

Report on the University System in Nova Scotia

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Executive Summary

Introduction

Nova Scotia's university system has long been an essential contributor to the social, economic, and cultural development of the province. This report describes and assesses the current state of that system in the context of emerging financial and demographic challenges in the province, and in relation to wider trends in post-secondary education (PSE) regionally, nationally, and internationally. The evidence clearly confirms that the environment in which Nova Scotia's eleven universities now operate is changing significantly. The report calls for expanded collaboration among the universities, and between them and the government, to develop and implement new policy approaches to address emerging challenges.

New Challenges

The provincial government and the universities are now in the final year of a three-year memorandum of understanding (MOU) that defines levels of financial support from the province to each institution. The core objective of the current MOU was to bring student tuition fees in line with national averages and to hold them stable. This policy objective will be reached in the final year of the MOU. Given a changing environment for PSE in Nova Scotia, what should be the goal of the next agreement?

Finding ways to sustain so many degree-granting institutions in a province with fewer than a million people has long been a challenge for university and government decision makers. But in the current context of shifting demographics and limited fiscal capacity in government, this issue is acquiring greater scale and complexity. The report proposes that a core objective for future collaboration between the government and the universities should be to manage growing financial pressures and looming system over-capacity in the face of anticipated enrolment declines.

With regard to student recruitment, some Nova Scotia institutions will be challenged more seriously than others in the short term, but all will be affected over time. The primary 17–29 age cohort upon which all Canadian universities draw is shrinking—more sharply in Nova Scotia than in many jurisdictions—and this trend is expected to continue over the next 25 years. As a result, post-secondary education enrolment is expected to decline steadily in most jurisdictions for the foreseeable future. The report assesses these trends and evaluates options for finding alternative pools of potential recruits, both in the province and beyond. The key finding is that while such initiatives may generate positive outcomes, and may be worthwhile in and of themselves, the overall trend to shrinking enrolment will almost certainly persist over the medium to longer term.

On the financial side, the 2009 Deloitte report, supported later by the report of the Premier's Panel of Economic Advisors, projected a provincial government deficit of \$1.4 billion by the end of the current government's mandate. Spending cuts and new revenue measures have since reduced that figure significantly, but much work remains to be done. The fiscal plan set out in the 2010–11 budget proposes reductions in expected spending levels of some \$770 million if the government is to fulfil its commitment to get back to balance by 2013–14. This will likely

require strict limits on new spending and a need to review all existing policy and program commitments in search of substantial savings.

It will be difficult, in this context, for the government to continue to grow its financial contributions to universities as it did through the previous two MOUs. Significant financial restraint directed towards universities will mean that the tuition freeze cannot be maintained, as the universities' ability to operate will be severely constrained even if they manage to rein in their costs. Based on its examination of the issues, this report concludes that if Nova Scotia universities are to thrive in an increasingly competitive PSE marketplace, they will need to focus more extensively on factors such as academic quality, program specialization, and attractive learning environments. As well, the universities will have to collaborate more effectively to manage their individual and collective cost structures.

See Section 3, Outlook for Nova Scotia Universities, for a full discussion of the enrolment and financial challenges facing the university system for the next five years and beyond.

Tuition Fees

Public discussion of tuition fees often focuses on the impact of tuition levels on accessibility to post-secondary education for low-income individuals, on affordability generally, and on the levels of debt that students carry after graduation. However, this focus on accessibility and affordability ignores four significant issues: the interests of universities and taxpayers; the long-term benefits to graduates of post-secondary education (which are many); the actual impacts of tuition fee levels on accessibility (which are modest); and equity within a system in which lower-income taxpayers now heavily subsidize university education for students from better-off families.

Recommendation 1:

Allow tuition fees to increase, both as partial offset to the impact of fiscal restraint and on equity grounds. In descending order of preference, consider the following three options:

- a. Completely deregulate tuition fees and earmark a percentage of tuition revenue increases for student assistance.
 - b. Cap the rate of increase in the short run and transition to complete deregulation in the long run.
 - c. Cap the rate of increase and allow full deregulation in certain programs.
-

See Sections 4.1.1–4.1.3 for the analysis of tuition fee options.

Student Financial Assistance

Nova Scotia has one of the weakest student assistance programs in the country. Students face the highest total education costs and net out-of-pocket costs as a share of median income. The province also has the second-highest incidence of unmet need, which is the gap between assessed financial need and financial assistance provided. Finally, graduates from the province have higher average debt levels than students from other provinces. If the government chooses to allow tuition fees to rise—which this report recommends—it must also significantly upgrade the student assistance programs.

