,614	4,022	11%
Ottawa	29,917	31,728	6%	5,044	6,005	19%	34,961	37,733	8%
UOIT	6,421	8,139	27%	340	510	50%	6,761	8,649	28%
Queen's	18,762	21,300	14%	3,720	4,282	15%	22,481	25,582	14%
Ryerson	26,561	34,001	28%	1,999	2,251	13%	28,560	36,252	27%
Toronto	59,142	67,105	13%	13,740	16,263	18%	72,882	83,368	14%
Trent	6,969	7,348	5%	375	405	8%	7,344	7,753	6%
Waterloo	27,622	31,148	13%	3,766	4,420	17%	31,387	35,568	13%
Western	30,037	31,284	4%	4,958	5,617	13%	34,995	36,901	5%
Laurier	14,826	16,338	10%	1,048	1,129	8%	15,874	17,468	10%
Windsor	12,975	12,056	-7%	1,700	2,680	58%	14,675	14,736	0%
York	43,455	41,936	-3%	4,494	4,641	3%	47,948	46,577	-3%

Source: MAESD. FTE enrolments includes all students — full-time and part-time, eligible and ineligible, degree and certificate. Undergraduate FTEs are for all terms and graduate FTEs are for fall and summer term.

Table A2: Domestic vs International FTE Enrolment Trends over Time

	Domestic			International			Total		
	2010	2015	5 year % change	2010	2015	5 year % change	2010	2015	5 year % change
Algoma	958	908	-5%	70	415	491%	1,028	1,323	29%
Brock	14,463	15,071	4%	1,230	1,730	41%	15,693	16,801	7%
Carleton	19,967	22,436	12%	2,530	3,609	43%	22,497	26,044	16%
Guelph	24,079	25,774	7%	646	1,135	76%	24,725	26,909	9%
Lakehead	8,052	7,256	-10%	141	544	286%	8,193	7,800	-5%
Laurentian	7,636	7,449	-2%	426	591	39%	8,062	8,041	0%
McMaster	24,700	25,429	3%	1,844	2,442	32%	26,543	27,872	5%
Nipissing	5,294	4,331	-18%	50	45	-9%	5,344	4,376	-18%
OCADU	3,439	3,586	4%	175	436	149%	3,614	4,022	11%
Ottawa	32,868	33,050	1%	2,093	4,683	124%	34,961	37,733	8%
UOIT	6,472	8,029	24%	288	620	115%	6,761	8,649	28%
Queen's	21,103	23,466	11%	1,378	2,116	53%	22,481	25,582	14%
Ryerson	27,664	34,888	26%	895	1,364	52%	28,560	36,252	27%
Toronto	63,817	67,576	6%	9,065	15,793	74%	72,882	83,368	14%
Trent	6,789	7,145	5%	555	608	10%	7,344	7,753	6%
Waterloo	27,648	29,075	5%	3,739	6,493	74%	31,387	35,568	13%
Western	32,546	32,587	0%	2,450	4,314	76%	34,995	36,901	5%
Laurier	15,537	16,439	6%	337	1,029	205%	15,874	17,468	10%
Windsor	13,083	12,067	-8%	1,592	2,670	68%	14,675	14,736	0%
York	44,491	40,827	-8%	3,458	5,750	66%	47,948	46,577	-3%

Source: MAESD. FTE enrolments includes all students — full-time and part-time, eligible and ineligible, degree and certificate. Undergraduate FTEs are for all terms and graduate FTEs are for fall and summer term.

Appendix B: Demographic Outlook — additional detail

The following table presents an overview of the five geographic regions presented in Figure 2 of this report. It shows the universities that are located (main campus) within each region and the counties that make up each region.

Table B1: Overview of Ontario's Regions

Region	Toronto + GTA	Central	East	Southwest	North
Universities	OCADU	Brock	Carleton	Western	Algoma
	Ryerson	Guelph	Ottawa	Windsor	Lakehead
	Toronto	McMaster	Queen's		Laurentian
	UOIT	Trent			Nipissing
	York	Waterloo			
		Laurier			
Counties	Toronto	Brant	Ottawa	Bruce	Algoma
	Durham	Dufferin	Frontenac	Elgin	Cochrane
	Halton	Haldimand-Norfolk	Hastings	Essex	Kenora
	Peel	Haliburton	Lanark	Grey	Manitoulin
	York	Hamilton	Leeds and Greenville	Huron	Nipissing
		Muskoka	Lennox and Addington	Chatham-Kent	Parry Sound
		Niagara	Prescott and Russell	Lambton	Rainy River
		Northumberland	Prince Edward	Middlesex	Greater Sudbury
		Peterborough	Renfrew	Oxford	Sudbury
		Simcoe	Stormont, Dundas and Glengarry	Perth	Thunder Bay
		Kawartha Lakes			Timiskaming
		Waterloo			
		Wellington			

To derive the institution-specific demographic projections shown in Figures 3.1 to 3.5 we first calculated the year-to-year growth rate for each of the five regions identified from the Ministry of Finance's population projections for 18-to-20 year olds. These growth rates by region were then applied to first-year enrolment counts at each university, in proportion to the percentage of incoming students by region of origin. The projected counts were then aggregated for each year for each institution.

