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Postsecondary Education Metrics for the 21st Century

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Executive Summary

The outcomes delivered by public higher education are essential to a robust and vibrant society that is economically competitive and sustains a high quality of life. Making sure that we reap the expected impact and value from our public investment in higher education is a legitimate and responsible function of government. To accomplish this, it is necessary to have a system of performance measurement and a related series of metrics that are meaningful and informative.

To be meaningful, performance metrics must be linked to government policy. It is the state's responsibility to define objectives for public higher education. A primary goal of most publicly funded higher education systems is to ensure that students have broad and equitable access to a high quality education that teaches them what they need to succeed in their personal and professional lives. To do that, a further goal for the system (and the institutions themselves) is that it operates efficiently and is financially sustainable, or else it cannot meet its access and quality objectives. It is the government's role to articulate these objectives, and any others, in a manner that reflects Ontario's circumstances, and its economic and social aspirations.

The measurement system must focus on impact and outcomes, not inputs. It must make use of the best data available, and where there are data gaps it must invest in building the required capacity. The motivation for measurement must be more than a simplistic desire for accountability; it must be about developing tools for and a culture of continuous improvement.

In service of the province's objectives for higher education, with a focus on outcomes and improvement and using the best data sources available today, we recommend that Ontario:

- Replace the current cohort-based institutional graduation rate calculation with an analysis of cross-institutional student mobility patterns and graduation rates, driven by the Ontario Education Number. Use the data to improve retention, mobility and credit transfer, and program-level graduation outcomes.
- Initiate a province-wide assessment of core transferable skills learned by students, focusing on literacy, numeracy and critical thinking. Use the data to improve outcomes for graduates entering the labour market and to identify programs that require remediation.
- Replace the current short-term graduate employment survey with tax-linked data that tracks graduates' long-term labour market outcomes (incomes, employment rates). Use the data to drive improvement at the program level.

- Use tax-linked administrative data to measure the participation gap and economic lift experienced by low-income and first-generation students. Use the data to tailor strategies that close the gap, so all Ontarians can reap the rewards of higher education opportunities.
- Recognizing that institutional financial sustainability must focus on expenditure management and that the largest sector expenditure is the cost of its people, require institutions to measure and publish the true “all-in” rates of increase in individual employee remuneration. Use the data to inform sustainable compensation strategies.
- Require institutions to measure and publish faculty workload data, including teaching loads, research outputs and salary levels. Use the data to deploy faculty effectively, and to drive differentiation at both the faculty and institutional levels.
- Monitor key financial health ratios of Ontario colleges and universities to identify and remediate emerging sustainability issues within the system.

Where feasible, we should extend the same metrics not just to colleges and universities, but to all elements of Ontario’s higher education and training system including private career colleges and the apprenticeship system.

Institutions and other providers as well as the government have roles to play in harnessing these new performance metrics for the task of continuous improvement. Better data will result in better planning, stronger execution and increased differentiation, as well as the development of outcomes-based funding mechanisms and meaningful, intentional performance agreements between government and providers.

Table of Contents

Executive Summary.....	2
Introduction	5
A Better Approach to Measure Performance	6
Applying the Approach: New Performance Metrics for Ontario	8
Large-scale skills assessment	8
Tax-linked graduate job data	9
Economic lift of postsecondary education	11
OEN-based graduation rate	12
Institutional sustainability: expenditure management	13
Institutional sustainability: financial ratios.....	15
Think Broadly about the Sector	16
Next Steps for Ontario	17
Conclusion.....	18
Summary of Recommendations	18
References	20

Introduction

Universities and colleges are under mounting pressure to measure their performance and impact.

To a large extent, this stems from an increasing emphasis on the part of society to document how public entities spend public funds, and the outcomes they achieve with those expenditures. The electorate is holding governments more accountable for how public funds are spent; and the government in turn imposes heightened accountability and performance requirements on its public institutions and services.

In Ontario, the public funds allocated to higher education are substantial. The Ministry of Training, Colleges and Universities provides approximately \$5 billion annually in operating grants to its 44 colleges and universities, and in addition makes student financial aid available to postsecondary students on a needs-tested basis.