Recommendation 2:

Increase the capacity of student financial assistance programs in Nova Scotia and focus more on students with the greatest financial need. Specifically:

- a. Raise or eliminate the cap on student loans.
 - b. Increase substantially the non-repayable grant portion of student loans, thereby capping the level of debt that can be incurred.
 - c. Retain the Repayment Assistance Program.
-

See Section 4.1.4 for the assessment of student assistance policy in Nova Scotia.

Government Funding

In Canada, government funding for universities has tended to be cost-based, enrolment-based, or some combination of the two. Nova Scotia has used a combination, with the total grant based on universities' cost projections and the allocation among institutions dictated by weighted enrolments. There are no analytical or empirical underpinnings that can be used to determine an optimal level for the operating grant provided to universities. However, there are several principles among which the government might choose to establish a framework for long-term funding decisions.

Recommendation 3:

In the short term, government funding for universities will be affected by the pace of fiscal restraint the government decides upon. This report recommends no specific benchmarks for setting the operating grant, but offers the following guidance:

- a. Look to cooperative administrative (back-office) integration to reduce system costs over the next three to five years.
- b. Share the burden of the restraint between students (through higher tuition fees) and universities (through a moderation in operating expenditures, particularly compensation).
- c. Deal with institutions identified as potentially facing significant financial risk before a crisis develops.

Recommendation 4:

In the long term, the government should choose one of three benchmarks when setting university funding:

- a. Increase funding at the rate of population growth.
 - b. Increase funding at the rate of overall government spending growth.
 - c. Increase funding at the rate of GDP (gross domestic product) growth.
-

See Section 4.2 for the full discussion of government funding issues.

University System Restructuring

It is widely observed that if the province were to start again with a blank slate, it would not create a university system with eleven independent institutions. This has led periodically to proposals for the creation of a University of Nova Scotia, a University of Halifax, further integration of programs within particular institutions, or bilateral mergers of institutions.

The research evidence suggests that large-scale restructuring of post-secondary education institutions can yield significant financial and academic benefits over the longer term. However, such change can be very costly at the front end and is often a high-stress undertaking for all stakeholders. Given this outlook, a more strategic approach is recommended.

Recommendation 5:

Look to modest restructuring of the university system under the following guidelines:

- a. Eliminate the creation of a University of Nova Scotia from consideration.
 - b. Remove the creation of a University of Halifax from consideration, at least over the next five years.
 - c. Remove program consolidation (reducing the number of institutions that can offer specific programs) as a restructuring option.
 - d. Explore both merger and internal restructuring options to address future financial challenges at the Nova Scotia College of Art and Design.
 - e. Remove a merger of Atlantic School of Theology with Saint Mary's University from consideration.
 - f. Consider integrating Nova Scotia Agricultural College into Dalhousie University as the college ceases as a government entity.
 - g. Explore the potential for merger or significant affiliation of Mount Saint Vincent University (MSVU) with either Dalhousie or Saint Mary's, to mitigate declining enrolment risks at MSVU.
 - h. Consider the need for Cape Breton University to become more specialized in the range of four-year degree programs it offers, as it faces the prospect of a significant decline in enrolment.
 - i. Consider expanding the programs Université Sainte-Anne offers in the Halifax region to mitigate the small and declining student base at its main Church Point campus.
-

See Section 4.3 for an extensive discussion of the benefits and costs of major restructuring prospects, in general, and the array of specific possibilities for the Nova Scotia university system and its individual institutions.

University Administrative Integration

Over the next several years, significant cost savings may be achievable through greater administrative integration. Nova Scotia universities already collaborate on purchasing many goods and services through Interuniversity Services Inc. (ISI), and on delivery of library services through Novanet. There are additional opportunities for efficiency gains and cost savings at the system level.

Recommendation 6:

Seek to maximize administrative integration, under the following guidelines:

- a. Require universities to provide Interuniversity Services Inc. with the data necessary to assess opportunities to achieve additional savings from integrated purchasing.
 - b. Conduct a detailed assessment of the internally provided services that could be outsourced to a common provider to generate cost savings, and establish a timeline and process for implementing advantageous outsourcing.
-

See Section 4.4 for an examination of potential cost savings from greater administrative integration.

Key Performance Indicators (KPIs) for Quality Assessment and Accountability

Universities are accountable to three primary groups: taxpayers; students (and their parents); and the boards of governors and senates responsible for overseeing university operations. The pressure on governments to account for how taxpayers' funds are spent leads to a greater demand for transparency regarding program outcomes. The economic returns to the individual student from investment in a university education are high and rising, so students (and their parents) will want better information on where and how to pursue higher education. Faced with a range of often competing requirements, both those who fund the universities (governments and students) and those responsible for the institutions' continuing development (administrators, faculty and staff, boards and senates) need more and better information to guide their decisions.