Universities routinely collect and report postal code information as part of their enrolment reporting to MAESD. The region students come from was established by matching the first three characters of their postal code (known as the Forward Sortation Area or FSA) to Statistics Canada's National Household Survey (NHS). There is a small percentage of Ontarian students for whom the FSA was either not formatted properly or not found in Statistics Canada's NHS. They represent just over 2% of Ontario first-year undergraduate students. These students were excluded from the analysis.

The results are based on student headcounts for the fall term only for 2015–16. University satellite campuses and affiliates were included.

Table B2 shows the distribution of Ontarian first-year undergraduate students at each university by region of origin.

Table B2: Percentage of Ontarian First-Year Undergraduate Students by Region, 2015–16

	Demographic Region in Ontario				
	Toronto + GTA	Central	East	Southwest	North
Algoma	16%	11%	3%	3%	68%
Brock	44%	46%	3%	7%	1%
Carleton	25%	12%	56%	4%	3%
Guelph	55%	29%	4%	10%	2%
Lakehead	22%	24%	5%	4%	45%
Laurentian	20%	17%	8%	4%	51%
McMaster	58%	36%	2%	3%	1%
Nipissing	23%	27%	13%	10%	27%
OCADU	80%	12%	5%	3%	1%
Ottawa	21%	10%	60%	5%	4%
UOIT	88%	6%	3%	2%	1%
Queen's	57%	16%	20%	5%	2%
Ryerson	89%	6%	2%	2%	1%
Toronto	85%	8%	4%	3%	1%
Trent	48%	32%	15%	4%	2%
Waterloo	56%	31%	5%	7%	1%
Western	48%	15%	2%	33%	1%
Laurier	55%	35%	2%	7%	1%
Windsor	17%	6%	1%	75%	1%
York	97%	2%	0%	0%	0%

Source: MAESD.

Appendix C: Financial Health Indicators — additional detail

The five financial health indicators designed by the university sector in partnership with MAESD are:

Table C1: Summary of the Financial Health Indicators

	Financial Health Indicator	Calculation
Net Income Ratio	The Net Income/Loss Ratio is a financial performance metric that measures the percentage of an institution's revenues that actually contribute to its net assets. It provides insight into how well an institution is able to manage its expenses. The objective of this ratio is to track trends in an institution's net earnings.	= Total Revenues - Total Expenses / Total Revenues
Net Operating Revenues Ratio	The Net Operating Revenues Ratio is a financial performance metric that provides an indication of the extent to which institutions are generating positive cash flows in the long run to be financially sustainable. The ratio is calculated as Cash Flow from Operating Activities (from the statement of cash flows) over Total Revenues (from the statement of operations).	= Cash Flow from Operating Activities / Total Revenues
Primary Reserve Ratio	The Primary Reserve Ratio is a measure of financial viability that compares expendable net assets to total expenses and provides an indication of an institution's financial strength and flexibility by determining how many days an institution could function using only its financial resources that can be expended without restrictions. Expendable Net Assets include: unrestricted surplus (deficit), internally restricted net assets and internally restricted endowments, adjusted for the non-cash component of any employee future benefits.	= Expendable Net Assets x 365 days / Total Expenses
Interest Burden Ratio	The Interest Burden Ratio is a measure of debt affordability that compares the level of current debt service with the institution's total expenses. It examines the percentage of total expenses used to cover an institution's cost of servicing its debt. The ratio is calculated as interest expense over total expenses (adjusted for non-cash depreciation).	= Interest Expense / Total Expenses - Depreciation
Viability Ratio	The Viability Ratio is a basic determinant of an institution's financial health, as it provides an indication of the funds on hand that can be used should an institution need to settle its long-term obligations. It is calculated as Expendable Net Assets over Long-Term Debt. Expendable Net Assets are defined above under Primary Reserve Ratio. Long-Term Debt is total external long-term debt as disclosed in the institution's financial statements without adding the current portion that may be included in accounts payable.	= Expendable Net Assets / Long-Term Debt

Four Years of Data

The table that follows presents the resultant financial health indicators data for each university for four years (2011–12 to 2014–15). These data were used to construct the Figures 4.1 to 4.20 and summary table (Table 6) in the body of the report.

When standardizing the data for the purposes of Figures 4.1 through 4.20 (see the notes below the figures) the values for the interest burden ratio were multiplied by -1 to align the direction of positive performance with the other four indicators.