At the loftiest level, the demand for performance measurement reflects a recognition that the outcomes delivered by postsecondary institutions are essential to a robust and vibrant society that is economically competitive and sustains a high quality of life. Making sure that we reap the expected impact and value from our public investment in higher education is a legitimate and responsible function of government. The trick, of course, is to have a system of performance measurement and a related series of metrics that are meaningful and informative.

There are different philosophies for how to construct a useful performance regime for higher education systems and institutions. As we have observed (Weingarten & Hicks, 2018a), the pragmatist, motivated by an impatience to quickly implement a performance regime, may gravitate to tools, data and measures that are already available. These are often a mixture of inputs, outputs and outcomes. They may or may not reflect jurisdictional priorities for higher education. In fact, there may be no clear jurisdictional priorities and, if there are, the fit between those priorities and the data at hand may be no more than serendipity.

Aware of these shortcomings, and mindful of the inevitable pushback that the wrong indicators may have been selected, the pragmatist often tends toward embracing an ever larger pool of indicators. But a large number of indicators hampers the ability to be precise about what really matters to a jurisdiction. And when it turns out that the pragmatist's strategy is, after a period of time, found wanting, the pragmatist returns to the pool of available data and starts the exercise of expediency again in the hopes that applying the very same tactics will achieve a different and more meaningful outcome. This approach is of little service to a jurisdiction that needs to assess key performance variables to appreciate the influence and impact of public expenditures.

The approach of the idealist, by contrast, recognizes that a strategic and useful performance exercise begins with the identification of agreed-upon, high-level jurisdictional priorities for higher education because these are the issues that matter most. These priority goals then lead naturally to the outcomes the jurisdiction hopes to achieve by the investment in, and the efforts of, its public institutions of higher learning. The idealist understands that to satisfy the essence of having priorities, the desired outcomes must be few in number. Less is more.

Then, and only then, the idealist asks what information or data is required to best and most directly measure progress on — and achievement of — these priorities. If these measures do not exist already, the idealist understands that it is necessary to invest in and build the capacity and infrastructure required to measure these critical things.

To the idealist, while part of the motivation of the performance regime may be accountability, the dominant focus is the drive for change and improvement.

A Better Approach to Measure Performance

Our recommended approach to performance measurement affiliates with that of the idealist, and eschews what we regard as significant problems with the approach of the pragmatist. It is time to take a fresh look at how to best evaluate the performance of a public postsecondary system. This paper provides our thinking on what a new approach to performance measurement should look like: It must be tied to government policy, focused on outcomes, based on excellent data and motivated by improvement rather than accountability.

First, postsecondary performance measurement must be linked to government policy. It is the state's responsibility to define objectives for public higher education that are focused, few in number and meaningful. Government must then communicate its vision and goals to students, institutions and the public. Only then can government and stakeholders begin the process of identifying the best way to measure progress toward these goals.

A primary goal of most publicly funded higher education systems, particularly in the West, is to ensure that students have broad and equitable access to a high quality education that teaches them what they need to succeed in their personal and professional lives. To do that, a further goal for the system (and the institutions themselves) is that it operate efficiently and be financially sustainable, or else it cannot meet its access and quality objectives. It is the government's role to articulate these objectives and any others in a manner that reflects Ontario's circumstances, and its economic and social aspirations.

Second, meaningful performance measurement must focus on impact and outcomes, not inputs. For the reasons discussed above, many performance regimes rely on input measures. Institutions report how many students are enrolled, how many faculty are employed, how many dollars are spent, the size of the physical plant, library holdings, fundraising, endowments and student services. Indeed, we have used many of these indicators in our [past work](#) (Weingarten, Hicks, Jonker, Smith & Arnold, 2015). But surely what really matters in higher education is impact: What or how much have students learned, and what is the economic and social impact of the institutions and a well-educated province?

Third, meaningful performance measurement relies on evidence; we can't do this without excellent data. The good news is that we are entering a new golden era of enhanced data availability. In Canada, access to federal data sets through Statistics Canada's Research Data Centres has allowed HEQCO and others the opportunity to assess postsecondary-education outcomes in new ways. Data holders — primarily government — are developing better tools to permit researchers to analyze data while at the same time protecting privacy. Emerging techniques for data linkages are being deployed at the federal level (for example, linking graduate files to income tax files to understand the long-term labour market outcomes of graduates). These developments make the idealist's job easier, enabling us to properly measure outcomes that matter most to government, the public and students.