Recommendation 7:

Create key performance indicators for quality assessment and accountability, under the following guidelines:

- a. Engage experts in the design of quality assessment tools for higher education to assist in the development of a prototype report card for Nova Scotia universities.
 - b. Negotiate the elements of a regular report on the performance of the province's universities.
-

See Section 4.5 for the arguments for creating a university report card on quality.

Infrastructure

Funding reductions across the country in the 1990s forced universities to direct their limited resources to the core functions of teaching and research, and postponed investment in facilities renewal and modernization. The current projected annual financial requirement for infrastructure renewal in Nova Scotia's university system is \$48 million. Despite significant infrastructure funding provided in recent years, unresolved problems of accumulated deferred maintenance are estimated to be over \$400 million.

Recommendation 8:

Address infrastructure needs, under the following guidelines:

- a. Seek an independent assessment of both deferred maintenance and ongoing facilities renewal costs.
 - b. Encourage universities to explore private ownership and management opportunities for some of their facilities.
 - c. Consider increases in funding for university infrastructure.
-

See Section 4.6 for an examination of the infrastructure challenges facing the universities in Nova Scotia.

Research, Technology Transfer, and Commercialization

While teaching is a university's most important responsibility, research also makes a valuable contribution. The gains from university research in all academic fields accrue to society generally, especially for pure or discovery research that expands the foundations of knowledge. Applied research also advances knowledge, but is closer to being directly and immediately usable by businesses, government, and other organizations. The focus in the report is on applied research with potential for commercialization.

Recommendation 9:

Encourage more research, technology transfer, and commercialization, under the following guidelines:

- a. Create an effective mechanism for harnessing the potential of applied research currently being conducted by university faculty.
 - b. Before renewing major funding directed at encouraging research commercialization, carry out a comprehensive assessment of the effectiveness of such funding.
 - c. Consider maintaining the Industry Liaison and Innovation (ILI) office at Dalhousie, and amalgamating the industrial liaison offices (ILOs) of other universities into one.
-

See Section 5 for an examination of the prospects for improving the transfer of applied research for commercialization.

University Funding Formula

Substantive and broad-based provincial funding of Nova Scotia's universities began in the early 1960s. Since 2003, the government has negotiated multi-year agreements with universities, the key objective of which was to bring rationality, comprehensiveness, stability, and transparency to the system's funding. Nova Scotia's framework for funding its universities is, arguably, the best of its kind in Canada and should be retained. The MOU model used by Nova Scotia appears to be unique in Canada and is certainly worth retaining.

Recommendation 10:

Retain the basic framework of the University Funding Distribution Formula and the multi-year funding agreement, under the following guidelines:

- a. Negotiate the enrolment baseline and the proportion of the formula driven by changes in enrolment levels.
 - b. Set the minimum length of the agreement at three years.
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See Section 6 for a discussion of the merits of continuing the current framework for negotiating the government's financing of universities.

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Acronyms and Abbreviations

A&R	Alterations and Renovations (Grant)
AAU	Association of Atlantic Universities
ACOA	Atlantic Canada Opportunities Agency
AIF	Atlantic Innovation Fund, ACOA
AST	Atlantic School of Theology
AUTM	Association of University Technology Managers
CAUBO	Canadian Association of University Business Officers
CBU	Cape Breton University
CIC	Committee on Institutional Cooperation, USA
CONSUP	Council of Nova Scotia University Presidents
FCE	Full-cost equivalent; full-course equivalent
FTE	Full-time equivalent
GDP	Gross domestic product
GPA	Grade point average
ILI	Industry Liaison and Innovation, Dalhousie
ILO	Industrial liaison office
IP	Intellectual property
IRAP	Industrial Research Assistance Program, NRC
ISI	Interuniversity Services Inc.
KIP	Knowledge Infrastructure Program
KPI	Key performance indicators
LSRI	Life Science Research Institute
MOU	Memorandum of understanding
MPHEC	Maritime Provinces Higher Education Commission
MSVU	Mount Saint Vincent University
NCE	Networks of Centres of Excellence of Canada
NRC	National Research Council
NSAC	Nova Scotia Agricultural College
NSCAD	Nova Scotia College of Art and Design University
NSCC	Nova Scotia Community College
NSERC	Natural Sciences & Engineering Research Council of Canada
NGS	National Graduates Survey
NSSE	National Survey of Student Engagement
P-12	Primary to Grade 12
P&I	Productivity and innovation
PSE	Post-secondary education
PSIS	Postsecondary Student Information System

