



TOWARDS A BETTER UNDERSTANDING OF CREDIT TRANSFER COSTS AND BENEFITS

Abstract

This report estimates the financial costs of Ontario's credit transfer initiative from a student, government, and institutional perspective, and in the context of jurisdictions elsewhere in Canada and in the United States. The results challenge the conventional views of 'cost savings' attributed to credit transfer and provide some insight into the mechanics and dynamics of the college and university funding frameworks and their impacts on internal resource allocation decisions and institutional strategic decisions. In doing so the report provides a more comprehensive picture of student, government, and institutional costs that may help inform policy makers about the financial aspects of policy options in the context of postsecondary education system planning.

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Preface

Towards a Better Understanding of Credit Transfer Costs and Benefits tackles the challenge of defining and comparing credit transfer ‘costs and benefits’ by focusing on the ‘cost’ of a baccalaureate degree for a direct-entry university student in Ontario versus the cost for college student who acquires a college diploma and then transfers to a university to obtain a baccalaureate degree. System level cost comparisons with other jurisdictions in Canada and the United States necessarily focus on aggregate numbers that include all students and all types of credit transfer.

In terms of ‘benefits’, the report adopts a generic approach that is evidence-based; improvements in baccalaureate attainment, on average, pay dividends to the individual and to society. For that very reason credit transfer is an important part of providing opportunity for students - especially non-traditional students.

Readers should note that no attempt has been made to distinguish the ‘benefits’ or the value of the ‘benefits’ by type of student (i.e., “traditional” versus “non-traditional”). Accordingly, *Towards a Better Understanding of Credit Transfer Costs and Benefits* helps improve our understanding of the key cost components and ‘system level’ cost considerations but the authors acknowledge that the findings may not apply to all students, every type of credit transfer, or all program areas; topics worthy of further study.

Executive Summary

In the quest to develop a better understanding of the costs and benefits of credit transfer in Ontario, this study focuses on two key questions:

- What are the ‘costs’ of credit transfer pathways and how do the costs and benefits of college-university transfer pathways compare to the direct-entry from secondary school pathway to university education?
- Is the province’s emphasis on credit transfer the most cost effective way to improve baccalaureate attainment?

The report addresses those questions by examining the ‘held to be true’ assertions about the financial costs and benefits of credit transfer initiatives to help further the understanding of Ontario’s approach to credit transfer and investment in post-secondary education. What are the ‘held to be true’ assertions?

- To students improved credit transfer means recognition of prior PSE experience and ultimately lower costs.
- To government the case for more credit transfer appears rooted in the belief that university education is more expensive to the public purse than a college education – both in terms of the provincial operating grants and government student assistance.
- To a college or university the financial value of improved credit transfer lies in the ability to attract more students who, in turn, pay tuition and generate government grants.

Informed by a literature review and environmental scan, the input and insight provided by individuals in select institutions, and by working knowledge of postsecondary funding in Ontario, various ‘cost’ components of credit transfer were examined. The conclusions challenge conventional views; key findings are that:

- From a student perspective the credit transfer pathway to a baccalaureate may be seen to be less costly in terms of out-of-pocket tuition costs but the impact of student assistance and tax credits reduces the difference considerably and time to completion considerations change the cost equation markedly.
 - Additional cost to a student could range from approximately \$35,000 to \$70,000 depending on the time spent in completing the baccalaureate and including an opportunity cost of \$30,000 per year (Table 3).
- From government’s perspective, the cost of a student attaining a baccalaureate via a credit transfer pathway is greater than if a student pursues a baccalaureate via direct-entry to university.
 - Additional cost is estimated to range from approximately \$4,000 to \$9,000 in operating grants, and the amount could be as high as \$13,000 (Table 6), plus an additional almost \$6,000 per year in student assistance and tax credits (Table 2).

- Additional cost to the institution is difficult to ‘pin down’ but is estimated to be, at a minimum, the existing Credit Transfer Institutional Grant allocations, added student assistance (~\$2,000 per year) and foregone revenue estimated at \$9,000 per year associated with one or two years of grants and tuition during the least expensive part of the degree program.

Looking to other jurisdictions in Canada and the United States it is evident that designing a ‘system’ to provide a more seamless pathway from community college to university is possible but there is little evidence that it is more cost efficient than the current ‘system’ in Ontario. In fact, one could argue that the evolution of credit-transfer to date in Ontario is a success story – nudged along by government and dependent on local institutional circumstances regarding demand and capacity. Major modifications to the existing framework may well lead to higher costs.

Looking to the future, as demand for direct-entry programs from secondary school applicants softens in light of demographic considerations, some universities may have greater capacity and begin admitting qualified students direct from secondary school who, in earlier times, would have attended college because their program choice or institutional choice in Ontario could not be accommodated. Coupled with the twin realities of greater geographic access and improved financial support some part of the college-university ‘credit transfer’ group may, in fact, have the opportunity to attend university directly from secondary school.

Credit transfer is important. Clearly, no one benefits if students have to repeat courses with equivalent learning outcomes, the assessment of which is the critical linchpin of successful transfer. But the preceding ‘future’ may point to a changing profile of the credit-transfer group(s) – somewhat older, with a greater proportion of under-represented students (non-traditional students broadly defined) – and, if so, will require appropriate services and service levels to ensure student success. And the focus should be on student success.

The authors acknowledge that this project raises a number of research questions. For example, jurisdictional comparisons of efficiency and effectiveness deserve further development and examination. And it is clear that more research is required to differentiate the costs and benefits to specific categories of students and in specific program areas.

Towards a Better Understanding of Credit Transfer Costs and Benefits also sheds some light on the mechanics and dynamics of the college and university funding frameworks and their impacts on internal resource allocation decisions and institutional strategic decisions. In doing so the report provides a more comprehensive picture of student, government, and institutional costs that may help inform policy makers about the financial aspects of policy options in the context of postsecondary education system planning.

Table of Contents

Introduction	2
Purpose	3
Structure of the report	3
Methodology	4
Defining ‘costs’	4
A primer on institutional cost	6
Jurisdictional comparisons	8
Literature review and environmental scan	9
Ontario credit transfer: student, government and institutional financial perspectives	19
Cost from a student perspective	20
Cost from the Ontario government perspective	25
Cost from an institutional perspective	33
‘System’ implications - jurisdiction comparisons	37
Considerations in expanding credit transfer pathways	44
Summary and concluding comments	48
References	
Appendix A: MTCU: Policy Statement for Ontario’s Credit Transfer System	
Appendix B: Delta Cost Project - State and Ontario comparisons	

Introduction

The postsecondary system in Ontario has evolved over the past fifty years and one could argue that the emphasis on providing greater mobility through improving credit transfer between the college and university sectors is a natural evolution – noted from the outset as a possibility¹ and evolving over time for a variety of reasons that are beyond the scope of this report. The questions this study attempts to answer focus on the efficiency and effectiveness of credit transfer.

- What are the ‘costs’ of credit transfer pathways and how do the costs and benefits of college-university transfer pathways compare to the direct entry from secondary school pathway to baccalaureate education?
- Is the province’s emphasis on credit transfer the most cost effective way to improve baccalaureate attainment?

Improved credit transfer represents one part of the increased mobility agenda and carries with it certain assertions about the financial implications – held to be true – as follows:

- To students improved credit transfer means recognition of PSE experience and ultimately lower costs since tuition tends to be lower in college and more transfer credit reduces the time in university.
- To government the case for more credit transfer appears rooted in a belief that university education is more expensive to the public purse than a college education. Therefore one way to address increased demand for baccalaureate degrees at a lower cost to the taxpayer is to encourage less time spent in university – via more transfer credit from college. It also appears that included in that belief is a sense that government student assistance costs may be lower due to the presumed lower overall cost to the student.
- To a college or university the financial value of improved credit transfer is premised on the understanding that it will attract more students who, in turn, pay tuition and generate government grants.
 - To the college the ability to attract students, with the understanding that satisfactory academic standing will provide an opportunity for transfer to a university, helps ensure the college is able to attract students who might otherwise go directly to university – the improved marketability of the institution translates into more students and more funding (tuition and grants) to the college.
 - To the university improved credit transfer may allow for more predictable enrolment planning in upper years (thus improving efficiency) and/or provides another source of undergraduate students beyond the ‘direct-entry from high school’ category (thus helping to maintain or increase enrolment) which in turn has an impact on tuition and grants. The emphasis on the preceding rationales varies by institution – those with

¹ Hon. William Davis, Colleges of Applied Arts and Technology, Basic Documents, Ontario Department of Education, 1967, pp.13-14

- very selective admission will more likely emphasize interest in upper year transfer in specific programs as an enrolment management strategy; those with more open access admission may emphasize a broader approach to transfer credit characterized by multiple types of agreements intended to play a major role in increasing and/or sustaining overall enrolment levels.
- To both colleges and universities there is a sense that engaging in credit transfer activities will be seen positively by government and therefore may affect funding levels and related decisions (e.g., program approval, capital requests).

Given the preceding, one might well ask why credit transfer continues to be a major policy issue. On the surface there appear to be incentives at all levels – student, government, institution – to actively engage in improving credit transfer and mobility in general. And, to date, there is some evidence that the actual level of credit transfer activity in the province of Ontario appears to be not much different than other jurisdictions once adjustments are made for program composition.² Yet, considerable effort continues to be devoted to transfer credit issues and the topic continues to elicit concerns from various stakeholders.

Purpose

This project examines the ‘held to be true’ assertions about costs and benefits of credit transfer initiatives to help further the understanding of Ontario’s approach to credit transfer and investment in postsecondary education (PSE). The project examines the available research literature on the subject, relevant cost studies that are used or have been used or referenced, Ontario’s college and university funding ‘formulas’ as a proxy for costs, information from select institutions engaged in credit transfer activity, and information from other jurisdictions. The findings will add to our understanding about the costs and benefits of current credit transfer arrangements in Ontario and the costs and benefits attributed to such arrangements in other jurisdictions where more formalized and comprehensive transfer arrangements are regarded as an integral part of the postsecondary landscape.

Structure of the report

The report opened with an Introduction and statement of Purpose and is followed by an overview of the methodology and related issues such as defining ‘costs’. A Literature review and environmental scan includes research on the topic of higher education costs in general and an overview of cost studies and credit transfer costs in particular. Attention then turns to a more in-depth review of the credit transfer ‘cost’ situation in Ontario and the development of cost estimates as seen from a student, government and institutional perspective. To place the Ontario findings in context the report then provides relevant jurisdictional comparisons with a focus on determining the efficiency and effectiveness of credit transfer in system design. ‘Considerations’ then offers some ‘food for thought’ about some of the underlying factors that need some discussion as Ontario considers the future of credit transfer. A final section summarizes the findings

² Kerr, A, McCloy, U., and Liu, S., *Forging Pathways: Student Who Transfer Between Ontario Colleges and Universities*, Higher Education Quality Council of Ontario, 2010, p.8.

and discusses the costs and benefits of Ontario's approach to credit transfer in the context of efforts elsewhere to improve credit transfer and increase baccalaureate attainment.

Methodology

The methodology for the project involved four main steps:

- conducting a literature review and environmental scan of the costs and benefits of various credit transfer regimes as seen from the perspective of the student, government, and university/college;
- examining the costs/revenues of specific PSE arrangements in Ontario universities and colleges in terms of both concept and reality;
- examining costs in other jurisdictions in Canada and the United States purported to have a 'comprehensive and transparent system of credit transfer', and
- preparing the analysis and findings in the context of the preceding steps.

The literature review quickly identified a plethora of studies, policy statements, guidelines, manuals and commentaries on credit transfer with many offering commentary and insight regarding various aspects of credit transfer. Unfortunately, most provide little in the way of actual cost information or cost consideration other than to note that community college tuition - the 'sticker price' - is lower than university tuition. In cases where costs are mentioned, details about the funding and costs of credit transfer in Ontario and elsewhere are confounded by the complexity of the organizations, loose definitions, data shortcomings, and a general recognition that, while important, credit transfer is not the *primary focus* of universities or colleges.

Defining 'costs'

'Cost' in community colleges and universities in Ontario is a somewhat murky subject because 'cost' is in the 'eye of the beholder'. Cost to a student is essentially the *price* of attendance at college or university and includes the direct costs – tuition, books/equipment, and living expenses. Although the opportunity cost of attending college or university is a major 'cost' (foregone income) it tends to be largely ignored in public discussions of student costs. While significant amounts of student assistance, including tax credits, are available to reduce a student's net cost, in general, the student cost of college or university tends to focus on the gross direct cost rather than net cost and emphasizes tuition fees, specifically, the posted 'sticker price'.

Cost to government tends to focus on the subsidies provided to the student directly via various kinds of student assistance, including tax credits, and to the institution via operating grants and capital grants. While there is an opportunity cost associated with the provision of subsidies that aspect of 'cost' is seldom noted – nor is it intended to be explored in this report.

Cost to the institution reflects the financial resources required to deliver the program including all of the associated costs such as library, physical plant, information technology, student services and administration. Sometimes institutional cost includes reference to capital costs but usually 'cost' refers to operating costs directly associated

with providing academic programs and the associated support and administrative services. Institutional cost could also include foregone revenue where an institution's policy/practice results in less revenue than an alternative policy/practice. Table 1 summarizes the major 'costs' as seen through the lens of the student, government (provincial and federal) and the institution.

Table 1: Summary of 'Costs' from Various Perspectives

	Student cost	Provincial cost	Federal cost	Institutional cost
Direct 'cost' associated with delivery of the service or 'good'	Tuition and fees Books and Equipment Living Expenses	Grants to institutions <ul style="list-style-type: none"> • Operating • Capital • Research Grants administration and provincial PSE regulatory and policy administration.	Grants to institutions <ul style="list-style-type: none"> • Research • Capital • Indirect costs 	Operating expenditures associated with all aspects of program delivery Central service costs – library, academic support, student services, physical plant, and administration Capital expenditures
Student Assistance	Debt servicing after completion	Scholarships Grants / Bursaries Interest relief Tax Credits Bad debt Financing loans	Scholarships Grants / Bursaries Interest relief Tax credits Bad debt Financing loans	Scholarships Grants / Bursaries
Other Subsidies / Costs	Opportunity cost	Tax exemptions Opportunity cost	Tax exemptions Opportunity cost	Foregone revenue

In this report most of the identified costs will be reviewed in varying degrees of detail keeping in mind the overall purpose of the project. While Federal 'cost' is noted the references to government 'cost' in the report refer to the Ontario government.

Part of this exercise will also focus on developing a model of costs, based on our understanding of costs in academe, to establish a 'cost' of a college to university program pathway from a student, government and institutional perspective. A more detailed examination of costs at the program level may help inform the debate and would provide a level of analysis that represents reality for individual students, the taxpayer/government, and department/unit offering the program(s). Included in such costs would be the attributed incremental costs associated with recruiting, admissions, academic counselling, academic services, and student services associated with credit transfer activities to the extent such costs can be identified separately from a reference group.

Throughout this study references to 'costs' derived from the research literature and various research sources will be explained in some detail to ensure that differences in definition are recognized and the implications for comparative purposes are noted.

A primer on institutional costs

With respect to determining cost of program delivery at the institutional level, the key challenge is recognizing that the institution has multiple missions – teaching, research and service. As noted in a key reference study in the United States, *Explaining College Costs* (NACUBO 2002)³

Any attempt to develop a uniform methodology for calculating average costs is hindered by what economists call the “joint products” problem. The costs most institutions incur simultaneously support several different institutional goals and products. In many cases institutions serve multiple goals and missions with exactly the same resources at the same time, because the activities are complementary and interrelated.

The NACUBO observation applies to Canadian higher education as well and the implications are illustrated in the following example of a given university academic department.

In a university setting the main organizational entity for delivering and producing the services is an academic department. The department will usually have multiple program responsibilities involving various categories of students; credit transfer programs and students are but one part of a complex entity.⁴ Generally, a university department is part of a larger organizational entity – the Faculty of “X” – and to some extent its activities will be affected by Faculty policies and priorities and by institutional policies and priorities.

A given department may have responsibility for a multitude of programs at the undergraduate, masters, and doctoral level. A typical *department* of chemistry, for example, might have a Bachelor of Science program (Honours and perhaps General) with specialization options and requirements for major, medial and minor concentrations. At the graduate level, the same department may have multiple masters programs and doctoral programs. The department may also have joint responsibility for programs in another Faculty/School – i.e. *engineering* chemistry – and may have a role in the delivery of interdisciplinary programs as well. The department’s research activities, largely through the work of full-time and part-time faculty members and graduate students, may be reflected in multiple centres or institutes within the institution and beyond.

In the institution’s organizational structure the department is very likely defined as an organizational unit and the accounting structure recognizes the organizational unit as a primary cost centre. Yet, from the preceding brief description it is evident the department is engaged in multiple activities internal *and* external to the department. Further it is very likely the department has multiple cost centres associated with it including the department itself, associated research institutes, research grants and contracts held by individual faculty in the department, a number of specific endowed scholarships and/or

³ NACUBO, *Explaining College Costs, NACUBO’s Methodology for Identifying the Costs of Delivering Undergraduate Education*, February 2002) p.24

⁴ The illustrative example is taken as an excerpt from an earlier work on ‘costs’: Snowdon, K., *Higher Education Costs and Cost Drivers*, 2011 (<http://www.snowdonandassociates.ca/presentations.htm>)

research chairs, and a number of special purpose accounts held by individual faculty for service related activities such as editor of a chemistry journal or the hosting of a conference or symposium.

The actual delivery of the above responsibilities rests upon the utilization of the department's resources (faculty, staff, student teaching assistants, specialized equipment and laboratories), the utilization of resources in other departments that may have responsibility for required courses associated with the chemistry program (e.g., mathematics) or elective courses, and central resources such as classroom space, library facilities and resources, information technology resources and other central services (e.g., teaching/learning centre, student records, student counselling, etc.).