Finally, while accountability will always be relevant, the essential rationale for performance measurement is as a tool for continuous improvement. If we are measuring outcomes — as we should and will — then we have created a feedback mechanism to see how well our educational strategies and expenditures are meeting Ontario's objectives, and how we can do better. Embracing transparency in data sharing is an important first step toward this goal. Using the data at the institutional level, within government, and across the system to evaluate and adjust what we do follows as the next step. Over time, outcome measures can drive improvement through the government's funding mechanism and negotiated agreements with institutions. This is a powerful added force for performance improvement.

With new tools and a new approach, we can actualize the idealist's dream of metrics that are responsive to government priorities, are based on outcomes rather than inputs, and help drive improvement for Ontario.

Table 1: Metrics for the 21st Century

Ontario objectives	Outcomes we need to know	How we will measure these
<p>QUALITY: Students graduate with the skills they need and are successful in the job market.</p>	<p>Are students able to construct efficient pathways to graduation?</p>	<p>Replace the current cohort-based graduation rate with OEN-driven data, and begin tracking student mobility between institutions and programs. Use the data to improve retention, credit transfer and program-level graduation outcomes.</p>
	<p>Are students acquiring the transferable skills they need to succeed in tomorrow’s job market?</p>	<p>Implement province-wide, program-level, online testing of incoming and graduating students using Education and Skills Online (for numeracy and literacy) and the HEighten Critical Thinking Assessment (for critical thinking). Use the data to drive improvement at the program level.</p>
	<p>Are graduates realizing long-term labour market returns for their investment in public higher education?</p>	<p>Replace the current short-term graduate employment survey with income tax data linked to administrative records. Use the data to drive improvement at the program level.</p>
<p>OPPORTUNITY: All Ontarians have an equitable opportunity to access and reap the benefits of public higher education.</p>	<p>Does higher education deliver for Ontarians from low-income or marginalized circumstances?</p>	<p>Use tax data linked to student-record data to measure the participation gap and labour market outcome “lift” for low-income and first-generation Ontarians. Use the data to tailor strategies that close the gap.</p>
<p>SUSTAINABILITY: The system operates efficiently and sustainably in order to continuously meet its quality and opportunity objectives with available resources.</p>	<p>Are institutional expenditures, which are primarily a function of labour costs, managed at a sustainable rate of increase?</p>	<p>Require institutions to measure and publish the true “all-in” rates of increase in employee remuneration. Use the data to inform sustainable compensation strategies.</p>
	<p>Are faculty deployed efficiently?</p>	<p>Require institutions to measure and publish faculty-workload data, including teaching loads, research outputs and salary levels. Use the data to deploy faculty effectively and to drive differentiation at both the faculty and institutional levels.</p>
	<p>Are institutions financially sound?</p>	<p>Update and share key financial ratios promptly. Use the data to identify, investigate and remediate emerging weaknesses.</p>

Applying the Approach: New Performance Metrics for Ontario

We propose a suite of outcomes metrics for Ontario to track institutional and system performance using the best data already available today or that can be produced with a reasonable amount of development work. A better and more useful performance-assessment regime in Ontario would focus on these things (see also Table 1):

- Direct measurement of the skills students acquire and develop during college or university
- The relationship between programs of study and job success
- The opportunity for economic lift provided by postsecondary education
- Sophisticated and reliable measures of student mobility patterns and graduation rates from postsecondary programs
- System sustainability with a focus on expenditures, productivity and institutional financial health

Large-scale Skills Assessment

It is inconceivable to us that a contemporary performance-measurement regime would begin with something other than rigorous assessments of what and how much students learn during their time at university or college.

One might argue that postsecondary institutions already do this through regular evaluation of students in their course work, and in reporting the results of these assessments on the traditional transcript. In most cases, however, these assessments focus solely on disciplinary knowledge. There is very little information gathered on the other desired outcomes of a postsecondary education, such as the acquisition and development of a set of basic and higher-order cognitive skills including critical thinking, problem solving and communication. Equally, there is little direct measurement or reporting on behavioural or transferable skills such as resilience, adaptability and teamwork. These skills are of great interest and concern to both students and employers, who consider them essential for success in the workplace. It is for this reason that some employers eschew seeing an applicant's postsecondary transcript altogether.