R&D	Research and development
RAP	Repayment Assistance Program
SME	Small and medium-size enterprises
SMU	Saint Mary's University
St.FX	St. Francis Xavier University
SOFI	Strategic Opportunities Fund Inc.
UGC	Universities Grants Committee

University Abbreviations in Figures

Acadia	Acadia University
AST	Atlantic School of Theology
CBU	Cape Breton University
DAL	Dalhousie University
MSVU	Mount Saint Vincent University
NSAC	Nova Scotia Agricultural College
NSCAD	Nova Scotia College of Art & Design University
NSCC	Nova Scotia Community College
SMU	Saint Mary's University
St.FX	St. Francis Xavier University
UKing's	University of King's College
USainte-A	Université Sainte-Anne

SECTION 1: Introduction

1.1 Context for the Report

A number of Canadian provinces completed examinations of their university systems over the past decade. The others were completed well before the recession of 2008–09. The fact that this assessment is being done after the recession means that the short-term context is one in which the provincial government is engaging in spending restraint to help eliminate its deficit. Part of the mandate for this report is to provide the government with guidance on potential sources of cost savings in the province's university system. This is one of the reasons for a significant focus in the report on viable options for system restructuring.

There has also been a recurring fascination in Nova Scotia about what to do with the fact that such a small province has, it is argued, too many degree-granting institutions. Hence, even without the pressures of fiscal restraint, there would be a legitimate reason to examine the structure of the university system with respect to its long-term viability. The fact that the primary age cohort (17–29 year-olds) upon which all Canadian universities draw for enrolment is shrinking adds further impetus to a system restructuring consideration.

The province and the universities are entering the final year of a three-year MOU, and both parties are clearly interested in what form future funding arrangements ought to take. In addition, the policy objective of reducing provincial average student tuition fees to the national level is expected to be achieved in the coming 2010–11 school year. All interested parties—students and their parents, university administrators, and policy-makers—are interested in or concerned about what the next phase of tuition policy will or should be.

Informed observers are keenly aware of the impending impact on the labour market of the retirement of so-called baby boomers, whose numbers are considerably larger than those of younger people who will be entering the labour force. This looming shortage of workers—especially skilled ones—also collides with the rising level of skills and education required for a technologically advancing economy operating within a globally competitive environment.

This forms the backdrop for the report and also informs its focus and content. Given the time and resources available to undertake it, it would not have been possible to exhaustively examine all of the issues that flow from this context, along with the ongoing issues that are pertinent to any study of a university system. However, the report attempts as complete an assessment of the key issues as was reasonable to expect.

1.2 Reviews of the University System in Nova Scotia

Almost from the beginning, governments, religious and philanthropic organizations, public figures, and private individuals have pondered the ideal structure and shape of university education in Nova Scotia. Starting in the 1820s, when the union of Dalhousie and King's College was first raised, some, but by no means all, Nova Scotians have proposed union or at least a closer association of the universities in the province, and even in the Maritimes.

Between 1876 and 1880, the University of Halifax acted as a common examining authority to standardize the attainments required to earn a degree from Nova Scotian universities (plus Mount Allison). The universities, and the denominations that funded many of them, felt this was an affront to their independence and an added layer of bureaucracy. When the government fell in 1880, so did the University of Halifax, and provincial funding to all universities was cut off for nearly 80 years. The resultant poverty, and encouragement from the Carnegie Foundation, led institutions in the three Maritime provinces to come close to federation in the 1920s, but once again denominational and alumni politics prevailed. The only result was the co-location of King's College—homeless after its buildings in Windsor burnt down—on the Dalhousie campus in 1923.

In the 1970s, the Graham Commission urged closer cooperation between the universities, and the work of the Deutsch Commission led, not to Maritime Union, but (among other things) to the Maritime Provinces Higher Education Commission, which seeks to coordinate program offerings and ensure quality control across the region. In 1985, the MacLennan Commission felt that, to avert a serious erosion of academic quality, greater coordination of the Nova Scotian universities was required. The result was the Nova Scotia Council on Higher Education, an intermediary funding and coordinating body, which lasted until 2000. During its existence, faculties of education were rationalized across the province. It also persuaded the Halifax universities to form the Metro Halifax Universities Consortium in 1995, with a view to achieving administrative economies and to rationalizing course offerings across the city's universities. This was, not unnaturally, unpopular in some quarters, and when the government changed, the consortium fell into abeyance and the Council on Higher Education was replaced by an advisory body. The most significant achievement in the coordination of higher education was the creation in 1988 of the Nova Scotia Community College (NSCC), a single institution with campuses all over the province.