A major portion of the resources available in an academic department are clearly 'direct costs' – faculty, teaching assistants, staff costs – and the challenge is to allocate those costs across the multitude of programs and responsibilities of the department; to attempt to separate a unit's activities and then allocate resources accordingly. Other available resources are more clearly 'indirect costs' (e.g., library, physical plant, information technology infrastructure and the host of central services noted previously) and therefore require some methodology for allocating the costs to individual departments, and then, across the multitude of programs and responsibilities in the department. In some cases, as noted earlier, specific departments may operate their own specialized facilities and provide for their own array of what otherwise might be seen as 'support services'.

The financial reflection of the department's activities is complicated somewhat by the recognition that various activities are funded from a variety of sources. Assistance for graduate students, for example, is often reflected in three or more places; in the department's expenditures (Operating Fund), in direct payments to students from professors research grants (Sponsored Research Fund), and in payments to students in the form of scholarships or bursaries (often in the Special Purpose Trust Fund or from a combination of the preceding three funds). Individual faculty members are generally paid from the Operating Fund, yet carry on their funded research in the Sponsored Research Fund, often with no provision for faculty time (that is faculty time is not funded through federal research grants).

One final note about costs is necessary. In a large number of programs there are significant hidden costs that are simply not part of current expenditures. For example, many professional programs rely on volunteer educators who are members of the respective profession and who provide teaching and/or training on a volunteer or honoraria basis. Whether that is in clinical health settings or in K-12 classrooms, there is a reliance on such volunteers and a recognized importance within their respective professions and the employment setting. To the extent that workload considerations impinge on the ability of such individuals or their employers to offer such services, the university program may be faced with significant increased direct costs. That reality is increasingly finding its way into clinical components of university health care programs.

College and university financial expenditure reports are based on functional lines (e.g., instruction, student services, and physical plant) rather than the delivery of services to specific students/clients/stakeholders. Further, financial information is seldom available at the academic program level – where, in fact, the main credit transfer activity actually

occurs. Accordingly, trying to isolate the institutional costs of a particular stream of students and/or type of activity (credit transfer) poses significant challenges.

The preceding 'primer' on institutional costs at the department level outlines the complexity and sophistication of the academic enterprise and challenges associated with 'costing' academic programs. Methodologies *can be* constructed to allocate costs according to estimates of people's contribution to the various joint products but a high degree of caution needs to be exercised when interpreting the meaning of the cost allocation results. With respect to the other side of the ledger – revenue – we will examine the key sources of revenue (provincial grants and tuition fees) later in the report. However, the primer on institutional costs should give a hint about the challenges of directly linking revenue to the myriad responsibilities of a given department; it is technically possible to attribute the revenue to each of the responsibilities but not necessarily illuminating.

Jurisdictional comparisons

The Higher Education Quality Council of Ontario has developed a set of performance indicators that may serve as a reference point for monitoring the overall progress of post-secondary education in Ontario. In its concluding section, "Last words", HEQCO summarized the current state of affairs by noting Ontario's "impressive track record of increased access", its "highly educated population" and acknowledging that the "province has accomplished this while maintaining a relatively productive system, which looks lean compared to other provinces."⁵

To extend some of HEQCO's work to other jurisdictions could allow for a comparison of costs in Ontario with the costs of PSE systems where credit transfer is an integral part of the PSE environment and use a variety of measures to determine if the Ontario 'system' is more or less efficient and effective than other systems. To some extent the HEQCO report provides a reference point since British Columbia and Alberta are included and are two provinces with acknowledged 'credit transfer' approaches. Comparing 'transfer credit' jurisdictions with Ontario may help determine the efficiency and effectiveness of one approach versus the other approach and may inform the calculation of 'cost savings'. In addition to shedding some light on Ontario's relative position vis-à-vis British Columbia and Alberta, some attention will be paid to specific 'credit transfer' jurisdictions in the United States.⁶

⁵ HEQCO, *Performance Indicators: A report on where we are and where we are going*, 2013

⁶ Credit transfer arrangements in Scotland and Australia were also examined to determine the availability of comparable 'cost data'. In both cases aggregate average cost data exists but the absence of program / level information and differences in the funding regimes relative to Canada limit the usefulness of the available information. The examination of credit transfer arrangements elsewhere helps underscore the complexity of the issues and the difficulty of fully comprehending the details from afar. See, for example, Howieson C., (2013) for an insightful review of the Scottish situation.

Literature review and environmental scan

The literature review and environmental scan explored the current state of knowledge as it relates to cost / benefit considerations of college and university credit transfer programs and transfer arrangements. It focused on research from a variety of jurisdictions where college-university transfer is an integral part of the postsecondary landscape (e.g., British Columbia, Alberta, and selected jurisdictions in the United States). The review encompassed published research in peer-adjudicated journals, books and articles related to the topics, government and agency reports, and institutional reports that deal specifically with considerations of costs and benefits where benefits are measured in quantitative and qualitative terms.

Much has been written about credit transfer in Ontario and the history or chronology has been documented in a variety of reports and scholarly works (Advisory Panel on Future Directions for Postsecondary Education 1996, Kerr et.al. 2010, Jones and Skolnik, 2009, Jones 1997). The rationale for the establishment of a binary system in the province of Ontario, the maintenance of such a system and the challenges associated with transfer credit have been explored from a variety of perspectives although, interestingly, sparingly in terms of costs. As noted by Lang,

Governments tend to presume that transfer is cost-efficient because a portion of the units of instruction that lead to a baccalaureate degree are earned and, more to the point, funded at lower college rates. Thus a 4-year degree earned partly at a college and partly at a university appears to be less expensive than the same 4-year degree earned at a university.⁷

Whether the presumption noted above is actually true is another matter and depends on a number of factors including how one defines 'cost'.

The literature and evidence from institutions in various jurisdictions is very clear on the difference between 'average' tuition fee levels in the colleges and universities; college tuition is lower and constitutes a potential source of the 'cost savings' to students.⁸ Arguably, other direct costs – accommodation, living expenses, books and equipment – are relatively similar on an annual basis, but if attendance at a community college allows the student to live at home the cost of accommodation will be less than the cost of moving to another locale to attend university. Similarly if attendance at a local university results in the student living at home the accommodation cost will be less than the cost of relocating to another locale.⁹

⁷ Lang, D.W., "Articulation, transfer, and student choice in a binary post-secondary system", High Educ (2009) 57:355–371 p.3

⁸ In Ontario, college tuition for Applied Degree programs and a variety of post-diploma programs are, in fact, more similar to tuition fees in universities. The reference to 'average' tuition levels refers to Ontario Diploma programs and Advanced Diploma programs.

⁹ Given the increase in satellite campuses and on-line offerings over the past decade the need to relocate to attend either university or college is more likely related to program and institutional preference rather than geographic access although in some cases geographic access may be an important factor.

A number of U.S. research studies examining college completion rates and the college-degree completion rates have commented on the rather false economy associated with a focus solely on the annual tuition fee. Evidence from the United States, for example, suggests that completion rates in general are very low in the community colleges, completion times are lengthy and there are, in fact, limited numbers of transfers. At the same time, however, the same studies point out that once a student actually makes the transfer there is a high level of persistence and graduation although time to completion is often greater than for direct-entry students. (National Student Clearinghouse Research Center 2013, Monaghan and Attewell 2014).

The time to completion reality has led some researchers to suggest that the prospect of tuition ‘savings’ are, in fact, somewhat illusory given the longer completion times associated with credit transfer students (LaSota 2013, National Center for Public Policy and Higher Education 2011, Moore, et al, 2009). Lang sums up the general tenor of the argument as follows:

But we know that students who transfer, even in highly articulated systems, do not transfer all credits, and take some remedial courses that do not generate credit at all. This means that students who transfer forego more income than students who do not. Foregone income is in all cases far more expensive than direct costs, like tuition fees. They may also incur debt for some courses that in the end do not lead to the 4-year degree.¹⁰

Another perspective on student cost is provided by various researchers and organizations that attempt to establish the ‘net’ cost to students by factoring in various forms of student aid. In the United States the College Board, the Delta Cost Project, the Center for College Affordability and Productivity, and others produce estimates of gross and net student cost and track such costs over time.¹¹ In general the analyses suggest that in the United States, on average, tuition increases were more than offset by student aid measures at public two-year colleges in the period 2000-2009. At public four-year universities a major portion of the ‘sticker price’ was offset by student aid but there has been a real increase in net tuition estimated at about 35% over the same period. Some researchers have suggested that the two-year college experience reflects public policy attempts to improve affordability and access relative to four-year universities and encourage college transfer as a pathway to a baccalaureate.¹² The rationale for such an approach is premised on the assertion that it is more cost efficient for the student and the state but there is a disquiet about the underlying “myth of opportunity” and the reality

¹⁰ Lang, D.W., Op.Cit., p. 368

¹¹ Delta Cost Project, <http://www.deltacostproject.org/>
College Board, <http://sitesearch.collegeboard.org/?q=Trends%20in%20College%20Pricing>
Center for College Affordability, <http://centerforcollegeaffordability.org/>

Also see the National Center for Education Statistics (NCES) Data Analysis System

¹² See, for example, Anderson, G.M., Alfonso, M., Sun, J.C., “Rethinking Cooling Out at Public Community Colleges: An Examination of Fiscal and Demographic Trends in Higher Education and Rise of Statewide Articulation Agreements”, Teachers College Record, Volume 108, No. 3, Columbia University, March 2006

“consistently demonstrated by research, for 2-year institutions to depress baccalaureate aspirations.”¹³

Turning to comparisons of institutional costs (college and university) most research and analyses tend to be focused at the sector level or institutional level rather than discipline / program and/or year level. For example, Colleges Ontario has long made the argument that college resources, on average, per student (FTE), are lower than universities with an approximate \$2000 difference per FTE in terms of grants and \$4000 difference in terms of average tuition. (Colleges Ontario Environmental Scan 2013, Figure 5). The utility of such comparisons is at best limited and at worst misleading because of differences in program ‘mix’ and mandate – a true ‘apples to tomatoes’ situation. Nevertheless, it does not stop such comparisons from being made or the interpretation of the results being referenced by individuals, organizations, and governments.

Such comparisons tend to illustrate that the average expenditure per student at a university is higher than the average expenditure per student at a college. But, as pointed out by J.B. MacDonald in outlining the projected costs of new colleges in British Columbia over a half-century ago.

It would be inaccurate to use the predicted Canadian average costs per student per year (in universities) in arriving at probable operating costs for new colleges. The reason, of course, is that the average is derived from figures which include all of the expensive graduate and professional schools in all our universities. Arts and Science programmes cost less than the national overall average.¹⁴

MacDonald, a key player in the development of the British Columbia postsecondary system, recognized that the ‘program mix’ within an institution was a critical component in understanding costs and explaining differences in costs.

What was true over 50 years ago, continues to be true today – differences in program ‘mix’ explain a major portion of the cost variance between and among universities (and between colleges and universities). Focused specifically at the need to recognize the differences in discipline costs when comparing universities and colleges in the United States, Middaugh’s ‘Delaware Project’ compiled expenditures at the discipline level across a wide range of institutions in the United States. His observations from the study are worthy of reference in any discussion about higher education costs – and in particular key findings about the cost of instruction delivery at the institutional level.¹⁵

- 80% of the difference in cost by institution (is) attributed to discipline mix (p.xi)

¹³ Ibid., p.441

¹⁴ MacDonald, J.B., *Higher Education in British Columbia and a Plan for the Future*, University of British Columbia, 1962, p.96

¹⁵ Middaugh, M.F., Graham, R., Shahid, A., *A Study of Higher Education Instructional Expenditures: The Delaware Study of Instructional Costs and Productivity, Research and Development Report*, National Center for Education Statistics, NCES 2003-161, U.S. Department of Education, Institute of Education Sciences, 2003. See in particular pages xi, xii, and p.25.

- Costs vary more substantially across disciplines within a given institution than they do across institutions within a given discipline. (p.xii)
- The data consistently demonstrate that on average, whether it is a major research university or a small baccalaureate college, certain disciplines are less costly than other disciplines at the same institutions. Service departments, i.e., those that satisfy general education requirements, such as English, mathematics, and the social sciences, are generally the least costly.
- Other disciplines have consistently higher costs. Physical sciences and biology, especially where the doctorate is offered, are expensive disciplines. This also is not surprising, given the equipment intensive nature of these disciplines and the need to offer small group laboratory sections.
- However, at nondoctoral institutions, some physical science disciplines are only marginally more expensive than social science departments. This is likely associated with introductory, non-major sections of chemistry and biology that frequently satisfy students' science requirements, and are typically offered in large lecture format, i.e., they are major student credit hour producers.
- Three disciplines – art, nursing, and education – are consistently comparable to the physical sciences in terms of instructional expenditures. These disciplines, by nature, require intensive individualized instruction, in addition to lectures.

While discipline 'mix' is **the** key ingredient in explaining cost differences by institutional type, it is also important to note that Middaugh identified other factors that play a role. Jane Wellman, former director of the Delta Cost Project, in a report prepared for the Spellings Commission in the United States, summarized Middaugh's findings as follows:

The Delaware study focuses on average direct costs of instruction, and not other costs such as for administration or research. That study has found a consistent pattern that differences between institutions in the average direct cost of instruction are largely attributable to differences in the mix of disciplines, levels of student enrollment (lower division, upper division, graduate or professional), faculty compensation patterns, and policies for use of part-time and adjunct faculty.¹⁶

Capaldi and Abbey (2011) noted that not only do costs vary by discipline, they vary markedly by level of instruction. Moreover, the authors suggest that

Lower division is particularly low cost to teach at big public research institutions where teaching assistants help with the labs and recitations and lecture class sizes can be very large. Upper division, in contrast, involves smaller classes with more specialized equipment and faculty and thus greater expenditure.¹⁷

Many jurisdictions have funding formulas that recognize there are differences in cost by discipline and by level within a program. The concept is well established and, in cases where actual cost studies inform funding recommendations, the data consistently point to the differences. The level of detail in the cost studies varies by jurisdiction but in

¹⁶ Wellman, J.V., *Costs, Prices and Affordability: A Background Paper for the Secretary's Commission on the Future of Higher Education*, 2006

¹⁷ Capaldi, E.D., and Abbey, C.W., "Performance and Costs in Higher Education: A Proposal for Better Data", *Change*, March-April, 2011 p.13

cases where jurisdictions separate the cost of undergraduate programs into lower division and upper division (e.g., Texas, Ohio, Florida, Illinois) there is a marked difference between the average institutional expenditure for the first two years of study (lower division) versus the 'upper division' – years 3 and 4. The cost structure is clearly different – larger classes providing introductory and survey courses versus more specialized courses, smaller class sizes and in-depth work in the upper division.¹⁸ Ontario's university program funding weights were originally constructed with the same general concept in mind although not substantiated (nor updated since) on the basis of cost studies, a matter we will return later in the report.

The preceding establishes a reference point for examination of the research literature on community college versus university 'costs'. A number of researchers have pointed out that the real 'apples to apples' comparison of costs between community colleges and universities should focus on the cost of a program at a community college and the cost of the first two years of a similar program at a university.

In fact there are relatively few studies that actually attempt to measure and compare the cost of delivering programs in a college setting versus a lower division university setting. Romano and Djajalaksana (2010), on the one hand, demonstrated that "the cost per FTE and public subsidy per FTE are lower at public master's level colleges than at the community college."¹⁹ Older studies in the United States concluded that community colleges costs were similar to lower division costs at state universities and the public subsidies were either similar or even greater than those provided to four-year institutions (Breneman and Nelson 1981, James 1978). On the other hand, Rouse concluded that "It also *most likely (emphasis added)* costs the state more to educate a student in a four-year rather than a two-year college."²⁰ Researchers engaged in examining 'costs' in higher education, are quick to point out the difficulty in comparing costs between the two-year and four-year sectors. And, in particular, the importance of accounting for undergraduate costs separately from graduate and research costs in universities.

McPherson and Shulenberger argue that there are two ways to measure costs: by FTE student and by degrees granted. According to their work, public two-year institutions (community colleges) have the lowest expenditure per student on average but if one uses degrees granted as the denominator the results change markedly; "public high

¹⁸ Data from CUDO can be used to construct a snapshot of the number of courses (individual sections) by year level. Categorized by class size, the CUDO data indicates rather clearly that there are considerably more small classes in the upper years and more large classes in the 1st and 2nd years.

¹⁹ Master's institutions are defined in the Carnegie Classification as those institutions that award at least 50 Masters degrees but less than 20 research doctorate degrees annually. In Ontario the Carnegie Masters categorization could be applicable to institutions such as Brock, Lakehead, Laurentian, Nipissing, Trent, UOIT and Wilfrid Laurier.

²⁰ Rouse, C.E., "Do two-year colleges increase overall educational attainment? Evidence from the States" Journal of Policy Analysis and Management, 17(4), 1998, p.615

research universities are \$7000 less expensive per degree than community colleges that predominately offer two-year associate degrees.”²¹

The last reference illustrates how the use of a different denominator (# of degrees) can provide another perspective on efficiency and effectiveness although the authors of the article are quick to point out that their calculations do not address quality considerations. While it is clear that McPherson and Shulenberger recognize the important role of community colleges and the importance attributed to Associate Degrees, it is equally clear that using output indicators can provide a different perspective on interpretations of efficiency and effectiveness.

The Delta Cost Project²² in the United States is regarded as a key reference for determining cost trends in higher education and for helping to shed some light on the rather complex world of post-secondary education finance. Based on public data compiled through the Delta Cost Project, it appears that, in some states, there is no cost saving to government of pursuing a college transfer model and the costs may actually be higher – a finding we will explore in more detail later in the report.