Tools to measure cognitive, behavioural and transferable skills have emerged over the past decade. Assessment methodologies like VALUE rubrics¹ and performance-based, critical-thinking assessments such as the CLA+ continue to evolve, and there have been high-profile examples of these assessments in action (See Arum & Roksa, 2010).

¹ The Association of American Colleges & Universities has created 16 generic VALUE rubrics for assessing essential learning outcomes in higher education. These rubrics are considered a gold standard in developing rubrics for a specific context.

In partnership with 20 Ontario colleges and universities, HEQCO recently conducted two pilot assessments of Ontario students' numeracy, literacy and critical-thinking skills, involving more than 7,500 students. The first trial used the Education and Skills Online (ESO) assessment of adult literacy and numeracy, which is the commercial version of the Programme for the International Assessment of Adult Competencies developed and validated by the Organization for Economic Co-operation and Development (Weingarten, Brumwell, Chatoor & Hudak, 2018). The second trial measured critical thinking using the HEIghten Critical Thinking Assessment, an online test developed by Education Testing Services (Finnie, Dubois, Pavlic & Suleymanoglu, 2018). The [pilots demonstrate](#) that large-scale assessments are feasible in Ontario (Weingarten & Hicks, 2018b).

These projects also revealed that one in four of the final-year students tested did not meet the level of competence in literacy or numeracy necessary for long-term success in the labour market. We need to do better. The cultural narrative around higher education is that it is worth the investment of time and money because students leave with more skills and knowledge than they had when they started. There must be a measurable value-add. With province-wide skills-assessment data, we can measure performance against objectives, and use the results to improve graduates' key employability outcomes. For core skills like those outlined above, testing is already feasible. The response to HEQCO's pilots demonstrates significant interest and commitment on the part of the sector.

HEQCO recommends that the province develop and implement regular, mandatory, large-scale skills assessments to test numeracy, literacy and critical thinking. This should be a census of all postsecondary students at entry and exit using the ESO and HEIghten assessment tools. We have demonstrated that this can be done effectively. Teaching and learning is core business for the higher education sector. Effective core business practices must include measuring cognitive and transferable skills, and then using the results to improve teaching and learning. The results should be used to improve curriculum and teaching practices at the program level.

Tax-linked Graduate Job Data

Students regularly report that they pursue postsecondary education in large part to access good jobs and successful long-term careers. We know that this is a primary motivation for the government's investment in the system as well. Equally important to understanding what students learn at college or university is knowing how they fare in the labour market once they graduate. These are key outcome measures for the system.

Within its existing suite of Key Performance Indicators (KPIs), Ontario has been tracking graduate employment for two decades via separate and unaligned surveys of college and university graduates. This approach relies on the subjective recall of information about jobs and incomes from a non-representative

sample of graduates (those whose contact information is up to date and who respond to the request to participate). The surveys take place very soon after graduation (six months and two years), and therefore miss the ability to track career progression over time. HEQCO has long been a vocal proponent of an alternate approach: linking graduates' administrative data with income tax information. This approach allows almost all graduates to be included, replaces subjective recollection of earnings with filed tax data, eliminates response bias and allows for long-term analysis of employment outcomes for many years after graduation.

Statistics Canada has recently demonstrated the feasibility of this method. In fall 2018, it released the results of [research](#) using the new Education and Labour Market Longitudinal Linkage Platform (ELMLP), which links the federal Postsecondary Student Information System (PSIS) administrative data with postgraduate income tax data for a more thorough and accurate picture of graduate earnings (Statistics Canada, 2018).

In an earlier [pilot](#) using the same data sources, Ross Finnie and the Education Policy Research Initiative demonstrated the feasibility of applying this technique to examinations of graduate earnings for many years after graduation (Finnie, Pavlic, Jevtovic & Childs, 2015).

In [another recent study](#), Statistics Canada compared the long-term labour market outcomes of two cohorts of young postsecondary graduates using linked census and tax data (Frenette, 2019a). The study is longitudinal, enabling an assessment of whether the outcomes of graduate cohorts from different time periods are improving.