After 190 years, the question of a closer association of our institutions of higher learning is still being posed. We have eleven degree-granting institutions, ranging in size from 125 students to over 15,000, with mandates that in some cases are unique and in others identical to sister institutions. Six of the eleven are clustered in metro Halifax, and the other five are scattered around the province. Would anyone have designed a system based on any set of principles if they could start from the beginning with a blank page? Probably not. Having said that, the system as it exists has some strengths and some weaknesses. For example, Nova Scotia's universities provide a variety of program options and are relatively dispersed on a geographic basis. Included among Nova Scotia's universities are nationally recognized liberal arts institutions, specialized universities, and a medium-sized university with a full range of professional and graduate programs. However, there are challenges in adequately funding university infrastructure, in maintaining enrolment, and perhaps in sustaining what may very well be an excellent system of universities that is beyond the fiscal ability of the province to support.

Would a massive structural change address the weaknesses once and for all, or would it simply result in rationalization for its own sake? Is there any advantage to being able to say that Nova Scotia finally has the same number of universities as New Brunswick (four public and three private), so we will then be able to get on with addressing real issues involving quality, accountability, sustainability, and so on? Or can those issues be addressed without a major structural overhaul? The report will examine several restructuring options, along with government funding and tuition fee policies. The ultimate focus is on the options available for improving the Nova Scotia university system and making it more effective, efficient, and sustainable.

1.3 Terms of Reference

In general, the mandate was to submit a report that would set out policy options for the development of a more integrated, effective, and sustainable university system in Nova Scotia. The specific mandate included the following:

1. Environmental scan and forecast for higher education in the province, addressing
 - a. Financial condition of universities
 - b. Fiscal capacities of the province
 - c. Demographic trends
 - d. Enrolment trends
 - e. Market potential for recruitment of local, Canadian, and foreign students
 - f. Current linkages to economic and social development processes (research and development, innovation, labour force development, community economic development, etc.)
2. Identification of policy options and best practices in post-secondary education in other jurisdictions (nationally and internationally), addressing
 - a. Governance models
 - b. Financing arrangements
 - c. Restructuring strategies
 - d. Linkages among institutions and between higher education and community and workplace-based adult learning systems
 - e. Recognition of prior learning, credit transfer, foreign credentials, and other innovations to enhance system integration and expand participation in higher education
 - f. Linkages to economic and social development processes
3. Consultations with major stakeholders inside and outside the higher education sector
4. Identification of policy options and presentation of policy and strategic recommendations to the Premier
5. Development of specific advice and guidance to inform and shape future funding arrangements and relationships

In the time available to complete the work, it was not possible to adequately include items 2d–2f in the analysis, and so they were omitted from the actual mandate that was discharged. It should be noted that, despite the reference to the higher education system in the formal statement of the mandate, the focus was exclusively on the eleven degree-granting institutions and did not encompass the Nova Scotia Community College system.

The work was carried out over six months, beginning February 2010, and is concluding with this report to the Premier.

1.4 How the Work Was Done

As is obvious from the mandate and the time frame, this report had to cover a lot of ground in a very short time. To do that, it was decided that secretariat support would be provided by the Higher Education Branch of the Department of Education, with assistance also provided by the Departments of Labour and Workforce Development, Economic and Rural Development, and Finance. Some in-depth research was also provided by an outside consultant. As far as possible, studies, reviews, and reports from Nova Scotia, the rest of Canada, and other jurisdictions were utilized. Because of the limited time frame, consultations took the form of meetings with selected stakeholders, including university presidents, student groups, faculty associations, and other individuals with experience and expertise in the university sector.

1.5 Structure of the Report

The report is divided into six main sections. Section 2 offers an overview of the Nova Scotia university system, presented mainly in the form of statistics and graphs with minimal commentary. Section 3 gives an outlook on various key components of the university system, including enrolment, revenues, costs, and the composite financial situation for universities. Section 4 describes policy options, ranging from very specific items, such as tuition and government funding, to the broad subject of possible system restructuring. Section 5 examines the commercial potential of university research. Given its complexity, there is a standalone section on funding-formula options (Section 6). Finally, Section 7 provides a detailed summary of the conclusions and recommendations in this report.

1.6 Framing of Expectations

Given the comprehensive mandate for the report and the critical place of the universities in the life and economy of Nova Scotia, there may be expectations that this report will provide the government and the institutions with a detailed blueprint for the future. This is implicit in the ongoing interest in the idea of a “big bang” merger of universities throughout the province, or at least a merger of those in the Halifax metro region. As well, the fiscal challenges facing the government and the shrinking primary age cohort for university enrolment add considerable pressure to a system which many see as already too large (and expensive) for a small province. Arrayed against those factors is the evident requirement to deal with the anticipated decline in skilled workers because of baby boomer retirements. Increasing the skill levels of the workforce through higher education is a key mechanism for relieving that problem. It would not be surprising if it were anticipated that the report would trace out a roadmap for the government to follow as it guides the university system to a resolution of these competing pressures.