Some cost studies in the United States that inform funding formulas use the same or similar funding ‘weights’ for costing university and community college programs. Ohio for example in its ‘cost savings calculation’ makes it clear that

Calculated savings reflect differences in the total costs of hours – the sum of student, institution and state expenditures – between the more and the less expensive sectors. However, state outlays for similar courses differ little between sectors, and estimated savings accrue mostly to students.²³

The reference to ‘more or less expensive sectors’ refers to the tuition levels in community colleges, regional state universities and the main campus of the state university. In its September 2014 ‘update’ the Ohio source makes it clear that the estimated savings refer to “savings accruing to students”.²⁴

In Canada there is little in the way of true cost comparisons between delivering programs in colleges versus delivery in universities. General comparisons are made from time to time but tend to focus on overall average expenditures per FTE in each sector without acknowledging the key differences cited previously regarding program ‘mix’ and level of enrolment.

One study did attempt to determine ‘cost savings’ associated with college-to-university transfer arrangements in a number of jurisdictions including Ontario and concluded that

²¹ McPherson, P. and Shulenberger D., “Expanding Undergraduate Education to Meet National Goals: The Role of Research Universities” *Change: The Magazine of Learning* 42:1, p.54

²² <http://www.deltacostproject.org/>

²³ Facts at a Glance, Ohio’s Transfer Movements, (Retrieved July 11, 2014)

²⁴ https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/transfer/research/facts-at-a-glance_updated-090514.pdf (Retrieved, October 14, 2014)

In most jurisdictions, the combined cost to the government and the student of a degree achieved through a 2+2 program (in other words, two years at college followed by two years at university) is lower than the cost of a four-year university program. This finding assumes that each student attends for four years of full-time study. It is not adjusted for differences in attrition or student aid.²⁵

The data used to calculate 'costs' was recognized as having limitations²⁶ and the report's author did note in a companion document that "These data are based on per-student averages for each type of institution and so may vary by program type and student type. In particular the university figures may be distorted by high-cost graduate and professional programs."²⁷

While the study recognized the import of the 'apples to tomatoes' problem in postsecondary education comparisons, the final conclusions essentially ignored the caution by using 'average costs' without acknowledging the major differences in cost by *year level* of instruction. Instead the report focused on the 'time in program' as a major factor in determining 'cost savings' – to the student and to the province. Speaking directly to the situation in Ontario, the report states that

Using a costing model for college-to-university transfer arrangements in Ontario, we found cost savings for a student in a 2+2 transfer arrangement in Ontario relative to a four-year university student. The cost advantage diminishes or disappears in programs that require the transfer student to take extra semesters to make up courses not studied at college. As a rule of thumb, the break-even for total costs is between four-and-a-half and five years of total study. Longer programs produce few or no total financial benefits, although they may produce other types of benefits for students, such as avoiding repetition of prior learning, or being able to obtain a degree that otherwise they might never have achieved.²⁸

There are a number of shortcomings with the 'costing model' referenced in the study.

- As indicated, it relies on an estimate of average program 'costs' rather than the cost associated with the first two years of university compared to the two years of study at a community college.
- The study's conclusions are not based on an expenditure based cost model but rather a *price based model* focused on what a student pays (tuition) and what the government pays to the institution (operating grant); the combined total of tuition and operating grant is deemed to be 'cost'.
- It ignores other factors that affect cost to the student (e.g., completion rate, opportunity cost, and 'net' cost after student assistance).

25 Trick, D., *College-to-University Transfer Arrangements and Undergraduate Education: Ontario in a National and International Context*, Toronto: Higher Education Quality Council of Ontario, 2013, p.4

26 Ibid., p.18

27 Trick D., and Lawrance, J., *College-to-University Transfer Arrangements and Undergraduate Education: Ontario in a National and International Context*, *Research Notes*, Toronto: Higher Education Quality Council of Ontario, 2013, p.14

28 Trick, D., Op.cit., p.4

- It ignores government ‘costs’ beyond direct operating grants (e.g., various forms of government funded student assistance, capital costs).
- It is worth noting that in the case of the Ontario example cited in the study, the costing model was based on a 2+2 arrangement compared to a four-year degree with no modelling of the impact of a college student pursuing a three-year general Arts and Science degree – a possibility at a number of universities in the province.
- The vast majority of credit transfer arrangements in Ontario are not 2+2 recognizing i) the unique nature of the community college diploma curriculum and ii) that the college curriculum would have to be modified to provide the necessary building blocks for upper-year university specializations.
- Finally, the ‘model’ assumes that, if Ontario created new transfer programs and pathways, college costs would remain the same. Yet, the evidence suggests otherwise. Collaborative programs such as Nursing appear to have higher costs than the college norm – thus triggering increased provincial grants. And applied baccalaureate degrees in the community colleges have spawned added cost and required additional investment as well.²⁹

We will return to some of the preceding points in the more detailed review of Ontario’s approach to Credit Transfer and the development of a comparative costing model.

In the United States community colleges are seen as a key component of the post-secondary system, broadening access points to postsecondary education in general and providing stepping-stones for qualified students to pursue a baccalaureate degree. In general, states appear to have adopted two basic approaches to community college to university transfer pathways: establish Associate Degrees in the community colleges as the key instrument for acquiring lower division baccalaureate credit or establish a general education curriculum with major pathways from community colleges to universities (Moore *et al*, 2009). Within each of the approaches there are various details that affect the actual calculation of credit transfer but, in general, both approaches rely on an agreed to curriculum between the community colleges and universities, delivered according to quality assurance standards.

The key problems identified in U.S. jurisdictions, in terms of relying on community colleges as the starting point for the journey to a baccalaureate degree via transfer to university, are the relatively low completion rates for community college students, the low transfer rates from community college to four-year institutions, and the time-to-completion. Even in a state like California where the system was specifically designed to encourage and facilitate transfer “only a small percentage of the students who begin in community college successfully transfer....”³⁰

²⁹ Rosenkrantz, O., “The Challenge of Finding Faculty Time for Applied Research Activities in Ontario Colleges” *College Quarterly*, Vol. 16. No.3, 2013

<http://www.collegequarterly.ca/2013-vol16-num03-summer/rosenkrantz.html>

³⁰ Moore, C., Shulock, N., and Jensen, C., *Crafting a Student-Centred Transfer Process in California: Lessons from Other States*, Institute for Higher Education Leadership & Policy, California State University, Sacramento, 2009 p.1

For those students who ‘successfully transfer’ the U.S. research indicates that

they complete degrees and persist at a relatively high rate. The eight- and nine-year outcomes reported also suggest that completion rates measured over six years from the time of entry into the postsecondary education are likely not an accurate representation of baccalaureate attainment for students who transfer from two-year to four-year institutions. Increases in completion and persistence results both suggest that transfer students are progressing toward degrees along longer timelines and that traditional measures of student success may not capture this progress completely.³¹

While research literature is scarce on the particular topic of credit transfer ‘cost’, there are some important points that emerge from a review of transfer credit in general. In the case of baccalaureate attainment via transfer versus direct-entry from high school, researchers in the U.S. have concluded that there is a lower rate of attainment for those who start at a community college versus those who start at a four-year university. The difference ranges from about 15% lower to 30% lower even after adjusting for characteristics of the student body. The research literature is mixed regarding explanations for the difference. Burton Clark, for example, argued that community colleges have a ‘cooling out’ effect or function that lowers student aspirations regarding baccalaureate attainment (Clark, 1960). His views dominated much of the research literature for many years and there continues to be a body of literature that, as noted earlier, speaks to the community college experience as “depress(ing) baccalaureate aspirations”.³² Other researchers, however, have argued that U.S. community colleges may actually have an opposite impact – that is ‘heating up’ or at least ‘warming up’ baccalaureate aspirations, particularly for low-income groups (Leigh and Gill, 2003, Alexander et.al., 2008).³³

Whether ‘heating up’ or ‘cooling out’ it appears that some state governments are turning to community colleges to improve baccalaureate attainment rates via credit transfer legislated interventions.³⁴ Such interventions, running the gamut from state sponsored articulation arrangements to common core curriculum, have mixed reviews but are often driven by an expressed interest in affordability – keeping access costs low for students – while still providing the opportunity for baccalaureate education via transfer, or in some cases, by allowing the community college baccalaureate degree granting authority.³⁵

In Canada, jurisdictions that emphasize credit transfer (Alberta and B.C.) have invested considerable effort in developing articulations at the course level. The success of the British Columbia endeavour is exemplified in a BCCAT study prepared in 2010 that

³¹ National Student Clearinghouse Research Center (NSCRC), *Signature Report 5*, July 2013, p.48

³² Anderson, G.M., et.al., Op. cit., p.441

³³ The policy implication of the ‘cooling out’ or ‘warming up’ viewpoints are important since jurisdictional decisions to improve baccalaureate completion through two-year colleges (U.S.)” may inadvertently negatively affect(ing) overall educational attainment.” (Leigh and Gill, 2003)

³⁴ See, for example, *SREB Policy Brief, Statewide Transfer Policies*, Southern Regional Education Board, March, 2013

³⁵ See, Anderson, G.M., et. al., (2006) , and Monaghan and Attewell (2014)

indicated the number of degree credits and performance of transfer students and secondary school students was, in fact, very similar and largely attributable to

the fact that courses for transfer have been well articulated between all the different post-secondary institutions in British Columbia which provides students with a seamless process of transfer as well as providing different pathways to degree completion.³⁶

The B.C. system of credit transfer is often cited as an example of a successful system at work that provides pathways for baccalaureate attainment beyond the more traditional direct-entry approach. Over time, various research reports in B.C. have catalogued the success of transfer students and, in general, it now appears that once a student transfers – that is once a transfer student is admitted to a research university – student success is very similar to direct-entry students. Unfortunately the research literature does not address the issue of ‘cost’ – to the student, province or institution.

What is clear from the B.C. experience is that the province has invested in the concept of pathways and credit transfer over many years and the ‘system’ was initially constructed in the 1960’s with credit transfer in mind. The costs associated with the operation of credit transfer system (BCCAT) and the institutional costs associated with course assessments do not appear to be documented in any systematic way. Further, in terms of system evolution

Several of BC’s colleges and teaching intensive universities were established more to address geographical than social or academic barriers to post-secondary participation.³⁷

The latter point is interesting because it is a useful reminder of the many factors that need to be considered in evaluating system access and system design issues.

In summary, the review and scan indicated that research on credit transfer is rich with various studies that examine some of the barriers to transfer and possible interventions to improve credit transfer but overall cost considerations tend to be forgotten or downplayed and/or fraught with a host of data challenges that affect the utility of the findings. It is clear there are differences in tuition rates between college and university and that has a bearing on perceptions of student cost. At the same time, however, it is also clear that ‘time in program’ affects the cost equation to students, to government, and to the institution.

From a state and institutional perspective some researchers have examined the cost of ‘lower division’ instruction and total costs in four year universities with college costs in two year institutions (equivalent to lower division) and concluded that the cost in universities is similar or less than the cost in two year colleges *in some states*. More importantly, in terms of developing useful cost comparisons the researchers have

³⁶ Pendleton, S., *Credits to Graduation*, British Columbia Council on Admissions & Transfer, 2010, p. 18

³⁷ Cowin, R., *Student Transfer, Success, and Mobility in BC Post-Secondary Institutions: A Synthesis of Research*, BCCAT, February 2013, footnote 2 p.8

established that discipline and program level are key factors that need to be considered; overall institutional averages are not very useful and potentially misleading.

With the preceding background and findings in mind we turn to the situation in Ontario and examine 'cost' from student, government and institutional perspectives.

Ontario: credit transfer – student, government and institutional financial perspectives

The Ontario Ministry of Training, Colleges and Universities Policy statement for Credit Transfer (Appendix A) serves as the policy reference and provides some of the rationale for the province's interest in the issue. Specifically, in terms of financial rationale it identifies "increased efficient and effective use of available postsecondary resources" as an expected outcome along with "cost savings for students and their families, government and the public".³⁸

The goals of the MTCU policy statement are laudable. The challenge is measuring "efficient and effective" in the context of the credit transfer policy and measuring whether there are, in fact, 'cost savings' that can be attributed to Ontario's approach to improving credit transfer.

- The measurement of efficiency appears straightforward since it is essentially a ratio of inputs to outputs; how much resource is required to generate a certain level of output. In the case of the postsecondary system that could be \$ / credential granted for example.
- Effectiveness speaks to, in the PSE sector, measures of quality, a somewhat more complex concept than efficiency, and is perhaps more focused on outcomes.
- Determining 'cost savings' should be relatively simple although just like efficiency and effectiveness needs to be premised on a clear factual understanding of the existing state of affairs as the relevant benchmark.

Separating the impact of changes to credit transfer from other factors that may be influencing efficiency and effectiveness (e.g., lower costs due to lower inflation, reduced compensation pressures, increased enrolment, and/or improvements in productivity) is somewhat more difficult because the measure may be correlated but not causative and therefore not easily separated.

³⁸Through its original Reaching Higher Plan the Ontario government made considerable investments in higher education. Its more recent Open Ontario Plan set a "reaching even higher" target of 70% of adult Ontarians with PSE attainment credentials and made specific reference to "improving students' ability to navigate Ontario's postsecondary system by providing additional resources to support the implementation of a credit transfer system" (Ontario Budget, 2010). That reference, in turn, led to the creation of the MTCU Policy Statement for Ontario's Credit Transfer System 2011.

To be clear then, the assessment of ‘cost savings’ needs to compare the ‘cost’ of a credit transfer pathway to a baccalaureate degree with the cost of a direct-entry pathway, meaning directly from secondary school.

Cost from a student perspective

As noted previously there is little question that, in general, tuition fees for community college programs, on average, are lower than tuition fees for university programs – notwithstanding the fact that tuition in college Applied Degree and post-diploma programs are more similar to 1st entry university programs.³⁹ On average, all else being equal, a student may appear to save money by doing part of their program at a community college and part at a university. Unfortunately all else is not equal. There are at least two major factors that need to be considered in the student cost calculation when considering the *credit transfer route to a baccalaureate* versus the *direct-entry pathway*; time to completion and student aid. The following section describes the impact of time to completion and student aid on ‘cost’ and provides a summary table at the end.

In universities where considerable effort has been devoted to recognizing community college experience and developing articulated pathways, the reality is college transfer students will require, on average, at least one additional year to complete their program compared to a direct-entry university student.⁴⁰ The added time in post-secondary education carries with it added cost to the student – an added year or two of tuition, books, ancillary fees, and living expenses, plus in cases where students are studying full-time, the opportunity cost of foregone employment income.

Opportunity cost is not necessarily ‘top-of-mind’ when it comes to calculating student cost but the following example illustrates the concept.

Take a student who annually pays \$4,000 in tuition at a state college. Assume that the government subsidy to the college amounts to \$8,000 per student. It looks as if the cost is \$12,000 and the student pays less than half. But looks can be deceiving. The true cost is \$12,000 plus the income the student forgoes by attending school rather than working. If the student could have earned \$20,000 per year, then the true cost of the year’s schooling is \$12,000 plus \$20,000, for a total of \$32,000. Of this \$32,000 total, the student pays \$24,000 (\$4,000 in tuition plus \$20,000 in forgone earnings). In other words, even with a hefty state subsidy, the student pays 75 percent of the whole cost.⁴¹

The implications of the preceding is that ‘time is money’ and opportunity cost is actually a major cost – the longer a student takes to complete his/her post-secondary education the greater the opportunity cost.

³⁹ Tuition fees vary by institution and by program and year-level within an institution, thus making exact comparisons rather complex. For illustrative purposes college tuition is referenced at \$3,000 and university tuition is referenced at \$6,000.

⁴⁰ See, for example, York University <http://futurestudents.yorku.ca/node/240/>

⁴¹ Henderson D.R., Opportunity Cost, The Concise Encyclopedia of Economics <http://www.econlib.org/library/Enc/OpportunityCost.html> (retrieved July 18, 2014)

There are at least two sources one could use to determine the opportunity cost associated with the completion of a baccalaureate degree; Statistics Canada National Household Survey (2011) provides employment income estimates by educational attainment and age-group by province, and the Ministry of Training, Colleges and Universities (MTCU) sponsors an employment survey of university graduates that provides employment and income information by discipline area.

Using Statistics Canada data from the National Household Survey for Ontario⁴² the average employment income of individuals in the 15-24 age group working full-time with a baccalaureate qualification was \$33,852. Median employment income was \$31,596. For the 25-34 age group average employment income was \$58,938 and median employment income was \$55,701.

In the case of MTCU the survey results are published on the government's website (<http://www.tcu.gov.on.ca/pepg/programs/osaprates/>), on individual institutional websites and on the Council of Ontario Universities' (COU) website. COU also produces a more complete summary of the survey results including reported incomes by discipline area six months and two years after graduation.⁴³

The MTCU/COU survey of university graduates indicates that the employment income of graduates employed full-time (≥ 30 hours/week) six months after graduation in 2010 was \$42,668 and \$49,277 after two years. Income varied by discipline ranging from approximately \$29,000 (Fine Arts six months) to well over \$80,000 (Optometry and Dentistry – six months). In program areas where credit transfer tends to be more prevalent, incomes after six months ranged from \$33,000 in the humanities to \$36,000 in the social sciences to approximately \$44,700 in business and the health professions.

Clearly opportunity cost varies by discipline and no doubt individual circumstance. For purposes of this analysis we simply want to acknowledge that there is a real cost associated with the time investment in higher education – an extra year or more to a baccalaureate, above the norm, carries an opportunity cost. For purposes of this study we have used \$30,000 – that is taking the lowest earnings figure and discounting to reflect a mix of part-time and full-time employment.

The other major factor influencing student cost is the availability of student aid in all its guises – government loans and grants, government tax credits, and institutional aid. There have been major changes to improve the level of student assistance over the past several years and those changes have a major bearing on calculations of 'net cost'. In Ontario direct government student aid involves annual program spending of approximately \$1 billion. Coupled with tax credits (provincial and federal) and

⁴² Statistics Canada, National Household Survey, Income and Earnings Statistics in 2010, Age Groups, Sex, Work activity in 2010, Highest Certificate, Diploma or Degree and Selected Sociocultural Characteristics for the Population Aged 15 Years and Over in Private Households of Canada, Provinces, Territories and Census Metropolitan Areas, 2011. Selection criteria: Ontario, Age Groups 15-24 and 25-34, worked full-year, full-time, University certificate, diploma or degree at bachelor level or above. Catalogue number 99-014-X2011041.