At the provincial level, the Ontario Ministry of Training, Colleges and Universities (MTCU) has been working with the Ministry of Education (EDU) to expand the use of the Ontario Education Number (OEN) to inform decision-making in the postsecondary sphere. The OEN is an individual identifying number that is assigned to students when they first enter the public education system, and travels with them as they progress to and through higher education. The ministries can and should develop two data linkages. The first would be a seamless linking of OEN data at the JK–12 level (managed by EDU) with OEN data at the higher education level (managed by MTCU and following the same individuals). The second would be between the OEN and income tax data (or alternatively the federal PSIS system, which in turn links to tax data), providing a valuable measure of the performance of the Ontario education system from junior kindergarten through to the labour market.

Whether it is done entirely with federal data, or by linking the provincial OEN to federal tax data or both, we recommend that the tax-linkage approach replace the current graduate-survey approach to assessing labour market employment. (The two options each bring something to the table: The federal approach allows comparisons with other provinces; the OEN approach facilitates the examination of the entire educational

journey of a student from infancy). This should be a program-level analysis linking graduates and their income tax data to gauge short- and medium-term employment outcomes. The data will be more complete, more accurate, and provide a clearer picture of employment outcomes and the economic contributions of graduates. It should also be used to facilitate reviews of programs of study, with a focus on remediating or ultimately abandoning those with poor labour market outcomes.

The province may wish to consider maintaining a separate graduate survey to collect information not available through the administrative-tax linkages. Or it could eliminate the provincial survey entirely, and realize administrative savings for itself and institutions. In that case, Ontario would rely on the existing, parallel National Graduate Survey for additional information about graduates.

Economic Lift of Postsecondary Education

The great promise of higher education is that college and university graduates fare better in the labour market (and in life) than those without a degree, diploma or certificate. Higher education is positioned as a social and economic opportunity equalizer. For students from poor or disadvantaged backgrounds in particular, a postsecondary education promises to improve financial prospects and break intergenerational cycles of marginalization. This is the equity-of-access and opportunity story on which the system is built, but does it actually deliver?

To fully understand (and improve) the opportunity story, our measurement tools must be able to answer three questions:

- Are disadvantaged Ontarians getting into higher education?
- Once in, are they graduating?
- Once they graduate, do they reap the benefits in their lives and careers?

In short, do they have the same higher education opportunities and outcomes afforded other Ontarians?

The last step, in particular, has been elusive to measure, but is of key importance: It would be an empty gesture to remove impediments to access for non-participating Ontarians if, after graduation, there are few rewards for having persevered.

We know that higher education correlates generally with higher lifetime earnings. What we do not know, other than anecdotally, is how effective it is in lifting Ontarians trapped in low-income circumstances to a position of economic prosperity. Other jurisdictions, most notably the U.S., have been doing this type of [analysis](#) for several years (See Chetty, Friedman, Saez, Turner & Yagan, 2017). With new access to national data files through Statistics Canada's Research Data Centres and increasing sophistication in linking existing

databases, we are able to delve deeper into the labour market and financial outcomes of graduates than ever before. HEQCO is tracking the success of higher education as a force for opportunity for Ontarians from disadvantaged backgrounds, including first-generation students (those whose parents do not have a higher education credential) and those from low-income families.

In a recent [study](#), HEQCO used Statistics Canada's 2014 Longitudinal and International Survey of Adults (LISA) data set linked to income tax files to examine how parental education influences the postsecondary attainment and labour market outcomes of first-generation students (Chatoor, MacKay & Hudak, 2019). The LISA data shows that the gap for first-generation students manifests before the point of entry: Young people from families with no postsecondary experience are not making it to the gates of higher education on an equitable basis. But for those who do get in, higher education pays off: They are graduating and achieving success in the labour market on par with graduates whose parents do have a postsecondary education. The obvious take-away is to focus more attention on early interventions to get first-generation students into the system.

In another [study](#) commissioned by HEQCO, Statistics Canada examined the impact of a postsecondary credential on the salaries of graduates from low-income families (Frenette, 2019b). This study examines the economic lift associated with a postsecondary credential by family-income quintile. It shows that no matter how rich or poor your family is, higher education will boost your earnings. However, it also shows that same-program graduates from high-income families outperform those from low-income families in the labour market. Birthright perseveres.

These are but two examples using newly available and sophisticated data sets that can help us understand the opportunity impact of higher education and inform policy direction to improve it. We recommend adopting ongoing measurement of economic lift using federal data sets (as was done in the Frenette 2019b study) to gauge access to higher education for students from low-income families, and to assess whether and how much a higher education credential impacts the economic prospects of a graduate from a low-income family five and 10 years into the workforce.