At the risk of disappointing such expectations, the report is not replete with detailed advice for the government on how it should direct the universities. There are a number of recommendations on key policy areas, such as tuition fees and student assistance programs, research commercialization, and various types of restructuring initiatives. However, they are less prescriptive than what may be found in similar exercises for other provincial university systems. There are several reasons for this overarching approach.

Universities are independent entities, not government departments. They have their own assets, both tangible (e.g., buildings and equipment) and intangible (most notably reputation). The faculty, staff, and administrators are not public servants subject to the government's wage and salary contracts. Although the government may

appoint some of the members, the boards of governors are autonomous agents responsible for the oversight of the individual institutions. This implies that the institutions can and should be responsible for their own operations and for the strategic directions they choose to take. It is true that they rely to a considerable extent on government funding and are affected by tuition fee policy choices. Ultimately, however, their financial fortunes are determined by decisions they make about such things as cost levels and structures, program design and delivery, and student and faculty recruitment. This implies that while government policy can set the broad framework within which they operate, the universities have and should continue to have considerable authority over and responsibility for their own success or failure.

In the choice between a directive and a facilitative approach to the university system, this report and its recommendations lean towards the latter. This is consistent with the view expressed above that the universities are independent entities. The role of the government should be to provide an appropriate level of financial support and to establish tuition and student financial assistance policies that achieve a balance among considerations of accessibility, affordability for students and taxpayers, ability to pay, and benefits to graduates. This implies that the government would not tend to intervene directly in the decision-making processes of the universities, individually or collectively. This would rule out, for example, a directive on faculty and staff salary levels, such as has been done recently in some jurisdictions. It would also mean that where an institution faces financial problems as a result of its own decisions, the government would not provide unrestricted support to resolve the problem.

In the main, the report provides an assessment of the challenges facing the university system and offers a range of suggestions for how the institutions may choose to deal with them. In some cases, government involvement will be necessary to facilitate the process. Advice is offered to the government on a framework for determining the level of funding to the system, without specifying a particular level or a formula for finding one. Some of the recommendations are likely to provoke debate and controversy, although they are not made for that purpose. Rather, the recommendations flow from the evidence and analysis that underpin the report's key conclusions.

SECTION 2:

Overview of the Nova Scotia University System

2.1 Introduction

This section presents an overview of relevant data on Nova Scotia's university system, with some of it disaggregated to the MOU on degree-granting institutions. This section is descriptive rather than analytical. Succeeding sections contain a fuller assessment of the many facets of the system, including enrolment and financial projections, funding and tuition policy, and alternatives for restructuring.

There are 35,131 full-time students attending Nova Scotia's eleven universities in 2009–10, of whom approximately 40 per cent are from outside Nova Scotia. There are also 7,497 part-time students in the system. On average, Nova Scotia universities annually grant 9,730 degrees at the bachelor's level and above, and almost 60 per cent of these graduates remain in the province. The universities account for approximately \$259 million in spending on research and development (R&D) annually. In terms of their economic impact, a study commissioned by the Association of Atlantic Universities (AAU) estimated that universities account for approximately \$1 billion in expenditures and, when economic spinoffs are taken into consideration, the total impact is \$2.15 billion. (Gardner Pinfold Consulting Economists Ltd., 2006). A recent study has also indicated that international students have an economic impact of \$231 million annually, spending \$3.40 for every dollar the Nova Scotia government spends on international students. (Minister's Post-secondary Education Research Advisory Panel, 2009).

Figure 2.1 contains information on enrolments, operating grants, and expenditures for 2008–09, the most recent year for which expenditure data is available. In 2008–09, 41,310 students were enrolled in the eleven universities, the total operating grant from government was \$289 million, and total expenditures amounted to \$950.1 million. These expenditures covered operations and ancillary services such as residences. It is obvious from the table that the size range across the universities is significant. The smallest institution, the Atlantic School of Theology (AST), had just over 125 students, while Dalhousie had almost 15,000. The system can be subdivided into three types of institutions:

- Dalhousie stands alone as an undergraduate/graduate and professional school.
- Five undergraduate universities—Acadia University, Cape Breton University (CBU), Mount Saint Vincent University (MSVU), Saint Mary's University (SMU), and St. Francis Xavier University (St.FX)—offer a full range of undergraduate programs with a smattering of graduate ones.
- The remaining five smaller universities—Atlantic School of Theology, Nova Scotia Agricultural College (NSAC), Nova Scotia College of Art and Design (NSCAD), University of King's College, and Université Sainte-Anne—are more specialized.