⁴³ Council of Ontario Universities, *2012 Grad Survey*, November 2013

institutional aid the total *annual* expenditure would be close to \$3 billion. To put that figure in perspective tuition revenue in 2012-13 for domestic students in Ontario universities totalled about \$2.8 billion (~ \$3.5 billion if international students are included)⁴⁴ and tuition revenue in the Colleges was approximately \$800 million (\$1.1 billion if international students are included).⁴⁵

In the case of loan and grant funding provided through the Ontario Student Assistance Program (OSAP), the difference between the two paths to a baccalaureate should focus on two items; the level of tuition and ancillary fees in the college versus tuition and ancillary fees in the university and the difference in the elapsed time to complete a baccalaureate. The remaining parts of the OSAP equation are income based and would be the same whether the student was in college or university. There are, however, differences in OSAP status (dependent / independent) that have a marked impact on the level of OSAP award and that, in turn, will affect the level of the Ontario Student Opportunity Grant (OSOG).

An analysis of OSAP data indicates that, on average, students with college experience⁴⁶ who subsequently registered in 1st entry university programs have higher OSAP loans and higher OSOG awards than either community college students or direct-entry university students. The data requested for the project did not specifically address the reasons for the difference. Given the length of time in post-secondary and the age-distribution of the college-university credit transfer students, one could speculate that some part of the difference is due to the greater proportion of such students with independent status. The 2012-13 average OSOG for university students with college experience in 1st entry undergraduate programs was close to \$5,400.⁴⁷

Another type of direct government aid is the Ontario Tuition Grant (OTG) that provides a fixed grant (\$1,730 for university and \$790 for college in 2013-14) to help offset tuition and related costs. The OTG is aimed at helping students make the transition from secondary school to college or university. It is only available to students within the four year period from secondary school graduation; mature students are not eligible. In factoring the OTG into the student 'cost' calculation our model assumes the student would be eligible for the OTG during the college period and for part of the university experience to a maximum of four years total.

Tuition and Education Tax Credits are estimated to cost the *provincial* government approximately \$350 million annually.⁴⁸ The major tax credits are the Tuition Tax Credit and the Education Tax Credit. A Student Loan Interest Tax Credit is also available. Students are eligible for similar federal tax credits as well as the federal Textbook Tax

⁴⁴ Committee of Finance Officers Universities of Ontario, *Financial Report of Ontario Universities*, Table 2, 2012-13

⁴⁵ Ministry of Training, Colleges and Universities, College Financial Information System, 2012-13

⁴⁶ Defined as those students in 1st entry university programs who had previously received OSAP for college studies.

⁴⁷ Approximately 47% of the 'college experience' students received OSOG in 2012-13.

⁴⁸ Ministry of Finance, "Transparency in Taxation", 2013 Ontario Economic Outlook and Fiscal Review
<http://www.fin.gov.on.ca/en/budget/fallstatement/2013/transparency.html>

Credit.⁴⁹ Unused credits can be carried forward to future years and/or subject to an annual maximum, transferred to a parent or spouse. The tax credits translate into a direct tax reduction (saving) to students and/or individuals designated by the student (e.g., parent, spouse).

In Ontario the federal tax credits⁵⁰ for the Tuition, Education and Textbook Tax Credits are worth \$1,458 for a full-time university student and \$1,008 for a full-time college student. The provincial credits are worth \$511 and \$360 per year in tax savings. The difference between the university and college values is due to the higher tuition levels in university used in this illustration. The preceding tax credits are generated for the duration of post-secondary attendance although the value of the tax credit varies depending on tuition levels and full-time / part-time attendance. Because these tax credits are captured after the completion of a school year via the tax filing process and can be transferred to a parent/spouse the 'value' of the credits in reducing student cost tends to be downplayed. Nevertheless, the cost to the government in the form of tax expenditures is very real and the value to the student or designated tax credit recipient is very real as well – expressed in the form of a reduced tax liability or tax refund. It has been noted that as a government tax expenditure rather than a specific student assistance allocation the tax credits have escaped the serious scrutiny that is routinely applied to programs with similar goals and budgets.⁵¹

In the case of institutional aid, both colleges and universities provide needs-based and merit-based awards as part of their own commitment to affordability and access. Institutions also administer scholarships and awards on behalf of government, agencies and foundations. In 2012-13 colleges spent almost \$90 million in scholarships and student assistance and universities spent over \$800 million. In both the colleges and universities, a portion of the annual expenditure is, in fact, mandated by government and funded from part of the incremental income from tuition increases (2012-13 = \$200 million in universities and \$60 million in colleges). This Student Access Guarantee (SAG) is an automatic award to high need OSAP recipients that covers the cost of tuition, other fees, and books above a government specified threshold.⁵² Some Ontario universities have also implemented credit transfer scholarships/awards similar to the grid-based admission awards for direct entry students. Rather than use secondary school marks, however, the awards are based on college GPA. In the case of need-based awards a credit transfer student would have the same opportunity to apply for a

⁴⁹ Federal education related tax credits (expenditures) are over \$2 billion per year nationally. Assuming Ontario has roughly 40% of the students a rough estimate of the federal 'cost' is \$800-\$850 million annually excluding the tax expenditure for RESPs. See Department of Finance, *Tax Expenditures and Evaluations*, 2013

<http://www.fin.gc.ca/taxexp-depfisc/2013/taxexp1301-eng.asp#toc7>

⁵⁰ Based on tuition fees of \$6000 tuition (university) and \$3000 (college) and 8 months full-time attendance.

Tuition estimates derived from <http://www.heqco.ca/en-CA/Research/quickstats/Pages/tuition.aspx>.

⁵¹ Neill, C., *What You Don't Know Can't Help You: Lessons of Behavioural Economics for Tax-Based Student Aid*, C.D. Howe Commentary #393, C.D. Howe Institute, November 2013 http://www.cdhowe.org/pdf/Commentary_393.pdf

⁵² Government has also 'matched' endowment donations to provide another source of on-going student award support and there are various scholarships and awards that are directly funded by the government (federal and provincial).

need-based award as a direct-entry student. The challenge with institutional aid and calculating its effect on 'net' cost to a student is that the awards are based on individual circumstance – merit and need. Moreover, in universities part of the available funding is allocated to graduate students and students in 2nd entry professional programs.

The fact that the profile of credit transfer students appears to be somewhat different than direct-entry students suggests that a credit transfer student, on average, would receive more institutional need-based aid. For purposes of the following illustration the sum of \$2000 has been used as an estimate of the average institutional aid available to a university student (1st entry, undergraduate with college experience); a figure of \$1000 has been used as an estimate of the amount available annually during the student's college experience.

Table 2 provides an illustration of the non-repayable student assistance that is available on an annual basis. The key points are that i) the available assistance is significant and ii) it varies between the university and college sectors. Additional simulations could be constructed based on individual case scenarios; the following illustration highlights the basic components.

Table 2: Illustration of Non-Repayable Student Assistance (Annual)

		University	College	
Ont. Tuition Grant *		\$ 1,730	\$ 790	2013-14 values
Ont. Student Opportunity Grant (1)		\$ 5,387	\$ 5,387	
Tuition Tax Credit	Federal	\$ 900	\$ 450	15%
	Provincial	\$ 303	\$ 152	5.05%
Education Tax Credit**	Federal	\$ 558	\$ 558	15%
	Provincial	\$ 208	\$ 208	5.05%
Institutional Aid		\$ 2,000	\$ 1,000	
Estimated Non-Repayable		\$ 11,086	\$ 8,545	
Tuition for illustrative purposes		\$ 6,000	\$ 3,000	
* Available to students within four years of secondary school completion with some exceptions.				
** Federal \$400 Education + \$65 books per month, Provincial \$515 Education per month.				
(1) 2012-13 average OSOG of students in 1st entry undergraduate university programs				
who had previously received OSAP for college studies.				

Using the preceding information and simplified estimates of tuition, books, equipment, ancillary fees and living expenses the total 'net' cost to a student can be calculated; the credit transfer pathway can then be compared to a direct-entry pathway. Table 3 is based on the assumption that a college student would complete two years in the community college and then move to a university where the student would require either three or four years to complete a baccalaureate program in the Arts/Social Sciences. Table 3 indicates that although the initial tuition sticker price in college is clearly lower than in the university (\$3000 versus \$6000) the 'net' total cost after various forms of student assistance averages less than \$250 per year for the first four years of

postsecondary experience (\$14,738 versus \$15,656). Years five and six change the basic financial picture and the credit transfer pathway to a baccalaureate is clearly more expensive. Year five adds \$5,644 to the total 'net' cost and once opportunity cost is factored in the annual net total cost is estimated at over \$35,000.

Table 3: Illustrative Student Cost Estimates - Pathways to a Baccalaureate

Model A. Assuming 2 years at community college and either 3 or 4 further years at university								
Arts, Social Sciences								
<i>Credit Transfer Pathway to a Four-year Baccalaureate</i>								
	Tuition	Books, equipment Ancillary fees	Total Direct Expenses	Student Aid Non-repayable	Net Direct Expenses	Living Expenses	Opportunity Cost	Total Net Cost
Year 1	\$ 3,000	\$ 1,000	\$ 4,000	\$ (8,545)	\$ (4,545)	\$ 8,000		\$ 3,455
Year 2	\$ 3,000	\$ 1,000	\$ 4,000	\$ (8,545)	\$ (4,545)	\$ 8,000		\$ 3,455
Year 3	\$ 6,000	\$ 1,000	\$ 7,000	\$ (11,086)	\$ (4,086)	\$ 8,000		\$ 3,914
Year 4	\$ 6,000	\$ 1,000	\$ 7,000	\$ (11,086)	\$ (4,086)	\$ 8,000		\$ 3,914
								\$ 14,738
Year 5	\$ 6,000	\$ 1,000	\$ 7,000	\$ (9,356)	\$ (2,356)	\$ 8,000	\$ 30,000	\$ 35,644
Estimated Total Net Cost - 5 year PSE experience								\$ 50,382
Year 6	\$ 6,000	\$ 1,000	\$ 7,000	\$ (9,356)	\$ (2,356)	\$ 8,000	\$ 30,000	\$ 35,644
Estimated Total Net Cost - 6 year PSE experience								\$ 86,026
Model B. Assuming Program start at University								
<i>Direct Entry Pathway to a Four-year Baccalaureate</i>								
Year 1	\$ 6,000	\$ 1,000	\$ 7,000	\$ (11,086)	\$ (4,086)	\$ 8,000		\$ 3,914
Year 2	\$ 6,000	\$ 1,000	\$ 7,000	\$ (11,086)	\$ (4,086)	\$ 8,000		\$ 3,914
Year 3	\$ 6,000	\$ 1,000	\$ 7,000	\$ (11,086)	\$ (4,086)	\$ 8,000		\$ 3,914
Year 4	\$ 6,000	\$ 1,000	\$ 7,000	\$ (11,086)	\$ (4,086)	\$ 8,000		\$ 3,914
Estimated Total Net Cost - 4 year PSE experience								\$ 15,656

In sum, the availability of student assistance has a marked impact on the estimate of total 'net' cost and, as a result, there is little difference between the 'net' cost of attending university versus the 'net' cost of attending college for the first four years of post-secondary experience. The credit transfer pathway to a baccalaureate is then calculated to be more expensive due to the added time required to meet the program requirements. An estimate of opportunity cost simply illustrates the point further.

Cost from the Ontario government perspective

Cost to government, as noted earlier, is essentially grants to post-secondary institutions and grants, scholarships, subsidies and tax expenditures to students.

To better understand the government 'cost' of credit transfer in Ontario it is necessary to delve into the details of government operating grants in the universities and colleges. Using 2012-13 as a reference point, Table 4 provides a summary of government operating funding to Ontario's public postsecondary institutions. The summary columns 'core funding' and 'special purpose' provide the basic categories of government funding – the former essentially distributed by an enrolment based formula to all institutions and the latter distributed on the basis of various measures. The enrolment based funding formula is the main focus of the following description but in considering the overall 'cost'

to government the special purpose funds also need to be acknowledged. We begin with government operating funding to Ontario universities.

Table 4: Operating Grant Funding to Colleges and Universities 2012-13

	Core Funding Enrolment Based*	Special Purpose Institutional Specific	Total Operating Grants
Colleges	\$ 1,099,649,093	\$ 292,400,305	\$ 1,392,049,398
Universities	\$ 2,944,060,379	\$ 512,033,749	\$ 3,456,094,128
Total	\$ 4,043,709,472	\$ 804,434,054	\$ 4,848,143,398

* Colleges: College Funding Framework, Universities: General Enrolment Based Grants, less Grants in Lieu of Municipal Taxation which are treated as Special Purpose in the Colleges.

Source: Ontario Open Data (Retrieved October 8, 2014)

<https://www.ontario.ca/education-and-training/operating-grants-colleges-and-universities>

University funding – cost to government

At the institutional level there are acknowledged differences in cost by program (e.g., Arts versus Engineering) and level within the program (e.g., 1st year versus 4th year, versus Master’s versus Doctoral). The program weights used in the funding formula in Ontario attempt to generally reflect the differences in program costs; students are counted in each program, multiplied by the program specific weight to generate what in Ontario are called Basic Income Units (BIUs). The number of BIUs multiplied by the value of the BIU drives the allocation of government grants to individual institutions. The value of the BIU is determined by government and is similar for all programs; the recognition of the difference in program costs is based on the program weight (e.g., Arts General=1.0, Commerce=1.5, Nursing=2.0). A few programs⁵³ have a program weight that increases from Year 1; in the case of Arts Honours, for example, the Year 1 weight is 1.0 and the weight in Years 2 through 4 is 1.5 per year.

The program weights were meant to be a *proxy* for the relative difference in program costs – that is they were not based on a detailed cost study (Monahan, 2004, Committee on University Affairs, 1966) and they were intended to reflect program costs averaged over the duration of the program.

It cannot be over-emphasized that the formula is designed to produce a reasonably equitable over-all distribution of basic university income. It is not intended as a pattern for spending. The formula weights do not reflect the very important differences in costs among the various subjects within a given program or among course years. These differences are averaged out in the weighting process and not significant for the relatively simple income producing formula proposed.⁵⁴

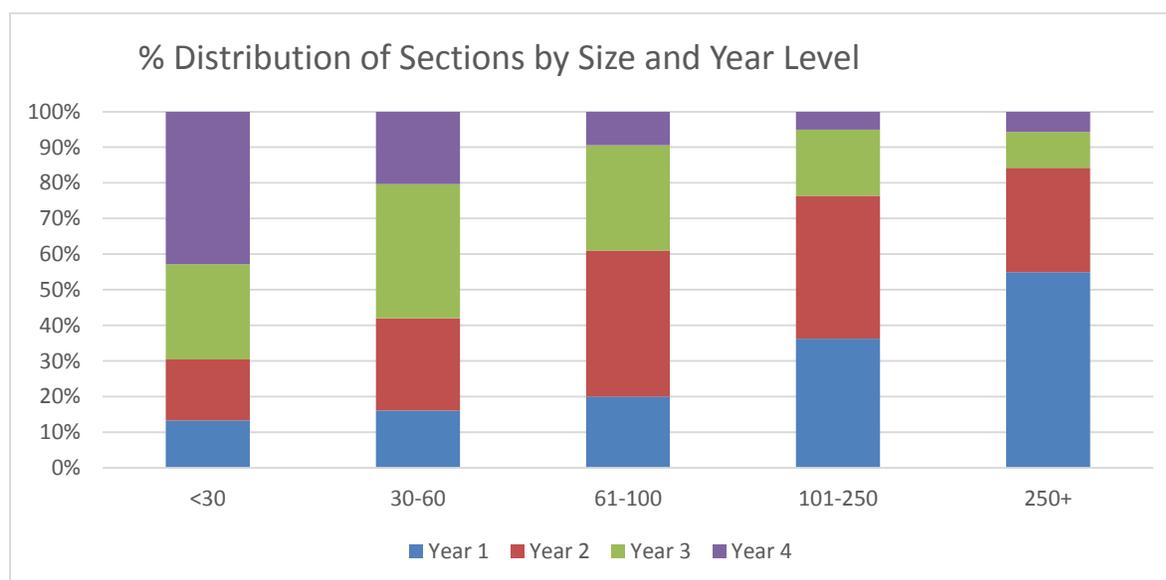
⁵³ For example, Science Honours and Social Work plus a few institutional specific programs.

⁵⁴ Committee on University Affairs, *A Formula for Operating Grants to Provincially-Assisted Universities in Ontario*, Report to the Ministry of University Affairs, November, 1966.

The preceding takes on added import when attempting to use the formula program weights and defined grant values as a proxy for cost at the year level; the acknowledged differences in cost by year level are masked by the average – thus overstating the cost in the early years of the program and understating the costs in the upper years.

Why are there differences in cost by year level? The simple explanation is that a large number of the 1st and 2nd year classes tend to be more general foundational courses delivered in lecture format to larger classes while upper year courses reflect program specialization thus requiring greater numbers of courses with limited class size. The preceding is illustrated in Figure 1 calculated from Common University Data Ontario (CUDO) information. For example, over 50% of 1st year courses are in classes of 250+ versus approximately 5% of 4th year classes. Conversely, over 40% of 4th year classes are in class sizes of <30 versus slightly more than 10% of 1st year classes.