Table C2: Financial Health Ratios from 2011–12 to 2014–15

	Net Income Ratio				Net Operating Revenues Ratio				Primary Reserve Ratio (days)			
	11-12	12-13	13-14	14-15	11-12	12-13	13-14	14-15	11-12	12-13	13-14	14-15
Algoma	5.7%	5.1%	6.2%	0.9%	8.0%	10.9%	10.3%	0.2%	86	86	43	16
Brock	-0.7%	-0.8%	0.3%	5.4%	0.2%	3.5%	4.0%	9.2%	24	35	18	44
Carleton	9.6%	10.8%	12.8%	13.0%	7.1%	17.9%	15.1%	17.0%	144	183	222	256
Guelph	-7.9%	6.4%	10.1%	9.2%	8.9%	7.8%	11.3%	8.8%	44	74	160	172
Lakehead	-2.4%	2.6%	5.8%	1.5%	6.6%	8.2%	10.3%	4.9%	77	86	106	114
Laurentian	-1.6%	0.1%	-0.8%	-1.0%	3.6%	-4.1%	-1.0%	1.5%	-11	-10	-12	-7
McMaster	1.0%	6.5%	8.9%	7.9%	6.7%	7.6%	12.5%	14.7%	94	102	120	130
Nipissing	5.4%	2.6%	-6.0%	-6.1%	11.8%	2.4%	-3.5%	-3.5%	94	80	43	19
OCADU	-0.1%	1.1%	2.0%	1.8%	0.5%	-0.6%	4.4%	-2.7%	9	14	23	32
Ottawa	3.9%	-0.2%	6.2%	6.2%	10.9%	7.3%	7.9%	8.6%	145	126	133	143
UOIT	1.8%	8.3%	6.0%	4.5%	11.5%	18.7%	15.6%	11.1%	-23	-4	-4	14
Queen's	-3.3%	2.8%	5.5%	7.3%	3.2%	3.5%	9.3%	11.2%	82	97	122	152
Ryerson	-2.2%	8.7%	4.8%	5.3%	11.6%	6.4%	11.3%	8.1%	67	62	83	55
Toronto	-13.5%	5.4%	7.5%	10.1%	4.1%	9.1%	7.9%	12.9%	110	140	137	160
Trent	-1.5%	0.8%	4.2%	-2.9%	4.3%	4.9%	6.8%	6.4%	-8	1	43	23
Waterloo	2.2%	6.2%	5.6%	3.2%	9.6%	5.4%	5.4%	8.3%	126	144	146	139
Western	4.1%	6.6%	7.9%	6.6%	11.0%	13.5%	12.2%	13.3%	116	148	173	190
Laurier	-2.3%	0.9%	2.3%	-3.7%	6.6%	7.3%	10.5%	5.9%	5	15	29	39
Windsor	-8.6%	1.5%	2.7%	1.1%	5.1%	6.2%	5.9%	7.2%	1	44	55	51
York	1.3%	-0.3%	0.4%	2.0%	4.7%	6.3%	4.9%	6.5%	74	70	96	106

Table C2: Financial Health Ratios from 2011–12 to 2014–15 (continued)

	Interest Burden Ratio				Viability Ratio			
	11-12	12-13	13-14	14-15	11-12	12-13	13-14	14-15
Algoma	1.8%	1.9%	2.0%	1.7%	0.54	0.42	0.29	0.21
Brock	2.4%	2.5%	2.6%	2.7%	0.13	0.21	0.11	0.24
Carleton	1.0%	1.2%	1.1%	0.9%	1.97	2.72	3.52	4.33
Guelph	1.6%	1.9%	2.0%	1.9%	0.46	0.63	1.31	1.52
Lakehead	5.7%	4.1%	4.0%	3.9%	0.28	0.32	0.42	0.45
Laurentian	1.2%	1.6%	1.7%	1.6%	-0.09	-0.07	-0.10	-0.06
McMaster	1.1%	1.1%	1.0%	1.0%	1.53	1.68	1.99	2.21
Nipissing	3.1%	3.1%	2.7%	2.6%	0.42	0.40	0.25	0.12
OCADU	3.4%	3.1%	2.9%	2.8%	0.05	0.08	0.14	0.21
Ottawa	1.4%	1.3%	1.3%	1.2%	1.86	1.77	1.98	2.19
UOIT	12.3%	12.3%	10.8%	10.0%	-0.04	-0.01	-0.01	0.03
Queen's	1.8%	1.7%	1.7%	1.7%	0.78	0.96	1.19	1.37
Ryerson	1.1%	1.8%	1.8%	1.6%	0.56	0.37	0.60	0.41
Toronto	1.3%	1.7%	1.6%	1.6%	1.13	1.28	1.30	1.55
Trent	1.9%	2.0%	2.0%	1.8%	-0.05	0.00	0.31	0.18
Waterloo	0.2%	0.2%	0.2%	0.2%	10.48	12.99	7.83	8.74
Western	1.2%	1.4%	1.2%	1.7%	1.46	1.34	1.70	1.95
Laurier	2.2%	2.4%	2.7%	2.8%	0.03	0.07	0.13	0.16
Windsor	1.9%	2.2%	2.3%	2.6%	0.01	0.32	0.33	0.30
York	2.1%	2.0%	2.1%	2.5%	0.63	0.63	0.66	0.72

Source: MAESD, COU, and COFO