FIGURE 2.1 Enrolment, Operating Grants, and Expenditures, 2008-09

Institution	Enrolment (Headcount)	Total Operating Grant	Total Expenditure
Acadia University	3,737	\$27,905,454	\$84,981,000
Atlantic School of Theology	128	\$997,021	\$2,640,683
Cape Breton University	3,053	\$18,759,571	\$50,463,303
Dalhousie University	14,728	\$139,606,216	\$461,445,000
Mount Saint Vincent University	3,834	\$18,462,703	\$52,373,467
Nova Scotia Agricultural College	820	\$6,198,939	\$29,211,510
Nova Scotia College of Art & Design	1,034	\$7,207,766	\$18,316,903
Saint Mary's University	7,146	\$31,711,692	\$110,255,000
St. Francis Xavier University	5,170	\$26,039,683	\$103,290,152
University of King's College	1,111	\$4,811,335	\$17,121,102
Université Sainte-Anne	549	\$7,044,966	\$20,004,083
Total	41,310	\$288,745,347	\$950,102,203

Source: Maritime Provinces Higher Education Commission (MPHEC) enrolment numbers; Universities' annual financial reports; and NS Department of Education 2008-09 data

2.2 Funding

The current university funding process is embedded in the two MOUs signed between government and the universities in 2004 and 2008. These three-year MOUs have provided an opportunity for longer-term fiscal planning for universities and for government. Initially they placed a ceiling on tuition fee increases and subsequently froze tuition fee levels. With the implementation of the Nova Scotia University Student Bursary Trust Fund, tuition fees for Nova Scotia students were reduced towards the national average. Ancillary and auxiliary fee increases were limited to the cost of providing services; the total operating system grant recognized actual cost increases to the system; and in the second MOU, an attempt was made to address infrastructure challenges facing universities.

The university funding process in the most recent MOU had two stages. The first stage involved working with universities to develop a projection of university expenditures that included 12 budget drivers, as well as forecasted revenues from the government operating grant, tuition, and other sources. These items are shown in Figure 2.2 for the year 2010–11, the final year of the current MOU. On the revenue side, the base operating grant is 51 per cent of total revenues; tuition is 33 per cent; and other revenues account for 16 per cent. With global revenues and expenditure projections agreed upon, in the second steps, funding was distributed among universities based on the three-year (weighted) average of course enrolments for undergraduates and program enrolments for graduates. The enrolment average used in the current MOU is for the years 2003–04 to 2005–06.

FIGURE 2.2 **Chart of Accounts Line Items for University System (\$000), 2010-11**

	2010-11 (estimate)	%
Revenues		
Base Operating Grant	\$359,958	50.9%
Total Tuition Revenue	\$234,943	33.2%
Other	\$112,710	15.9%
Total Revenues	\$707,611	100.0%
Budget Drivers		
Faculty Salaries	\$262,762	37.1%
Other Salaries	\$157,371	22.2%
Benefits	\$66,279	9.4%
Utilities	\$29,410	4.2%
Insurance	\$3,066	0.4%
Library Collections	\$13,985	2.0%
Debt Servicing Costs	\$11,267	1.6%
Financial Aid to Students	\$33,578	4.7%
Externally Contracted Services	\$23,944	3.4%
Facilities Renewal	\$21,868	3.1%
Technology	\$13,724	1.9%
Other	\$70,358	9.9%
Total	\$707,611	100.0%
Yearly Cost Increase	\$30,428	4.5%

Source: Higher Education Branch, NS Department of Education

The University Funding Distribution Formula is relatively complicated. Enrolments for each university are placed in “bins” that assign relative weight based on the cost of delivery of various courses, as determined by the Nova Scotia Council on Higher Education in the mid-1990s. For example, a typical arts course has a weight of 1, sciences courses tend to have a weight of 2, medicine courses are weighted at 7, and the highest weight is applied to dentistry courses at 10. So, for example, if after determining global funding, an arts program is determined to be worth \$5,000, then a dentistry program is worth \$50,000. Weighted enrolment grants constitute 90 per cent of the formula, with 10 per cent allocated for research, size, French language, part-time students, and isolation and a restricted operating grant (non-space and alterations and renovations).

The current MOU contains further modifications to the distribution formula. During the negotiations it was recognized that moving immediately to a 90 per cent enrolment-driven distribution formula based on the years 2003–04, 2004–05, and 2005–06 would cause fiscal stress to all universities except Dalhousie and University of King’s College. Consequently, a transition adjustment was made to the formula so that universities received their allocation based 25 per cent on enrolment and 75 per cent on projected costs; in the second year the formula moved to 50:50; and in the third year to 75 per cent enrolment and 25 per cent costs. Other adjustments were made to account for anomalies with several institutions. Figure 2.3 provides an overview of the effect of these modifications over the three years of the current MOU.