Figure 1: % Distribution of Classes (sections) by Size and Year Level



Source: Authors calculations from Common University Data Ontario Table H2a - Undergraduate Class Size by Year Level (Sections), Fall 2012

The number of classes (sections) is a key cost driver since each class requires an instructor, administrative/technical support, and space. The course/class requirements, along with the number of students, also affects other direct academic services such as the Library and Information Technology. Institutions can, and do, employ full-time and part-time faculty and utilize teaching assistants to address the instructional requirements (class room teaching, tutorials, marking and student evaluation) and therefore “input costs” will vary somewhat by class/section depending on how a department decides to manage its instructional demand/requirement. In general, however, the most important factor in the ‘cost equation’ per student is simply the

number of students per class; the larger the class size the lower the average 'cost' per student.

It is also important to note, however, that senior faculty teach more upper year and graduate courses than junior faculty.⁵⁵ Senior faculty are paid more than junior faculty and therefore one of the key 'cost inputs' is higher in the upper division. The converse applies as well.

As noted previously, in cases where jurisdictions conduct cost studies to inform the establishment of program weights and/or to meet legislative requirements there is a distinct difference between 'lower division' and "upper division" costs. (e.g., Texas, Illinois, Ohio, Florida).⁵⁶ The weights from those jurisdictions could be used as a proxy for the difference in the lower division and upper division in programs in Ontario. The use of the U.S. program weights may provide a more accurate reflection of the distribution of the operating grant between lower division courses and upper division courses. Readers should keep in mind that the focus here is the operating grant funding provided by the provincial government through the formula funding mechanism – this is **not** a calculation of institutional program cost but rather a method to derive a 'lower division' and 'upper division' estimate of the government grant by program.

The results of the exercise (Table 5) provide a somewhat different view of government 'cost' relative to 'cost' associated with the Ontario Formula Weights. The total government cost for the duration of the program is based on the Ontario program weights⁵⁷ and the BIU value⁵⁸ (\$5,400 - \$2,386 Formula Fee). The illustration uses exactly the same total 'cost' to government for each Ontario program but applies the weights for the lower and upper divisions as per U.S. cost studies. The result produces a distribution of costs by year level that is different than the distribution arrived at by using the Ontario program weights.

The cost attribution in Table 5 also provides an estimate of the government's contribution to the first two years of university study which, it is argued, provides the basis for a better comparison with the government's contribution to community college programs.

⁵⁵ Ontario Council of Academic Vice-Presidents, *Faculty at Work*, Council of Ontario Universities, August 2014

⁵⁶ The Cost Studies – U.S. weights are taken from the Nevada System of Higher Education Higher Education Funding Formula Summary which was based on "relative cost data from studies conducted in Texas, Illinois, Ohio and Florida." (<http://system.nevada.edu/Nshe/index.cfm/initiatives/formula-funding-study/summary-of-the-funding-formula-recommended-for-higher-education-march-2014/>) For more detail of the actual cost studies see Conger, S.B., Bell, A., Stanley, J. (2010) *Four State Cost Study*, State Higher Education Executive Officers (SHEEO), Updated Version, September 2010 p.1. Interestingly the SHEEO study also concluded that in the two states - Illinois and Ohio - where "the average cost per student credit hour at public community colleges could be compared to the Lower Division Undergraduate level at the public baccalaureate institutions.... this average cost (across all disciplines) was approximately the same in both sectors." p.2

⁵⁷ Postsecondary Finance & Information Management Branch, *The Ontario Operating Funds Distribution Manual*, 2009-10 Fiscal Year, Ministry of Training, Colleges and Universities, 2009.

⁵⁸ Actual value for 2014-13 is \$5403.

Table 5: Estimated ‘Cost’ to Government of Select University Programs

(Translating Ontario’s Program Weights into Year Level Weights and Attributing Operating Grants by Year Level)

	Ontario Formula Weights			Year-level Weights (Cost Studies U.S.)		
	Arts General	Arts Honours	Business	Arts General	Arts Honours	Business
Year 1	1.0	1.0	1.5	1.0	1.0	1.0
Year 2	1.0	1.5	1.5	1.0	1.0	1.0
Year 3	1.0	1.5	1.5	2.2	2.2	2.2
Year 4	-	1.5	1.5	-	2.2	2.2
Total	3.0	5.5	6.0	4.2	6.4	6.4
Basic Operating Grant (BOG)			Estimated 'costs' - government portion			
Year 1	\$ 3,014	\$ 3,014	\$ 5,086	\$ 2,153	\$ 2,855	\$ 3,179
Year 2	\$ 3,014	\$ 5,086	\$ 5,086	\$ 2,153	\$ 2,855	\$ 3,179
Year 3	\$ 3,014	\$ 5,086	\$ 5,086	\$ 4,736	\$ 6,281	\$ 6,993
Year 4		\$ 5,086	\$ 5,086		\$ 6,281	\$ 6,993
Total	\$ 9,042	\$ 18,272	\$ 20,344	\$ 9,042	\$ 18,272	\$ 20,344

College funding – cost to government

Arriving at a reasonable estimate of the government’s ‘cost’ of community college programs poses somewhat of the same challenge as deriving the government’s contribution to university costs – that is in the absence of specific year level funding data by program, one is left with using program weights set by government.⁵⁹ A major difference between community colleges and universities, however, is that the vast majority of students in college are in 1st or 2nd year of study⁶⁰ thus making it somewhat easier to conclude that the program weights represent a reasonable estimate of year level cost to the government. At the same time, the existence of a province-wide Standard Workload Formula (SWF) and province wide salary scales in the community colleges means there is likely greater program cost conformity. Finally it is important to note that the college ‘weights’ were developed in the late 1980’s based on a college cost study that considered program length, contact hours and delivery mode. The resulting range of college program weights is quite narrow, compared to university program weights, perhaps reflecting the relative importance of program duration to cost and, as noted previously, the impact of college compensation and workload policies that

⁵⁹ The current college ‘weightings’ were developed in the late 1980s, implemented in 1991/92, and were intended to reflect program metrics (costs, program length, contact hours, delivery mode etc.) at the time. The actual calculation involves a specified program weight, a funding unit weight that addresses program duration and, if needed, an adjustment for applied bachelor programs. Funding weight information is from Ministry of Training, College and Universities documents.

⁶⁰ Estimate from Ontario Open Data <https://www.ontario.ca/education-and-training/college-enrolments> Headcount by College and Level of Study. Approximately 90% of enrolments are in 1st or 2nd year of the program. Using credentials granted data, of those College students who completed their programs, approximately 20% graduated with a one-year certificate, 50% with a 2-year diploma, 20% with a 3-year Advanced Diploma and the remainder with either an applied degree (1%) or a graduate certificate.

contribute to cost convergence in many programs. The preceding points suggest the government's college program weights are a reasonable reference to establishing the government's cost at the program level. For the most part the relevant college 'weight' is 1.0 for each year of study (i.e., general arts program, business administration programs) and the value is approximately \$4300 per year of study.⁶¹

A counterpoint to the preceding may be that in the United States there is some evidence of considerable differences in community college costs by program (Romano et al, 2010, Seybert and Rossol, 2010). Moreover unlike universities where discipline is regarded as a key factor influencing differences in institutional cost the ratio of full-time to part-time staff appears to be a much more significant variable in the American community college cost equation (Seybert and Rossol, 2010). In Ontario, the College Employer Council reported that the number of part-time faculty was more than double the number of full-time faculty in 2012-13 (15,314 part-time and 7,362 full-time) but there is no distribution by program.⁶²

To the extent there are major differences in the distribution of part-time faculty by year level and/or by program (and to the extent those differences were not reflected in the Ontario college weights) the actual 'cost' could be different than the 'average' cost reflected in the college program weights. However, given the system-wide workload and compensation arrangements in the community colleges it is likely that the original premise holds; the program weights are a reasonable reference to establish the government's cost.

To arrive at an estimate of the government contribution to the credit transfer pathway to a baccalaureate, the upper year costs of degree completion (from Table 5) can be added to an estimate of college costs to arrive at an estimate of the government's cost of a transfer credit pathway approach. That, in turn, can be compared to the cost associated with a direct-entry to university pathway to a baccalaureate. Table 6 compares the government 'cost' of direct entry programs with a credit transfer pathway to a baccalaureate in Arts/Social Sciences or Business. The various government grants are calculated as per Table 5 in the case of the universities, and, as noted, by using a program weight of 1.0 and Funding Unit value of \$4300 for the colleges.

The key result is that when comparing the 1st two years of instruction between a university and a community college the 'cost' to government – as determined via the existing program weights and, in the case of universities, attributed by year level – is lower in the universities. The remaining parts of the table illustrate the government's operating grant 'cost' through to completion and in every case the credit transfer approach 'costs' the government considerably more than the direct-entry pathway, even if it takes only one more year of study.

⁶¹ In fact the weight of 1.0 may be on the low side since programs such as Early Childhood Education and Social Service Worker, two programs noted as a source of transfer students (Decock, H., et.al., (2011) Table 9) have somewhat higher weights. Actual value of a Weighted Funding Unit is \$4317 for 2013-14.

⁶² Colleges Ontario, *Environmental Scan 2014*, College Resources Table 2, p.10

The following illustration in Table 6 assumes a college graduate with a one-year diploma would require 3 years at a university to complete a general baccalaureate. A college student with a two-year diploma would require a minimum of 3 years at the university to complete an honours baccalaureate and a college student with a three-year diploma would require a minimum of 2 years to complete an honours equivalent (i.e. Commerce). In some cases the college transfer student may need bridging courses as a prerequisite for admission to the baccalaureate degree program. For purposes of the estimates, any bridging courses are assumed to constitute part of the added duration and 'cost' to government. The illustration also assumes the student is attending full-time each year.

Table 6: Estimated Cost to Government (Operating Grant) of a Direct-entry University Pathway versus College to University Credit Transfer Pathway

University Direct Entry Pathway				Credit Transfer Pathway		
Arts General	Arts Honours	Business		Arts General	Arts Honours	Business
\$ 2,153	\$ 2,855	\$ 3,179	Year 1	\$ 4,300	\$ 4,300	\$ 4,300
\$ 2,153	\$ 2,855	\$ 3,179	Year 2	\$ 2,153	\$ 4,300	\$ 4,300
\$ 4,736	\$ 6,281	\$ 6,993	Year 3	\$ 2,153	\$ 6,281	\$ 4,300
	\$ 6,281	\$ 6,993	Year 4	\$ 4,736	\$ 6,281	\$ 6,993
			Year 5		\$ 6,281	\$ 6,993
\$ 9,042	\$ 18,272	\$ 20,344	Total	\$ 13,342	\$ 27,443	\$ 26,886
			Year 6		\$ 6,281	\$ 6,993
\$ 9,042	\$ 18,272	\$ 20,344	Total		\$ 33,724	\$ 33,879

The government's grant per college student is estimated at \$4,300 per year. The government grant per university student is based on the derived values as calculated in Table 5.

The preceding table is based on the cost to government as defined solely by the amount of grant funding that is distributed via the existing enrolment based formulas excluding special purpose grants whose actual impact on 'credit transfer pathways' is more difficult to gauge.

In sum, based on the preceding assumptions, the Operating Grant 'cost' to government is higher if a student pursues the credit transfer route.

- Over \$4,000 higher in the case of the credit transfer Arts General pathway versus the university direct-entry approach (\$13,342 - \$9,042).
- Over \$9,000 higher in the credit transfer Arts Honours program (\$27,443 - \$18,272) with an incremental \$6,281 if an additional year is required to complete the degree.
- Over \$6,000, and up to more than \$13,000, higher in the credit transfer Business pathway (\$33,879 - \$20,344).

The cost to government of student assistance was derived from OSAP information provided by the Ministry of Training Colleges and Universities. Information was requested to determine if there were differences in the OSAP undergraduate population (aggregated data only) engaged in potential 'credit transfer' activity versus the OSAP 1st entry undergraduate population. The major identifier was 1st entry undergraduate

students with previous college studies who had received OSAP at some point in their college experience and were continuing to receive OSAP after enrolling in a 1st entry university undergraduate program. The results of the analysis indicated that

- The proportion of university students in 1st entry undergraduate programs with college experience receiving OSAP has increased from about 4.4% in 1997-98 to 6.4% in 2012-13 or from approximately 3,500 to 10,600 students.
- The 2012-13 age-distribution of the 'college experience' students is quite different with a much higher proportion categorized as 25 or older (40% versus 10% in the 1st entry undergraduate group as a whole).
- The 2012-13 gender mix is somewhat different; 38% male and 62% female in the 'college experience' group versus 43% male and 57% female in the 1st entry undergraduate group as a whole.
- In terms of differences in the amount and duration of OSAP, the 'college experience' group has higher average loan values per year (\$9,704 vs. \$6,905 in 2012-13), higher average Ontario Student Opportunity Grants (OSOG) (\$5,387 vs. \$3,504) and averaged approximately 1.6 more years of OSAP than the 'direct entry' group. It is important to note that the calculations are at the group level, not individual level.

The OSAP data is reasonably clear – the 'college experience' students are in postsecondary longer, thereby incurring higher loans and receiving more government grant (OSOG). For purposes of this exercise the important part is the overall length of time to completion. If the added time is one more year the added direct cost to government is the OSOG, estimated to be \$5,387 based on the average OSOG awarded for the 'college experience' group in 2012-13, as well as an additional year of interest deferral on the outstanding student loans.

The tax credits noted earlier constitute the final piece of the government 'cost' section.⁶³

The total cost to government sums as follows:

- Relative to a student pursuing a baccalaureate via the direct-entry pathway an Ontario student pursuing a credit transfer pathway costs the government an additional \$4,000 to \$9,000 in operating grants and the amount could be as high as \$13,000 (Table 6).
- The government's student aid cost is estimated to be approximately \$5,400 to \$10,800 higher due to the OSOG associated with program duration (Table 2).
- The provincial government's tax credit cost of the Tuition Tax Credit and the Education Tax Credit is estimated to be an additional \$200 to \$700 depending on program duration (Table 2).⁶⁴

There would be additional OSAP related costs associated with loan interest deferral for students but for simplicity those particular 'costs' – while real – have not been added to

⁶³ Ministry of Finance, "Transparency in Taxation" 2013 Ontario Economic Outlook and Fiscal Review <http://www.fin.gov.on.ca/en/budget/fallstatement/2013/transparency.html>

⁶⁴ Calculated as a direct-entry cost of 4 years at \$511 per year versus a credit transfer route of 2 years a college at \$360 per year plus 3 or 4 years at university at \$511 per year.

the total. Similarly, other student assistance government costs (e.g., interest relief after graduation, loan default costs) have not been factored into the equation.

Cost from an institutional perspective

As noted earlier, cost to the institution includes the direct cost of delivering the program, the 'indirect costs' (e.g., department and organizational costs, central administration, physical plant, student services, library, and information technology), and institutional student assistance costs. For the sake of completeness one should add capital costs, but for this report capital costs will be largely excluded other than the regular maintenance costs included as part of physical plant operating costs.

Identifying specific institutional 'credit transfer' costs is difficult because at the program level a major portion of the 'cost' is incurred in the classroom and is no different than the 'cost' incurred for a direct-entry student. In the event bridging courses or remediation courses are required as part of the credit transfer student regime the institution clearly incurs added cost over and above the norm. However, to the extent the added costs for those 'extra' courses are covered by tuition and/or operating grants, the requirement for such courses is cost/revenue neutral to the institution. A key variable is the size of the bridging class; if the class is similar in size to the average class size for that program, the 'cost' per student will be average, if smaller the cost will be greater than average. In determining how many transfer students to admit, a department (and institution) will pay attention to the size of the bridging classes, the capacity of existing courses/sections, and whether such courses will be taught by full-time or part-time faculty and delivered on-line and / or in-person on campus.

Since 2010-11 additional funding has been provided to colleges and universities in Ontario through special purpose grants (noted earlier) called Credit Transfer Institutional Grants (CTIGs). The CTIGs are part of the Ontario government's five year \$73.7 million investment in improving credit transfer and are intended to fund or help fund i) data collection and reporting in support of credit transfer, ii) transfer facilitation such as advisors and student support programs and iii) the development of new and/or improved pathways. CTIG's in total are about \$8 million annually (colleges and universities combined) and are distributed via a formula based on credit transfer activity.

Whether the CTIGs are covering the total incremental cost of credit transfer is difficult to discern from the existing data. As noted previously, colleges and universities utilize accounting and financial reporting conventions based on functional areas and objects of expense that do not capture the discrete costs associated with different types of enrolment activity such as credit transfer activity.

It is clear, however, that universities incur added cost; what is not clear is how much added cost. The following examples provide an indication of the categories of on-going costs.

- **Development and administration of partnership and articulation agreements**

Developing, maintaining and sustaining mobility pathways that involve credit transfer require considerable time and effort on the part of individuals in the organization from the Provost, Dean and Department Head to the Registrar, Senate Secretary, and individuals managing quality assurance.

- **The development and administration of Admissions policies and processes for credit-transfer students**

Universities have taken a number of steps to automate various aspects of the admission process to handle thousands of applications. To put some numbers on the task; in 2001 universities processed almost 240,000 secondary school applications and 70,000 non-secondary school applications to direct entry undergraduate programs. In addition there would be applications to second-entry professional programs and graduate programs. In 2014 the number of applications from secondary school had increased to 414,000 (+73%) and the number from non-secondary school sources almost doubled to 138,000.⁶⁵ The latter group captures a variety of student applicants including credit-transfer students. The admission of credit transfer students tends to be more time consuming, and therefore more costly, due to the manual intervention necessary to review compliance with admission standards and determine credit transfer. Such initiatives also tend to require IT support as changes are required in administrative systems to 'capture' the credit transfer activity.

- **Academic support costs / student services costs**

Credit transfer students generate academic / student services support costs as they make the transition to university studies from college. Those costs may involve more academic counselling, greater participation in study and research skills workshops and potentially greater use of a variety of student services. Exactly how much 'incremental' cost is associated with the credit transfer students is difficult to gauge since the university will have those services in place but may not differentiate the usage statistics on the basis of 'type of student'. What is clear is that expenditures in the Academic Support and Student Services expenditure categories have increased markedly over the past several years.