If parental education were added to this data pool, Ontario could do the same ongoing analysis of the impact of higher education for first-generation families. (The LISA data we referenced above, while powerful and informative, follows a single cohort of participants, and is not adding new cohorts to enable examination of trends over time.)

OEN-based Graduation Rate

Graduation is perhaps the most immediate indicator of postsecondary success. Students want to know how many of their predecessors completed successfully. Institutions and governments want to make sure they're

not supporting programs that don't graduate students, and that student transfers on the route to graduation are effective and ultimately successful. Measuring graduation rates accurately is important to ensure both efficacy and efficiency within the sector. There is little point in creating state-of-the-art measures of graduate outcomes without also understanding the opportunities for (and barriers to) achieving graduation in the first place.

Today, graduation-rate KPIs are calculated by tracking a cohort's progress through a given program. This data is aggregated to generate a ranking table of institutional performance across the province. It is important for the purposes of program-based budgeting and institutional retention initiatives, but is limited because it does not fully track students who transfer between programs or institutions, or stop and then start again on their way to graduation. This includes students who transfer from university to college and vice versa, or who leave a program at one institution to pick up or start over at another that suits them better.

The existing cohort-based graduation rate puts institutions in a defensive position, judging them on their ability to retain students in a linear fashion. With the introduction of the OEN, which can track students between programs, across institutions and through time, HEQCO believes that the government is well-positioned to replace this institutionally focused model with a student-focused approach. This would give us a much more accurate picture of students' progress through the system, highlight student choices and behaviour with regard to pathways, and test the efficiency of existing transfer mechanisms.

After more than two decades of actively funding interventions to create pathways for students, we will finally understand the actual mobility patterns of students and be positioned to adjust our interventions accordingly. At the same time, we will know which programs are working well for students and which ones may need reform. We will also better understand where credit transfer is working well, and where students may not be getting appropriate recognition for skills already learned when they transfer between programs and institutions.

Ontario should develop a student-centred graduation rate based on tracking individual students through use of the OEN, which will provide students, institutions and government with a more accurate picture of transfer and graduation patterns, and illuminate better postsecondary pathways and supports to student success.

Institutional Sustainability: Expenditure Management

The outcomes metrics we have proposed so far are intended to measure quality (how effectively students are graduating, whether they have acquired the skills they need along the way, and how they perform in the labour market) and access (whether higher education is providing equitable opportunity for

underrepresented students). As we noted in the introduction, we cannot collectively focus on these outcomes if we are constantly facing and never overcoming challenges to the system's financial sustainability.

In our previous [work on sustainability](#), HEQCO has argued that the system must end its reliance on ever-expanding revenues to fund its priorities (Weingarten, Kaufman, Jonker & Hicks, 2018). The focus must shift to managing institutional expenditures, and the majority of institutional expenditures consists of labour costs. Thus the management of expenditures must inevitably focus on the cost of people.

There are two dimensions to better understanding and therefore managing labour costs: how much people are paid (compensation), and what they do (workload). Regular reporting of the rate of growth in individual employee remuneration and of faculty workloads will help focus attention on achieving the most effective deployment of the workforce at sustainable levels of expenditure.

Faculty constitute the largest and most fundamental body of staff at a postsecondary institution. Using data from Ontario's Public Sector Salary Disclosure ("Sunshine") List, and the University and College Academic Staff System, an annual Statistics Canada inventory of full-time faculty salaries, we were able to measure absolute growth in individual university salary levels over time. The salaries of continuing full-time faculty grew an average of 4.1% annually from 2013 to 2016, well above the publicly reported increases in negotiated collective agreements, and much faster than increases in operating revenues (Weingarten, Jonker, Kaufman & Hicks, 2018). We reported the real increase in other university employee categories as well, but found that faculty remuneration was growing at the fastest rate.

For Ontario to better understand and manage compensation issues, institutions should report the real change in individual employee compensation as opposed to a high-level aggregate or negotiated across-the-board increases, which can be incomplete and misleading. A common practice today is to report only the across-the-board (or inflation-related) outcomes of collective bargaining, and not to include progress through the ranks, changes to benefits, merit increases and other adjustable elements of the total compensation package. Reporting individual pay increases cuts through all of this complexity to reveal the actual change in pay realized by employees.