- **Institutional student assistance**

Another part of the institutional cost equation is the cost associated with providing institutional aid to credit transfer students. Specifically some institutions have credit transfer specific awards that are restricted to credit transfer students and, arguably, represent incremental 'cost' to the institution. Additionally, as noted earlier the profile of credit transfer students is such that they are awarded more OSAP than the 'average', more of them will be ineligible for the OTG, and they will access university need-based and merit-based awards.

⁶⁵ Ontario Universities' Application Centre, select years, undergraduate application statistics

- **Foregone income**

Another part of the institutional cost equation for credit transfer involves assessing the foregone income associated with admitting credit transfer students. In the case of foregone income the issue is whether an institution is 'better off' accepting one more direct-entry student and receiving income for all years of the program (as well as incurring the costs) or accepting one more credit transfer student and foregoing the credit transfer equivalence in operating income (tuition and grants). The institution does not have to incur the direct cost of the credits earned elsewhere but it does forego the income. Given that the 'upper division' costs are greater than average program costs the acceptance of a credit transfer student essentially means that a university foregoes 'average' income from the lower division part of the program and yet incurs greater than average costs since it has to provide a greater proportion of its program instruction in the more costly upper years. For example, if a student spends 2 years in college and completes a diploma s/he could earn one full year of credit transfer towards a four-year degree at a university. The university foregoes one year of income (grant and tuition) during the least costly part of the university program. The university then receives grant and fee income for a minimum of 3 years of attendance. Depending on the time to completion the university may recoup part of the foregone income but, of course, it is incurring 'cost' as well.

A final consideration in the institutional cost equation is that universities seek to maximize income. And income is not necessarily representative of actual program costs nor institutional activity costs except at the overall institutional level. There, income necessarily equals expenditure – if the books are to be balanced. Internally, however, there are a host of cross-subsidies that occur based on funding realities, priorities and circumstance. Cases in point are graduate education and research. The cost of research-based graduate programs and research in general are not adequately reflected in Ontario's program weights or tuition or through other operating grants. Hence, the institution provides subsidies – subsidies that are generated by maximizing income wherever possible, including in undergraduate programs. In that environment why would a university make a conscious decision to forego income?

The preceding consideration may help explain the major differences in institutional emphasis on credit transfer in Ontario. Those institutions with sufficient direct entry demand to meet enrolment capacity targets have no financial incentive to recruit students from college who want to transfer credits, nor do they have incentive or a need to invest in articulation agreements/activities. There may be a case for credit transfer recruitment in upper years as part of an overall enrolment management strategy but only if there is capacity. And in such cases a university may well opt for admitting a transfer student from another university rather than a college because of the 'known quantity' factor.

For those institutions with less selective admission practices and/or with a designated mandate (institutional or provincially inspired) the financial reality is different. Institutions may be prepared to forego some grant and tuition income for a variety of reasons.

- The institution may simply have little choice. Universities have a relatively high proportion of fixed costs and require a certain number of students – direct-entry or otherwise – to balance the budget.
- The need to maximize income to subsidize graduate education and research may be less due to a lower level of activity in those areas.
- The institution may have organized its programs, program delivery costs, and services to align with the available revenue (less program and course selection, somewhat higher teaching loads, greater utilization of part-time faculty, and efficiencies in service delivery). In effect the institution reduces or manages its average cost for certain programs that are attractive to credit transfer students.
- The institution has underutilized capacity and therefore its marginal cost is less than the generated revenue. Or capacity can be added at marginal cost through the measures noted previously.
- Institutional mission and local circumstance override financial considerations. To meet stated objectives or commitments the institution may incur greater costs (or forego income). Clearly such an approach is not sustainable in the longer term without compensating subsidies from other parts of the organization and/or changes in program/course delivery to bring costs in line with revenue.

The emphasis on income and foregone income helps to illustrate why revenue considerations tend to be a key factor influencing the development of college-university credit transfer arrangements.⁶⁶ While a college and university could, in theory, examine revenue in the context of costs and seek to maximize both aspects of the financial relationship there is a tendency to focus on revenue. That may be due to neither party wanting to disclose its real costs for fear of revenue or strategic implications. Or it may simply reflect the fact either or both parties have internal cost structures that involve considerable cross-subsidies; the onus then turns to revenue generation and revenue sharing. Or, of course, it may simply reflect a lack of cost information due to a reluctance to invest or engage in an exercise that relies on the subjective apportioning of faculty and staff time across a multitude of activities.

Whatever the reason, the end result is that less is known about the institutional *cost* of credit transfer – especially at the program level, other than in specific collaborative or joint programs. And even there the emphasis appears to be on revenue rather than costs. More importantly, in specific collaborative or joint arrangements institutions seem prepared to weight other factors/considerations (partnerships, profile, politics and local sharing of resources) more important, or just as important, as overall financial considerations.

⁶⁶ Lang, D., Op.cit., p.368

In sum then the added institutional cost of credit transfer is as follows:

- The costs of bridging course requirements, that may or may not be covered with tuition and operating grant revenue;
- Development and administration of partnership and articulation agreements;
- The development and administration of Admissions policies and processes for credit-transfer students;
- Academic support costs / student services costs;
- Institutional student assistance; and
- Foregone income.

The preceding suggests that, at a minimum the CTIG grants, should continue to help address some of the added costs associated with credit transfer.

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Based on the preceding illustrations the credit transfer pathway to a baccalaureate is considerably more expensive to students and government and is more expensive to universities that have sufficient direct entry demand to meet enrolment capacity targets.

- Additional cost to a student would range from approximately \$35,000 to \$ 70,000 depending on the time spent in completing the baccalaureate and including an opportunity cost of \$30,000 per year after four years (Table 3).
- Additional cost to the government would range from approximately \$4,000 to \$9,000 in operating grants and the amount could be as high as \$13,000 (Table 6), plus an additional almost \$6,000 per year in student assistance and tax credits (Table 2).
- Additional cost to the institution is difficult to 'pin down' but is essentially the existing CTIG allocations, added student assistance (~\$2,000 per year) and foregone revenue estimated at \$9,000 representing 1 year of operating grant plus tuition (\$6,000 tuition plus, for illustrative purposes, \$3,000 operating grant, the approximate value of the operating grant for a 1<sup>st</sup> year Arts student).

The preceding information clearly indicates that 'cost' is about more than just the student sticker price and the average value of the operating grant. Presumptions about cost efficiency need to be tested by developing more comprehensive approaches to considering 'cost' from multiple perspectives.

### **'System' implications - jurisdiction comparisons**

Having illustrated the costs from a student perspective, government perspective and institutional perspective in Ontario, we turn now to the comparative part of the report and examine whether jurisdictions with a greater reliance on credit transfer as a key structural component of their postsecondary system are more cost efficient and effective. In Canada the two provinces that have adopted a college to university transfer

approach as a major part of their PSE policy framework are British Columbia and Alberta.<sup>67</sup> In developing their credit transfer activities both provinces have invested heavily in credit transfer agreements and in establishing credit transfer agencies to facilitate arrangements. The agencies themselves are not all that large (BCCAT, ACAT) and they rely on faculty time to establish articulation agreements. How much time? Difficult to tell from published reports and there does not appear to be estimates of the faculty time (and cost) to the institution. The absence of such information is unfortunate because it leaves an impression that the full cost of operating a detailed course articulation system is minimal.<sup>68</sup> In the absence of more detailed cost information about the actual 'costs' of credit transfer we turn to a broader comparison of Ontario's postsecondary education 'costs' relative to other jurisdictions.

How does Ontario stack up? HEQCO's performance indicators capture Ontario's relative performance in the following fashion:

In three of the four postsecondary performance domains examined for HEQCO's first annual performance indicator report, Ontario fares reasonably well. Comparatively, the system is efficient and productive. Its considerable investments in creating an accessible system places Ontario at the forefront of Canada and among world leaders in enrolment and attainment. Educated Ontarians (and their fellow Canadians) are more likely to be civically engaged and satisfied with their lives than citizens of other OECD nations. It's largely a good news story, but one that demands a new headline: It's time to focus on quality. And therein lies the caveat for this report and the challenge ahead for higher education systems in search of definitive quality measures.<sup>69</sup>

HEQCO ends its report by noting the relatively productive nature of the PSE system (efficient and effective) but also noting that there is 'work to do' to improve Ontario's performance.

Postsecondary education pays dividends to both individuals and society as a whole on a number of indicators of civic engagement and quality of life. Ontario has made this desirable outcome available to a large proportion of its citizens through an impressive track record of increased access, and has a highly educated population. The province has accomplished this while maintaining a relatively productive system, which looks lean compared to other provinces.

As good as this is, there are three challenges to be met. The first is the relentless pursuit of quality, so that all of the access and opportunity Ontario has provided remains tightly tied to good educational outcomes and rewarding employment prospects for graduates. Second is the effective use of resources to protect and enhance quality in an

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<sup>67</sup> Quebec also has a 'transfer' system in place but it is sufficiently different and has not been included in this study. An in-depth examination may be warranted.

<sup>68</sup> Constantineau, P., *The Ontario Transfer Credit System: A Situation Report*, Academic Colleagues Working Paper, Council of Ontario Universities, 2009 "It would be a formidable undertaking to duplicate the kind of system that British Columbia and Alberta have established, and have all the available college courses systematically assessed for university credit." P.6

<sup>69</sup> HEQCO, Op.Cit., p.3

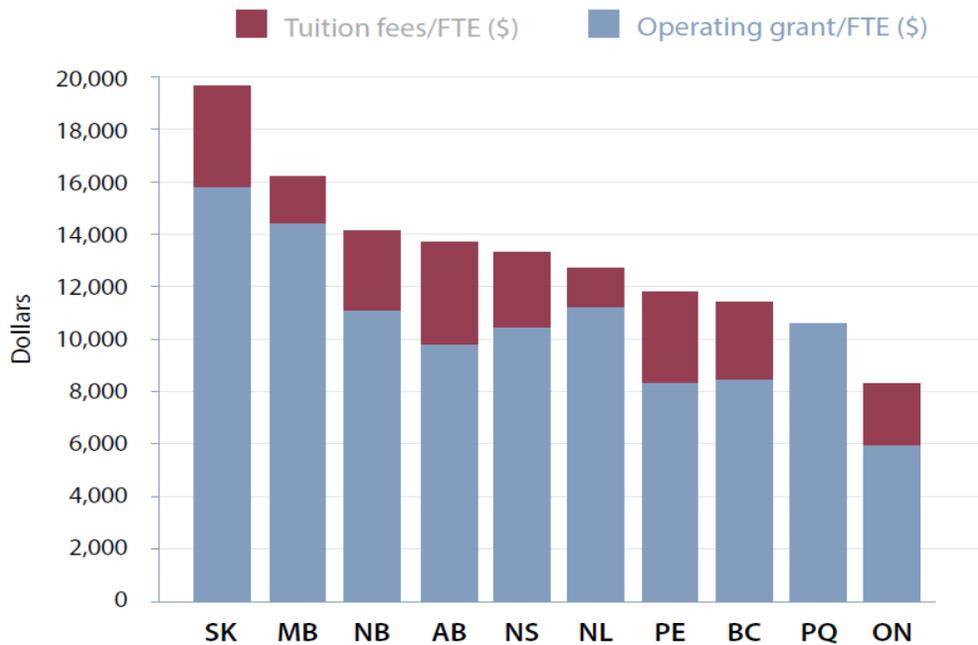
environment of fiscal restraint. The final challenge is to fix the deficiencies in data collection so that we can measure the successes of the system with confidence.<sup>70</sup>

The very last point in the preceding excerpt from the HEQCO report speaks to the difficulty of generating true ‘apples to apples’ comparisons but also speaks to a particular problem – “The data available for colleges do not generally allow for inter-provincial comparisons....”<sup>71</sup> Colleges Ontario produces its own comparison of college resources by province and while it has limitations, seems to suggest that the Community Colleges are operating in an efficient fashion, as evidenced in the following figure from Colleges Ontario’s Environmental Scan (2014).

**Figure 2: Excerpt from Colleges Ontario, Environmental Scan 2014**

**3. TRENDS IN COLLEGE FUNDING – CONTD.**

Figure 4. Estimated grant and tuition fee revenue per college student, all provinces 2012-13



Notes: Ontario figures exclude the tuition set-aside and collaborative and second-entry nursing and clinical education funding for collaborative nursing. Operating grants and enrolments are for provincially funded activity and exclude apprenticeship. Enrolment and funding data for Quebec are for full-time students.

Sources: Colleges Ontario, Ontario Ministry of Training Colleges and Universities, relevant provincial ministries.

The HEQCO and Colleges Ontario analyses are borne out by a ‘rough and ready’ comparison of college and university revenues across the three provinces and normalized by student enrolments (FTE) and credential completion information. Table 7 relies on Statistics Canada data, via CAUT’s Almanac 2013-14, and an interprovincial

<sup>70</sup> Ibid., p.37

<sup>71</sup> Ibid.

comparison of universities revenue conducted by the Council of Ontario Universities (2012) to shed some additional light on the topic of Ontario's relative efficiency.

**Table 7: Ontario 'efficiency' relative to British Columbia and Alberta**

|                                                                                          | British Columbia |              | Ontario       |               | Alberta      |              |
|------------------------------------------------------------------------------------------|------------------|--------------|---------------|---------------|--------------|--------------|
|                                                                                          | College          | University   | College       | University    | College      | University   |
| Provincial Grants                                                                        | \$ 663,717       | \$ 1,751,305 | \$ 1,879,020  | \$ 4,324,731  | \$ 812,157   | \$ 1,964,923 |
| Total Revenue                                                                            | \$ 1,078,409     | \$ 4,386,191 | \$ 3,613,295  | \$ 12,805,465 | \$ 1,351,600 | \$ 3,915,161 |
| FTE Students                                                                             | 56,549           | 122,200      | 223,368       | 422,384       | 43,909       | 105,109      |
| Grants / FTE                                                                             | \$ 11,737        | \$ 14,331    | \$ 8,412      | \$ 10,239     | \$ 18,496    | \$ 18,694    |
| Relative to Ontario                                                                      | 1.40             | 1.40         | 1.00          | 1.00          | 2.20         | 1.83         |
| Total Revenue / FTE                                                                      | \$ 19,070        | \$ 35,894    | \$ 16,176     | \$ 30,317     | \$ 30,782    | \$ 37,249    |
| Relative to Ontario                                                                      | 1.18             | 1.18         | 1.00          | 1.00          | 1.90         | 1.23         |
| College & Univ Combined - Provincial Grants                                              | \$ 2,415,022     |              | \$ 6,203,751  |               | \$ 2,777,080 |              |
| College & Univ Combined - Total Revenue                                                  | \$ 5,464,600     |              | \$ 16,418,760 |               | \$ 5,266,761 |              |
| College & Univ Combined - Total FTE Enrolment                                            | 178,749          |              | 645,752       |               | 149,018      |              |
| Provincial Grants per FTE                                                                | \$ 13,511        |              | \$ 9,607      |               | \$ 18,636    |              |
| Relative to Ontario                                                                      | 1.41             |              | 1.00          |               | 1.94         |              |
| Total Revenue per FTE                                                                    | \$ 30,571        |              | \$ 25,426     |               | \$ 35,343    |              |
| Relative to Ontario                                                                      | 1.20             |              | 1.00          |               | 1.39         |              |
| <b>Community College , Undergraduate and Graduate Qualifications Awarded (2010-2011)</b> |                  |              |               |               |              |              |
| Comm. Coll. diplomas and certificates                                                    | 26,865           |              | 47%           |               | 14,823       |              |
| Undergraduate Degrees                                                                    | 24,204           |              | 42%           |               | 18,069       |              |
| Masters and Other Graduate Degrees                                                       | 5,187            |              | 9%            |               | 3,531        |              |
| Doctorate                                                                                | 711              |              | 1%            |               | 654          |              |
| Total                                                                                    | 56,967           |              | 100%          |               | 37,077       |              |
| Provincial Grants per Qualification                                                      | \$ 42,393        |              | \$ 35,238     |               | \$ 74,900    |              |
| Relative to Ontario                                                                      | 1.20             |              | 1.00          |               | 2.13         |              |
| Total Revenue per Qualification                                                          | \$ 95,926        |              | \$ 93,261     |               | \$ 142,049   |              |
| Relative to Ontario                                                                      | 1.03             |              | 1.00          |               | 1.52         |              |
| <b>Interprovincial Comparison of University Revenues</b>                                 |                  |              |               |               |              |              |
| Funding per 'Weighted' Student                                                           | \$ 8,761         |              | \$ 7,024      |               | \$ 9,297     |              |
| Relative to Ontario                                                                      | 1.25             |              | 1.00          |               | 1.32         |              |

The data reinforces the HEQCO findings and suggests that funding in B.C. and Alberta is markedly higher than in Ontario by sector and combined. Provincial grants per FTE for the college and university sectors combined, for example, are calculated as 40% higher in B.C. and over 90% higher in Alberta. In terms of provincial grant funding per qualification B.C. and Alberta are markedly higher. B.C.'s total revenue per qualification is similar to Ontario's (with an apparent higher proportion of college credentials than Ontario) while funding in Alberta is 50% higher. A more detailed Interprovincial Comparison of University Revenue published by the Council of Ontario Universities (2012) with adjustments for differences in discipline 'mix' and the enrolment level

(undergraduate, professional, graduate) indicated that operating grants and tuition per student (adjusted for discipline and enrolment level 'mix) were over 30% higher in Alberta and 25% higher in British Columbia.

The comparability of the data from province to province is a constant challenge and the 'mix' of college/university enrolments and credentials along with the 'mix' of disciplines will affect the comparisons. Moreover, a focus on provincial grants and total revenue may create comparability problems especially with respect to capital grants and research funding. Nevertheless, the relative magnitude of the difference in per unit resources is sufficient to illustrate that the Ontario 'system' appears to be efficient.

Turning to jurisdictions in United States the following analysis focuses on specific states where credit transfer is regarded as a key part of the postsecondary system — California, Ohio, Florida, Pennsylvania and Texas. Post-secondary education in the United State is noted for its institutional diversity – public and private and a range of institutional 'types' from research intensive doctoral universities to community colleges. States differ in their approaches to higher education in the same way that provinces differ and consequently trying to establish a true 'apples to apples' comparison among the states is a challenge.

In the United States there are various agencies and organizations that collect and analyze higher education data. Over the past fifteen years or so, as tuition increased markedly largely as a result of state funding cut-backs, the topic of higher education 'cost' has generated greater attention among various higher education stakeholders. Accordingly, considerable effort has been invested in developing a better understanding of 'cost' – cost to the student, to the state, and to the institution.

As noted earlier, one of the leading efforts is the Delta Cost Project<sup>72</sup> which draws on public information collected by the National Center for Education Statistics (NCES). Details about the Delta Cost Project are included in Appendix B along with detailed State profiles produced by the Delta Cost Project.

The comparison of State profiles is instructive because it helps underscore the diversity of the postsecondary landscape in the United States. For example the proportion of public PSE enrolments in community colleges ranges from approximately 70% in California to 34% in Pennsylvania. Similarly, the presence of private institutions (for profit and not-for-profit) can have a marked impact on the structure of the state system. In Pennsylvania almost 50% of students are enrolled in private institutions while that number is less than 20% in California and Texas, and about 30% in Ohio and Florida, the latter two states reflecting the national average.

In terms of **cost to the student** the 'net cost' calculated by the Delta Cost Project is lower at community college in each of the five states and in terms of the national average. As the key access point for a large part of the post-secondary population, states have made concerted efforts to keep tuition fees low relative to four-year

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<sup>72</sup> <http://www.deltacostproject.org/>

universities. Even so, in Ohio there is virtually no difference in tuition between community colleges and baccalaureate universities.

In terms of **cost to the state**, the Delta Cost Project data indicates that in Texas, Pennsylvania, Florida and California there are categories of four-year universities where the state grants, on average, are lower than state grants to community colleges. In Ohio the state subsidy to community colleges is a bit lower than Master's public institutions in the state (essentially the regional four-year universities in the Ohio state system). The state results are reflected at the national level where Master's institutions – state regional universities – have the lowest average state subsidy.

In terms of **cost to the institution** it is clear that total costs per FTE are higher at four-year universities than community colleges although as noted earlier in the report discipline 'mix' plays the major role in explaining differences in institutional cost (and state cost).

The Delta Cost Project also provides a measure of output to help inform discussions about cost by calculating the average expenditure (cost) **per completion**. Florida stands out as a state with an average expenditure per completion in its community colleges that is well below the same measure in its public universities. However, that is not the story in the other four states. In California the lowest cost per qualification is in the state university system (California State University) by a fairly significant margin relative to the research university system (University of California) and the California Community College system. In Ohio, average expenditure per completion is lowest in the community colleges but, interestingly Ohio's research universities are only about 6% higher (\$62,406 compared to \$58,925). A similar pattern is evident in Texas where average expenditure per completion in the community colleges is the lowest but the difference is about 10% relative to four-year universities. In Pennsylvania the average expenditure per completion is lowest in the community colleges (\$59,234) but not too far from the average expenditure at the regional universities (Master's) in the state system (\$63,569). Nationally the lowest average expenditure per completion is in the community colleges. Again, it is important to note that the Delta Cost figures do not reflect differences in program 'mix' or program level.

The expenditure per completion data is of interest because completion rates provide another perspective on efficiency and effectiveness. The National Student Clearinghouse Research Center (NSCRC)<sup>73</sup> produces a comparable set of completion rates for each of the states by community college and university sectors. In all cases the completion rate for community college is well below that of four-year universities. NSCRC also tracks the six-year completion rates of the community college students who start at community college and complete at a four year institution. Again, the proportion is relatively low, suggesting that attrition in college is a major factor.

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<sup>73</sup> National Student Clearinghouse Research Center (NSCRC), *Signature Report 6, State Supplement*.

As noted earlier, the NCRSC has also examined the baccalaureate attainment rates over a longer completion time (eight years elapsed time)<sup>74</sup> and reported that the attainment rates are higher for those who transfer compared to direct entry students suggesting that once a student actually makes the transfer the chance of success is relatively high, especially for those who attend the four year institution full-time and who completed their Associate Degree program. Unfortunately the data is not reported by state. Nevertheless it reinforces the view that a community college to university 'system' can work where the system has been designed with transfer pathways in mind.

The conclusions one could draw from the U.S. data are that, on average,

- a) College costs from a student perspective are generally lower on an annual basis in the community college setting;
- b) State costs are lower at some state universities, especially state regional institutions;
- c) The baccalaureate completion rate of students starting in community college, on average, is less after six years than students starting at four-year institutions;
- d) The university completion rates of community college students who actually transfer is relatively high, especially for those students who completed an Associate Degree and who attend the four year institution full-time;
- e) Given the length of time to completion the opportunity cost is higher for 'transfer' students relative to starting at a four-year institution.

Readers should keep in mind that the U.S. states noted in this section have established credit transfer as a key component of their particular postsecondary system and have invested accordingly in access and curriculum alignment.

The Canadian data is not readily comparable to U.S. data for a variety of reasons, largely to do with the funding of research, the treatment of student assistance, differences in enrolment counting and differences in accounting. However, in an attempt to provide a rough comparison with the public universities and colleges in the United States, the Ontario financial data displayed in Table 7 was adjusted to conform to the financial data available in the Delta Cost Project. The end result, see Appendix B for details, indicates that average expenditure per FTE in Ontario universities is similar to the 'Master's' universities in the U.S. (that is the regional state universities) and the average expenditure per FTE in the community colleges is similar to the U.S. average. There has been no attempt to adjust the figures for purchasing power parity.

In terms of funding per completion, the Ontario's universities figure is similar to the Master's universities in the United States while the community college figure is lower.

The preceding comparisons are not meant to be absolutes, but rather an indication of Ontario's performance. There is considerable work to be done to improve the comparability of Canadian PSE data with jurisdictions in the United States.

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<sup>74</sup> NSCRC, *Signature Report #5*, 2013

## Considerations in expanding credit transfer pathways

In assessing the cost effectiveness of credit transfer regimes and the Ontario situation it is important to acknowledge the impact of secondary school streaming that, in fact, affects the college and / or university readiness of secondary school graduates. The Ontario secondary school curriculum reform that was phased in beginning in 1999 eliminated the fifth year of high school, which had been the established pathway for students to university. In its place a streaming model was re-introduced as a “destination-based” four-year curriculum.<sup>75</sup> Through an extensive validation exercise, colleges and universities agreed that the new curriculum would appropriately prepare students for college or university. As a result of choices made entering grade 9, and/or when choosing senior level courses in Grade 11, high school graduates may not be prepared or eligible to enter university directly and may require further preparatory education in order to ultimately complete a degree.

Issues related to secondary and post-secondary education and the linkages between them are often contentious and controversial. *For the Love of Learning*, a Report of the Royal Commission on Learning (1994), refers to the disagreements about the level of specialization and choice versus general education and a common curriculum, and describes “an ever-present controversy about the necessity of providing different types of courses, streams, or programs, in response to the varying levels of achievement, ability, or motivation that characterize any large group of students, and meeting the needs of both university-bound and other students.”<sup>76</sup> The same report proposes that the “confused and confusing mandate of the colleges is part of the larger issue of unclear paths and lack of purpose confronting students ...” While recommending specialization in applied or academic programs, the report also supported flexibility between programs such that program requirements should not be so rigid as to discourage students from changing their minds about going to college or university. Capacity is limited to accept all students who may have aspirations to attend university directly from high school, and contrived pathways to university via college may disadvantage students who lack appropriate pre-requisite courses and/or grades from their secondary school experience.

*Following the Ontario Transfer Student: From College to University Inception* (Arnold 2011), indicated that “the majority of students form transfer plans as early as high school”, postulating that this results in the requirement for greater focus of government policy and funding on providing transfer information and advice to students in secondary school. An alternative interpretation could be that students need greater flexibility and guidance in choosing *secondary curriculum pathways* to ensure the most efficient path forward to university directly from high school. That in turn suggests not only potential curriculum change but also an added emphasis on guidance counselling to help students through the secondary school maze a point highlighted in King and Warren’s

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<sup>75</sup> Ministry of Education, *Curriculum Implementation Partnership, Curriculum Update* Fall 2001, Issue 6

<sup>76</sup> Royal Commission on Learning, “The Learner from Age 15 to 18: Further Education and Specialization Years”, *For the Love of Learning*, Volume II, Chapter 9, 1994  
<http://www.edu.gov.on.ca/eng/general/abcs/rcom/full/volume2/chapter9.pdf>

study on *Transition to College*.<sup>77</sup> They recommended that it would be advisable for all secondary students “to have a broader understanding of the full range of educational and work opportunities.”

The preceding observation is especially pertinent in discussing credit-transfer because, as King and his colleagues pointed out in a subsequent study,

Unlike many university programs that have a common first year or are focused on liberal arts, most college courses are highly specialized – a circumstance which forces college registrants to commit to a particular career at the time of enrollment.<sup>78</sup>

The combination of streaming in secondary school coupled with specialized curriculum in community college may, in fact, impact the preparedness of students to pursue a credit transfer pathway to university without taking additional preparatory courses. Clearly, no one benefits if students have to repeat courses with equivalent learning outcomes, the assessment of which is the critical linchpin of successful transfer. It has been over a decade since the reformed secondary school curriculum was introduced and the first graduates headed off to postsecondary pursuits. It would be interesting to review the data to see what level of education students ultimately are achieving, and how effective the pathways from secondary school are in targeting students to achieve their ultimate goals and ambitions.

The transition challenge from secondary to postsecondary education, including the student demand for subsequent transfer opportunities and strategies, is not unique to Ontario. The Alberta Council on Articulation and Transfer (ACAT) has highlighted as an achievement the continuation of work with Alberta Education to “ensure that Alberta students make smooth transitions from secondary to postsecondary studies and that there are improved opportunities for admission to postsecondary programs.”<sup>79</sup> It would appear Ontario could benefit by reviewing students’ opportunities to make and amend informed choices about postsecondary options while in secondary school.<sup>80</sup>

The Colleges Ontario 2009 study *Who Doesn’t Go to Postsecondary Education* (A.J.C. King et al), found that the majority of secondary school graduates who enrolled in university directly from high school had secondary school marks much higher than students enrolling in college or in apprenticeship programs.<sup>81</sup> Figure 3 provides an excerpt from the report that highlights the marks distribution of secondary school graduates.

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<sup>77</sup> King, A.J.C., and Warren, W.K., *Transition to College, Perspectives of Secondary School Students*, Colleges Ontario, (Association of Colleges of Applied Arts and Technology of Ontario) 2006 p.80

<sup>78</sup> King, A.J.C., Warren, W.K., King, M.A., Brook, J.E., Kocher, P.R., *Who Doesn’t Go To Post-Secondary Education*, Social Program Evaluation Group, Faculty of Education Queen’s University, 2009, p. 169

<sup>79</sup> *Report of the CMEC Working Group on Transfer Credit* 2011 (retrieved from <http://www.cmec.ca/Publications/Lists/Publications/Attachments/263/wgct-report2011-en.pdf>)

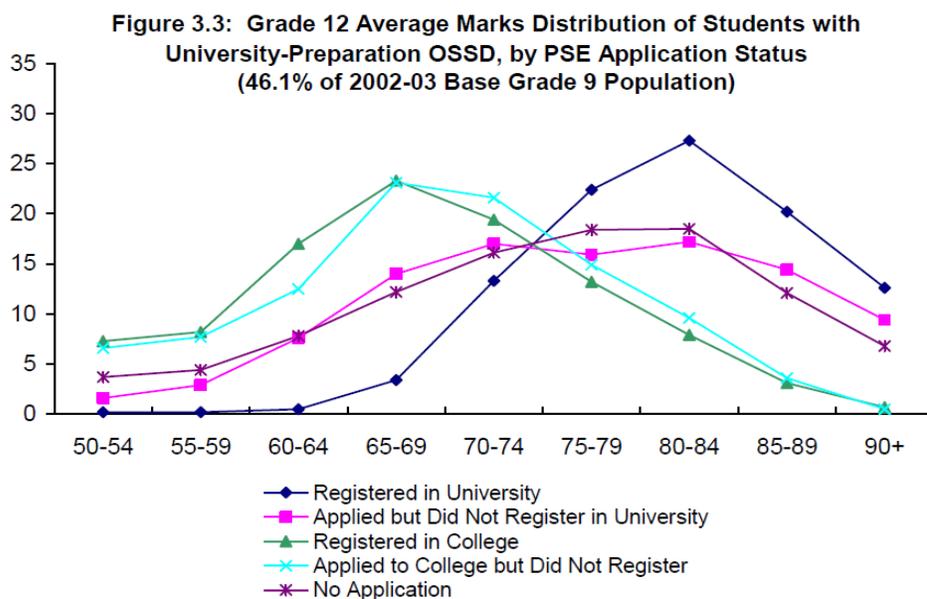
<sup>80</sup> The theme of more and better communication with prospective PSE students, is also prevalent in the literature about BCCAT’s success. See Cowin, 2013.

<sup>81</sup> *Who Doesn’t Go To Post-Secondary Education*, October 2009, p.29 (retrieved from <http://www.collegesontario.org/research/who-doesnt-go-to-pse.pdf>)

The same study demonstrates there is an overlap of students who had the background and marks to apply to either college or university: 10% of the students with University Preparation courses registered in college from secondary school (representing approximately 5,000 students), and more than 28% of those had little or no exposure to College-Preparation courses.<sup>82</sup> This cohort of students may well be the most likely candidates to subsequently choose to transfer to university.

There are many factors that influence the decision to begin PSE studies in college rather than university even though a student may be tracking towards and ‘qualified’ for university. Admission requirements and institutional capacity vary across universities and university programs and students may not be offered admission to the university or program of their choice. As noted by Drewes “University spaces are rationed on the basis of high school averages...”<sup>83</sup>

**Figure 3: Excerpt from “Who Doesn’t Go to Postsecondary Education”**



Note: Students who applied to both, and did not register in either are included in ‘Applied but did not Register in College’.  
Source: MOE/OCAS/OUAC data file.

It is interesting to note from the late-1990s onwards – just at a time when credit transfer was emerging as a ‘policy’ issue in Ontario – Ontario’s universities experienced an unprecedented increase in undergraduate enrolment. In fall 2000, Ontario’s universities enrolled about 216,000 full-time students. By fall 2012 that number had increased by

<sup>82</sup> Ibid., pages 27 and 34

<sup>83</sup> Drewes, T. (2009). *The University Gender Gap: The Role of High School Grades*. MESA Project Research Paper 2009-4, Toronto, ON. Canadian Education Project p.1

70% to over 367,000 full-time students. The increase of over 150,000 more undergraduate students was an incredible feat, totally unexpected at the start of the Millennium and yet accomplished in spectacular fashion. Not only did the university community plan for and accommodate the 'double cohort', it also managed to accommodate increases in participation rates, the expansion of graduate education and the 'innovation agenda'.<sup>84</sup> In doing so, universities also paid attention to efficiencies, including the efficiencies associated with admission processing and registration. It should not be surprising that in some institutions credit transfer initiatives occupied a secondary seat to simply accommodating the major increase in demand in direct-entry programs. As noted earlier in this report, given the choice, the university will invariably enrol a direct entry student because there are relative revenue and cost benefits, not to mention the academic benefits to the institution and the student.

If attending university involves moving away from home or community that may be seen as a barrier by some students and their families. However, it is important to note that geographical 'access' has been improved markedly since 2000 as new institutions and satellite campuses have been established in various parts of the province – noticeably clustered around the GTA.

Financial issues may affect the decision to attend college or university but it is clear from the analysis presented earlier that considerable student assistance is available. Moreover, the level of student assistance has increased markedly over the past several years with the introduction of the Ontario Tuition Grant and changes in the Student Access Guarantee.

The benefits of credit transfer are relatively straightforward: measures that help improve baccalaureate attainment pay dividends to the individual and society. For example, individuals with a qualification at the bachelor level or above, on average, have markedly higher income levels than those with a certificate or diploma below the bachelor level.<sup>85</sup> And it appears from college and university Key Performance Indicator data that, on average, employment rates and graduation rates are higher for university students than college students and OSAP default rates are lower.

From a system perspective credit transfer can, and does, play a critical role in providing a baccalaureate completion pathway for some students. Whether credit transfer should play an even greater role in encouraging baccalaureate degree attainment in Ontario is a much larger issue and touches on a host of topics that are outside the scope of this paper.

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<sup>84</sup> The issue of how well the university community accommodated those various challenges is the subject, now, of more intensive debates about quality considerations.

<sup>85</sup> National Household Survey, Catalogue 99-014-X2011041

## Summary and concluding comments

This research project set out to examine the cost and benefits of credit transfer arrangements and to improve our understanding of credit transfer costs as seen from the perspective of the student, government, and the institution. The analyses indicates that:

- From a student perspective the credit transfer pathway may be seen to be less costly in terms of out-of-pocket tuition costs but the impact of student assistance and tax credits reduces the difference considerably and time to completion considerations change the cost equation markedly. Additional cost to a student could range from approximately \$35,000 to \$ 70,000 depending on the time spent in completing the baccalaureate and including an opportunity cost estimated at \$30,000 per year (Table 3).
- From government's perspective, the cost of a student attaining a baccalaureate via direct-entry to university is less than if a student pursues a baccalaureate via the credit transfer pathway. Additional cost is estimated to range from approximately \$4,000 to \$9,000 in operating grants and the amount could be as high as \$13,000 (Table 6), plus an additional almost \$6,000 per year in student assistance and tax credits (Table 2).
- Additional cost to the institution is difficult to 'pin down' but is essentially the existing CTIG allocations, added student assistance (~\$2,000 per year) and foregone revenue estimated at \$9,000 per year associated with one or two years of grants and tuition during the least expensive part of the degree program.