Faculty and academic staff are also a postsecondary institution's primary resource, and it is important that we have a full understanding of how that resource is deployed. HEQCO demonstrated through a [pilot project](#) that collecting faculty workload data can help identify opportunities for greater differentiation and for more efficient deployment of faculty across the province. We found that if full-time faculty members not active in research were to teach twice the load of their research-active colleagues, the overall teaching

capacity of the full-time professoriate in Ontario would increase by about 10%, a measure equivalent to adding about 1,500 additional faculty members at no additional cost (Jonker & Hicks, 2014).

Public reporting of faculty-workload data would contribute significantly to an institutional and system-wide discussion about the role of faculty, and contribute to a more evidence-based dialogue around efficiency and differentiation. Institutions are already collecting much of the required data. Aggregate data on faculty workload has been [published](#) by the Council of Ontario Universities (COU, 2018), and aggregate data on full-time [college faculty workload](#) is reported regularly by the Ontario Ministry of Labour (Ministry of Labour, 2017). These data sets should be expanded to include the contributions of part-time faculty, and made available for analysis and policy-setting purposes. Analysts should also be in a position to work with the root data, not just aggregations, in order to conduct the analyses that help lead to identification of opportunities for greater productivity differentiation within the system.

Although HEQCO has demonstrated that detailed analyses of both workload and compensation increases can be undertaken with publicly available data, it would be more efficient, complete and accurate for government to require institutions to share this data through regular reporting. This is what we recommend.

Institutional Sustainability: Financial Ratios

The traditional approach to measuring the financial sustainability of individual institutions is to monitor key ratios derived from audited year-end financial statements, such as the net-operating-revenues ratio and the debt-to-asset ratio. These cannot be relied on as the sole measure of sustainability; by the time the ratios are calculated, audited and published, institutions in financial trouble may already have resorted to damage-control efforts that negatively impact educational quality. We do, however, see a role for key ratios as effective red flags of sustainability challenges that can trigger conversations about additional expenditure control strategies to be taken.

Financial ratios have been negotiated in partnership between MTCU and the college and university sectors. Institutions have been reporting them since the second round of Ontario's Strategic Mandate Agreements. In our sustainability series, we presented side-by-side results for all Ontario colleges and universities. We also noted that colleges go so far as to include a set of benchmarks against which to gauge institutional health and performance.

If the ratios begin to dip, or are significantly out of line with comparable institutions within the system, something has not worked as intended in terms of expenditure control and system design, and a renewed focus on achieving sustainability is warranted. We recommend:

- That MTCU work with universities to determine benchmarks for their ratios as the colleges already do.
- That institutions accelerate the annual filing of key financial ratios with government, so as to provide an early-warning system of financial health.
- That there be a process in place for both colleges and universities to engage in a dialogue with government if the ratios uncover issues. In this regard, we note that a parallel requirement is already in place for colleges that file deficit budgets: They are required to file a recovery plan to eliminate the deficit.

Think Broadly about the Sector

We are mindful that this report and our presentation of metrics have been biased toward a discussion about Ontario's public colleges and universities. This is an archaic and unhelpful limitation in thinking about the higher education sector in the province, which we have been as guilty of perpetuating as others. Indeed, our enabling legislation prescribes for HEQCO a world of postsecondary that begins and ends with public colleges and universities.

Beginning with our [report](#) on private career colleges (PCCs) (Pizarro Milian & Hicks, 2014), we started to signal that PCCs, together with the apprenticeship system and other components of the Ontario education mosaic, are all part of one large sector. Certainly students moving between these elements see it that way, and if we are to serve them well, so must we.

More recently, the government has asked HEQCO to examine performance metrics for apprenticeships, with an emphasis on graduation rates and labour market outcomes. Not surprisingly, these goals are aligned with the direction we have recommended in this report for colleges and universities.

Where feasible, we should extend the same metrics and outcomes to all elements that fall under Ontario's higher education and training umbrella including PCCs and the apprenticeship system:

- If we are going to retool the measurement of labour market outcomes for graduates, that would be the ideal moment to extend the same methodology for graduates of PCCs and for apprentices completing their certificates of qualification.
- If we begin to measure student mobility and graduation rates based on the OEN, we should ensure that we also include PCCs, apprenticeships, and other elements of the higher education and training

system, beginning with any necessary extension of the assignment and application of OENs to build a complete picture of the pathways Ontarians take to success.