Looking to other jurisdictions it is clear that designing a 'system' to provide a more seamless pathway from community college to university is possible but there is little evidence that it is more cost efficient than the current 'system' in Ontario. In fact, one could argue that the evolution of credit-transfer to date in Ontario is a success story – nudged along by government and dependent on local institutional circumstances regarding demand and capacity. Major modifications to the existing framework may well lead to higher costs.

Looking to the future one might predict that as demand for direct-entry programs from secondary school applicants softens in light of demographic considerations, some universities may have greater capacity and begin admitting qualified students direct from secondary school who, in earlier times, would have attended college because their program choice or institutional choice in Ontario could not be accommodated. Coupled with greater geographic access and improved financial support some part of the college-university 'credit transfer' group may, in fact, have the opportunity to attend university directly from secondary school. It will be important to ensure that information and advice about postsecondary options and requirements is readily available to secondary school students.

That is not to say credit-transfer will disappear – nor should it disappear – but it may point to a changing profile of the credit-transfer group; somewhat older, with a greater proportion of under-represented students – and, if so, will require appropriate services and service levels to ensure student success.

The focus of this report has been on college to university transfers but there are other credit transfer pathways (university to college, college to college, university to university) that may be worthy of study from a financial perspective. Developing a better understanding of university to college transfers, for example, may help in the design and development of more and better cost-effective post-baccalaureate options in universities and colleges. The authors also acknowledge that this project raises a number of other research questions that deserve further study, including jurisdictional comparisons of efficiency and effectiveness.

*Towards a Better Understanding of Credit Transfer Costs and Benefits* provides a more comprehensive picture of student, government and institutional costs that may help inform policy makers about the financial aspects of policy options in the context of postsecondary education system planning. A better understanding of the mechanics and dynamics of the college and university funding frameworks and their impacts on internal resource allocation decisions and institutional strategic decisions is a key element in the efficient use of postsecondary resources.

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## Appendix A

### MTCU, POLICY STATEMENT FOR ONTARIO'S CREDIT TRANSFER SYSTEM 2011

(<http://www.tcu.gov.on.ca/eng/eopg/publications/CreditTransferE.pdf>, retrieved April 30, 2014)

Postsecondary Education System: A province-wide Credit Transfer system will lead to **increased efficient and effective use of available postsecondary resources** (bold-face added). The system will build on the strong foundation in place and take advantage of lessons learned from other jurisdictions. It will also align with other postsecondary initiatives under the Open Ontario plan such as the Ontario Online Institute.

#### GUIDING PRINCIPLES

The credit transfer system will:

1. Build on the foundation of student mobility and accessibility for all students and is one strategy for including underrepresented groups in the postsecondary education system.
2. Provide a high degree of consistency across the province in the review of transfer credit for students applying for transfer between Ontario institutions
3. Provide explicit and transparent information for students about transfer credit, credential recognition and mobility agreements for Ontario colleges and universities.
4. Recognize the time and resources required by both colleges and universities to participate in a transfer process.
5. Realize **cost savings for students and their families, government and the public** (bold-face added) through the elimination of credit duplication.
6. Improve Ontario's ability to meet the demand for a skilled and flexible workforce by increasing the capacity and flexibility of the postsecondary education sector.
7. Build on, but not be limited to, successful experiences, strengths and strategies already in place in Ontario.
8. Include participation by all postsecondary institutions, with the nature and extent of institutional participation to be determined by individual institutions.
9. Adopt a collegial approach among participating institutions that:
  - Maintains the academic integrity of individual institutions and their programs and credentials; respects and acts within the boundaries of the required regulatory frameworks of the regulated professions;
  - Requires institutions to optimize pathways for students and minimizes barriers to their mobility by basing agreements on maximum recognition of students' previous learning experiences, while taking into account the background and knowledge required for academic success post-transfer;
  - Recognizes student success is paramount;
  - Awards qualifying students transferring between Ontario's publicly assisted colleges and universities with credit for relevant learning already demonstrably completed at the appropriate level of mastery;
  - Maintains fairness and equity for all students by entitling any student who gains admission to an institution under a transfer agreement to the same rights and privileges as students who began their studies at the institution.
10. Include and/or facilitate processes to support consistency of application, continuous improvement, access to research, ongoing accountability, performance measurement and review and regular reporting to measure and enhance the performance of Ontario's credit transfer system.

## Appendix B

### Delta Cost Project - State and Ontario comparisons

The Delta Cost Project draws on information collected by the National Center for Education Statistics as part of its Integrated Postsecondary Education Data System (IPEDS). IPEDS collects information from all PSE institutions that participate in U.S. federal student financial aid programs.

The Delta Cost Project focuses on what is referred to as Education and Related (E&R) spending calculated as follows:

E&R spending = instruction + student services + (education share \*(academic support, institutional support, and operations and maintenance), where education share= instruction + student services / (instruction + student services + research + public service).

In effect E&R spending is more or less equivalent to the Financial Information of Universities and Colleges (CAUBO report) Instruction and Research function + Student Services (less student assistance/scholarships) in the Operating Fund \* the “education share” of all other Operating Expenditures where “education share is defined as Instruction and Research plus Student Services as a proportion of all expenditures in General Operating, Trust and the Research Fund. The calculation of ‘education share’ is intended to reflect the fact that various institutional services (e.g., Library, Computing, Physical Plant, Administration) are also provided to support research and trust (public service) activities. Table B.1 applies the concept of E&R to Ontario PSE data.

The U.S. information that follows Table B.1 is based on data from the Delta Cost project and the National Student Clearinghouse Research Center (NSCRC). The various components are intended to provide a ‘snapshot’ of the PSE ‘system’ in each State and the national ‘averages’.

The focus is on total students with the percentage in the ‘public system’ identified. The funding analysis is based on Public institutions only and the reference year is 2010. Readers should note that updates from the Delta Cost Project are available on the Delta Cost Project website.

The highlighted yellow cell identifies the lowest Avg.Exp per FTE in each State (2010). The highlighted blue cell identifies the lowest state subsidy per FTE (2010).

The completion rate data from NCSRC report four-year universities as one group and two-year community colleges as a separate group. NCSRC also provides the completion rate for those students who start in community college and complete at a four-year institution in the given time frame (6 years elapsed time). Since there is major difference between full-time and part-time completion rates the data is reported separately.

## Ontario Estimates of E&R Spending

E&R spending attempts to focus on the cost of the education function and therefore excludes the spending associated with sponsored research, public service, and student assistance. The focus then is on 'Operating' expenditures with adjustments to remove student assistance and that portion of central services that is attributed to sponsored research and public service. In the community colleges various revenues have been deducted from the Statistics Canada defined Operating fund. Student assistance expenditures have also been deducted.

### Ontario Colleges and Universities adjusted financial information

#### An estimate of 'education and related' spending

| Categories                                                                                           | Universities | Combined    | Colleges     |
|------------------------------------------------------------------------------------------------------|--------------|-------------|--------------|
| <b>Adjusted Financial Information</b>                                                                | \$ 5,743,433 | \$7,970,772 | \$ 2,227,339 |
| FTEs                                                                                                 | 422,384      | 645,752     | 223,368      |
| \$ / FTE                                                                                             | \$ 13,598    | \$ 12,343   | \$ 9,972     |
| Completions                                                                                          | 103,131      | 176,052     | 72,921       |
| \$ / Completion                                                                                      | \$ 55,691    | \$ 45,275   | \$ 30,545    |
| <b>Adjusted Financial Information</b>                                                                |              |             |              |
| <b>Colleges</b>                                                                                      |              |             |              |
| Operating revenue less student assistance*, continuing education, federal income, bequests/donations |              |             |              |
| Ancillary revenue, and Trade /Vocational revenue                                                     |              |             |              |
| *Student assistance from CAUT Almanac, Table 1.2                                                     |              |             |              |
| All Other from Statistics Canada, Table 477-0060, 2010-11                                            |              |             |              |
|                                                                                                      |              |             |              |
| <b>Universities</b>                                                                                  |              |             |              |
| Financial Information of Universities and Colleges - CAUBO Report - 2010-11 Ontario                  |              |             |              |
| Reports 2.2 A and 2.4 A                                                                              |              |             |              |
|                                                                                                      |              |             |              |
| FTEs and Completions: Statistics Canada via CAUT Almanac                                             |              |             |              |

For reference purposes the completion rate information in Ontario follows:

Community Colleges 65.4% (2012-13 graduates)

Universities direct entry programs 74.2% (2011 outcomes from 2004 cohort)

Completion rates – as defined - appear higher in Ontario than in the United States. However, the methodologies are quite different and therefore not directly comparable. Further work is required to ensure comparability.

|                                         |                                                                             |                            |              |                    |
|-----------------------------------------|-----------------------------------------------------------------------------|----------------------------|--------------|--------------------|
| <b>California</b>                       |                                                                             |                            |              |                    |
| Total # Students                        | <b>2,835,300</b>                                                            |                            | Total Public | 82%                |
|                                         |                                                                             | <b>Public Institutions</b> |              |                    |
|                                         | Research                                                                    | Master's                   | Bachelor's   | Community Colleges |
| Proportion of Enrolment                 | 11%                                                                         | 17%                        | < 1%         | 70%                |
| Avg. Exp / FTE                          | \$ 21,974                                                                   | \$ 11,109                  | \$ 15,002    | \$ 7,749           |
| Avg. Exp / Completion                   | \$ 78,464                                                                   | \$ 45,597                  | \$ 75,957    | \$ 61,473          |
| State subsidy                           | \$ 12,724                                                                   | \$ 5,066                   | \$ 9,686     | \$ 6,758           |
| Tuition (NET)                           | \$ 9,250                                                                    | \$ 6,044                   | \$ 5,316     | \$ 1,095           |
| 6 Yr .Completion Rates                  | -----                                                                       | 68.6%                      | -----        | 30.1%              |
| Still enrolled                          | -----                                                                       | 17.4%                      | -----        | 28.9%              |
| 6 Yr . Completion Rates of              |                                                                             |                            |              |                    |
| Students Starting in Community College  |                                                                             | 14.3% ALL                  |              |                    |
| and completing in Four-year institution |                                                                             | 37.8% FT                   |              |                    |
| <b>Ohio</b>                             |                                                                             |                            |              |                    |
| Total # Students                        | <b>740,200</b>                                                              |                            | Total Public | 72%                |
|                                         |                                                                             | <b>Public Institutions</b> |              |                    |
|                                         | Research                                                                    | Master's                   | Bachelor's   | Community Colleges |
| Proportion of Enrolment                 | 47%                                                                         | 3%                         | 5%           | 42%                |
| Avg. Exp / FTE                          | \$ 15,624                                                                   | \$ 11,560                  | \$ 9,627     | \$ 8,643           |
| Avg. Exp / Completion                   | \$ 62,406                                                                   | \$ 66,447                  | \$ 113,353   | \$ 58,925          |
| State subsidy                           | \$ 5,388                                                                    | \$ 3,916                   | \$ 4,395     | \$ 3,617           |
| Tuition (NET)                           | \$ 10,236                                                                   | \$ 7,644                   | \$ 5,232     | \$ 5,026           |
| 6 Yr . Completion Rates                 | -----                                                                       | 59.8%                      | -----        | 35.4%              |
| Still enrolled                          | -----                                                                       | 14.8%                      | -----        | 17.2%              |
| 6 Yr . Completion Rates of              |                                                                             |                            |              |                    |
| Students Starting in Community College  |                                                                             | 14.6% ALL                  |              |                    |
| and completing in Four-year institution |                                                                             | 22.3% FT                   |              |                    |
| <b>Florida</b>                          |                                                                             |                            |              |                    |
| Total # Students                        | <b>1,117,700</b>                                                            |                            | Total Public | 71%                |
|                                         |                                                                             | <b>Public Institutions</b> |              |                    |
|                                         | Research                                                                    | Master's                   | Bachelor's   | Community Colleges |
| Proportion of Enrolment                 | 36%                                                                         | 3%                         | < 1%         | 57%                |
| Avg. Exp / FTE                          | \$ 12,758                                                                   | \$ 9,400                   | \$ 28,861    | \$ 9,124           |
| Avg. Exp / Completion                   | \$ 47,180                                                                   | \$ 36,815                  | \$ 155,621   | \$ 27,819          |
| State subsidy                           | \$ 7,386                                                                    | \$ 5,325                   | \$ 23,534    | \$ 6,043           |
| Tuition (NET)                           | \$ 5,372                                                                    | \$ 4,075                   | \$ 5,327     | \$ 3,082           |
| 6 Yr . Completion Rates                 | -----                                                                       | 60.4%                      | -----        | 52.8%              |
| Still enrolled                          | -----                                                                       | 14.2%                      | -----        | 14.0%              |
| 6 Yr . Completion Rates of              |                                                                             |                            |              |                    |
| Students Starting in Community College  |                                                                             | 22.0% All                  |              |                    |
| and completing in Four-year institution |                                                                             | 41.9% FT                   |              |                    |
| Source:                                 | Delta Cost Project                                                          |                            |              |                    |
|                                         | National Student Clearinghouse Center, Signature Report 6, State Supplement |                            |              |                    |

|                                         |                                                                             |           |              |                    |  |
|-----------------------------------------|-----------------------------------------------------------------------------|-----------|--------------|--------------------|--|
| <b>Pennsylvania</b>                     |                                                                             |           |              |                    |  |
| Total # Students                        | <b>803,400</b>                                                              |           | Total Public | 53%                |  |
|                                         | <b>Public Institutions</b>                                                  |           |              |                    |  |
|                                         | Research                                                                    | Master's  | Bachelor's   | Community Colleges |  |
| Proportion of Enrolment                 | 29%                                                                         | 26%       | 10%          | 34%                |  |
| Avg. Exp / FTE                          | \$ 20,797                                                                   | \$ 14,772 | \$ 10,687    | \$ 9,475           |  |
| Avg. Exp / Completion                   | \$ 72,836                                                                   | \$ 63,569 | \$ 86,468    | \$ 59,234          |  |
| State subsidy                           | \$ 5,534                                                                    | \$ 6,092  | \$ 1,240     | \$ 4,382           |  |
| Tuition (NET)                           | \$ 15,263                                                                   | \$ 8,680  | \$ 9,446     | \$ 5,093           |  |
| 6 Yr . Completion Rates                 | -----                                                                       | 70.4%     | -----        | 38.7%              |  |
| Still enrolled                          | -----                                                                       | 9.1%      | -----        | 16.3%              |  |
| 6 Yr . Completion Rates of              |                                                                             |           |              |                    |  |
| Students Starting in Community College  | 16.0% All                                                                   |           |              |                    |  |
| and completing in Four-year institution | 26.5% FT                                                                    |           |              |                    |  |
| <b>Texas</b>                            |                                                                             |           |              |                    |  |
| Total # Students                        | <b>1,491,800</b>                                                            |           | Total Public | 84%                |  |
|                                         | <b>Public Institutions</b>                                                  |           |              |                    |  |
|                                         | Research                                                                    | Master's  | Bachelor's   | Community Colleges |  |
| Proportion of Enrolment                 | 24%                                                                         | 18%       | 1%           | 56%                |  |
| Avg. Exp / FTE                          | \$ 13,572                                                                   | \$ 12,886 | \$ 13,618    | \$ 8,984           |  |
| Avg. Exp / Completion                   | \$ 48,810                                                                   | \$ 49,819 | \$ 72,550    | \$ 44,246          |  |
| State subsidy                           | \$ 5,834                                                                    | \$ 6,524  | \$ 6,790     | \$ 6,093           |  |
| Tuition (NET)                           | \$ 7,738                                                                    | \$ 6,362  | \$ 6,828     | \$ 2,892           |  |
| 6 Yr . Completion Rates                 | -----                                                                       | 59.1%     | -----        | 29.3%              |  |
| Still enrolled                          | -----                                                                       | 17.4%     | -----        | 12.8%              |  |
| 6 Yr . Completion Rates of              |                                                                             |           |              |                    |  |
| Students Starting in Community College  | NA                                                                          |           |              |                    |  |
| and completing in Four-year institution | NA                                                                          |           |              |                    |  |
| <b>United States</b>                    |                                                                             |           |              |                    |  |
| Total # Students                        | <b>20,820,600</b>                                                           |           | Total Public | 71%                |  |
|                                         | <b>Public Institutions</b>                                                  |           |              |                    |  |
|                                         | Research                                                                    | Master's  | Bachelor's   | Community Colleges |  |
| Proportion of Enrolment                 | 29%                                                                         | 18%       | 3%           | 49%                |  |
| Avg. Exp / FTE                          | \$ 15,951                                                                   | \$ 12,240 | \$ 12,740    | \$ 9,501           |  |
| Avg. Exp / Completion                   | \$ 64,403                                                                   | \$ 54,378 | \$ 69,293    | \$ 45,057          |  |
| State subsidy                           | \$ 7,340                                                                    | \$ 5,880  | \$ 6,995     | \$ 6,232           |  |
| Tuition (NET)                           | \$ 8,611                                                                    | \$ 6,360  | \$ 5,745     | \$ 3,269           |  |
| 6 Yr . Completion Rates                 | -----                                                                       | 63.4%     | -----        | 39.9%              |  |
| Still enrolled                          | -----                                                                       | 15.0%     | -----        | 18.9%              |  |
| 6 Yr . Completion Rates of              |                                                                             |           |              |                    |  |
| Students Starting in Community College  | 17.2% ALL                                                                   |           |              |                    |  |
| and completing in Four-year institution | 29.1% FT                                                                    |           |              |                    |  |
| Source:                                 | Delta Cost Project State Profiles (2010 financial information)              |           |              |                    |  |
|                                         | National Student Clearinghouse Center, Signature Report 6, State Supplement |           |              |                    |  |
|                                         | *Texas Higher Education Coordinating Board                                  |           |              |                    |  |