- If we examine the lift provided by higher education to Ontarians from low-income families, we should use federal data consolidated under the ELMLP to extend this examination to those moving through the apprenticeship system (and with modifications to data collection, PCCs as well).

Next Steps for Ontario

The series of metrics that we champion in this report would carry Ontario a long way down the path to an outcomes-based system of measurement. Most are straightforward to implement in the short-term, and will provide the kind of nuanced, accurate and actionable evidence necessary to inform public-policy decisions and institutional management practices. The opportunity to include PCCs and apprenticeships helps connect our understanding and stewardship of the sector.

There are other important elements of institutional/provider and system performance that are not currently straightforward to measure: Research, innovation and community engagement are all components of the business that we have yet to determine how best to measure and track from an outcomes-focused perspective. We'll get there.

Given the current fiscal climate and the government's commitment to efficiency, it's clear that the higher education sector will need to do better with less. A commitment to a performance-measurement system that is based on provincial priorities, and built with outcomes metrics and evidence creates a foundation for the introduction of outcomes-based funding, which we see as a powerful tool for achieving Ontario's higher education objectives.

Driving change in the accountability and reporting framework is inherently challenging. But it has been done. For inspiration, we note that the United Kingdom has through its Office for Students and its Research Excellence Framework implemented the following measures over the past several years:

- A Teaching Excellence and Student Outcomes Framework, which pools a number of metrics on teaching and learning, and publicly assigns institutions a gold, silver or bronze ranking.
- Piloting the measurement of learning and learning gain at dozens of universities and colleges in the interest of directly measuring skills.
- A Research Excellence Framework, which analyzes the outputs and impacts of research at the individual faculty level.

- The approval of institutional access plans with targets.
- On the sustainability front, providing guidance to institutions on things like alternate undergraduate delivery models, research facilities, and workload planning and pension costs.

Conclusion

The imperative to define, collect and publish metrics that help government, institutions and other providers, students and their families (as well as society as a whole) understand the overall goals and performance of the postsecondary education system has never been stronger.

Performance measurement in higher education is ready for an overhaul. Clearly defined objectives on the part of government are just the beginning. We cannot improve until we know how we are doing. Government must work with stakeholders to implement indicators that directly gauge system and institutional performance against its objectives.

Thankfully, there are new tools at our disposal for measuring academic quality and opportunity outcomes at the system, institutional/provider, program and student levels that are much improved over those we have been relying on for decades. The power of publication alone will kick start conversations, prompt change and lead to improved management tools such as accountability agreements and outcomes-based funding mechanisms.

By measuring better and differently, sharing what we know and viewing institutional/provider performance with a system-wide lens, we can create the opportunity for informed, evidence-based and continuous improvement. Better data will result in better planning, stronger execution and increased differentiation, as well as the development of better funding incentives and delivery mechanisms.

Summary of Recommendations

In service of the province's objectives for higher education, with a focus on outcomes and improvement, and using the best data sources available today, we recommend that Ontario:

- Initiate a **province-wide assessment of core transferable skills** focusing on literacy, numeracy and critical thinking to improve outcomes for graduates entering the labour market.
- Use **tax-linked longitudinal data sets to assess graduates' labour market outcomes** (incomes, employment rates) to assess their return on investment.

- Measure the **economic lift experienced by low-income and first-generation students**, to make sure the promises of higher education accrue to all Ontarians.
- Calculate **OEN-based student mobility patterns and graduation rates** to ensure the system delivers effective and efficient pathways to success for its students.
- Publish **faculty workloads and the real change in employee remuneration rates** to help focus attention on successful expenditure management that protects the long-term quality and sustainability of the system.
- Monitor **financial health ratios** of Ontario colleges and universities to identify and remediate sustainability issues within the system.

Where feasible, we should extend the same metrics to all elements of Ontario’s higher education and training system, including colleges, universities, private career colleges and the apprenticeship system. As our data systems and infrastructure mature, we will be able to expand outcomes-oriented measures to include other higher education priorities such as scholarly research, innovation and community engagement.

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