FIGURE 2.3 Transition Formula Funding, 2008-09 to 2010-11

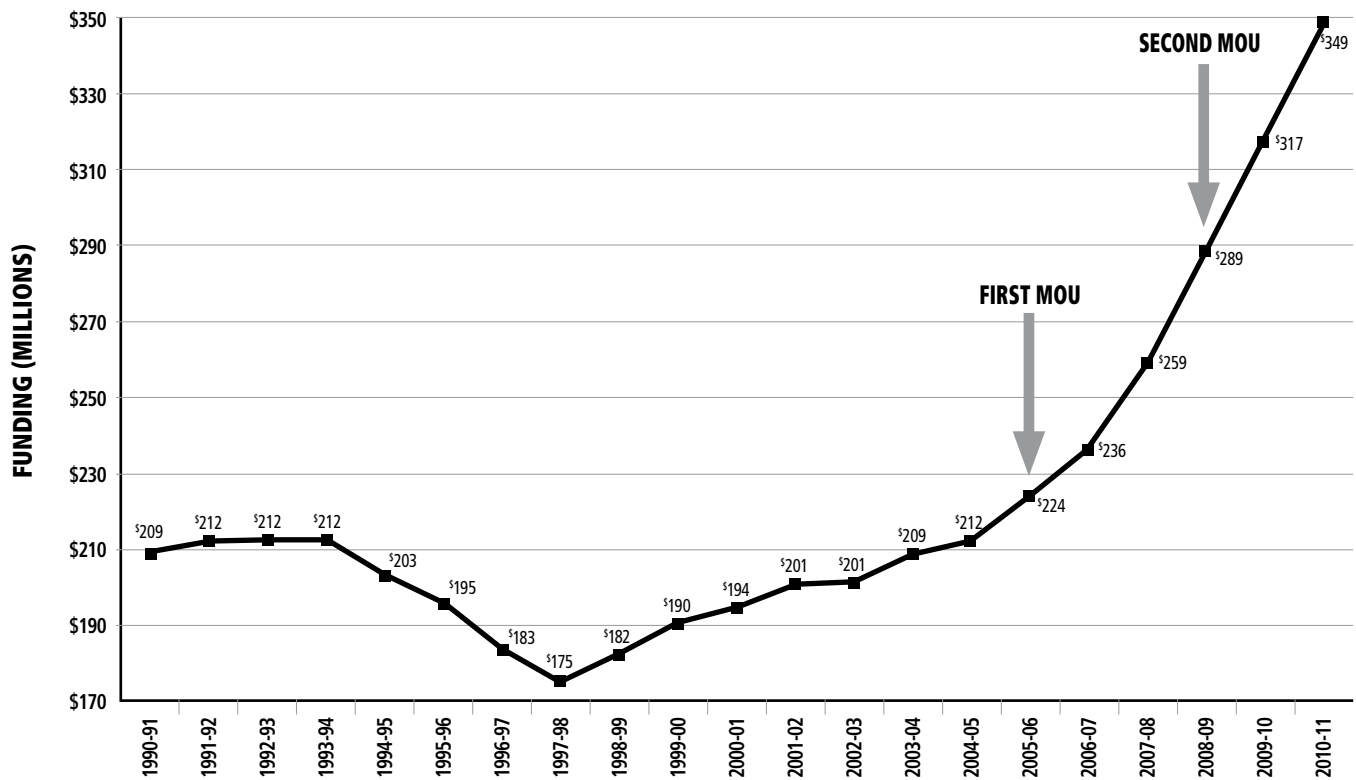
Institution	2008-09			2009-10			2010-11		
	Funding Formula Funding	Chart of Accounts	Transition Funding	Funding Formula Funding	Chart of Accounts	Transition Funding	Funding Formula Funding	Chart of Accounts	Transition Funding
Acadia	23,004,433	29,482,415	27,862,919	25,359,234	32,348,567	28,853,900	27,784,985	35,377,002	29,682,989
AST	991,222	996,853	995,445	1,092,686	1,132,056	1,112,372	1,197,207	1,275,766	1,216,847
Cape Breton	15,937,183	19,672,126	18,738,390	17,568,560	21,274,357	19,421,458	19,249,089	22,953,909	20,175,294
Dalhousie	149,412,630	135,416,861	139,436,253	164,706,942	147,973,539	156,649,634	180,462,070	161,127,372	175,762,052
Mount Saint Vincent	17,992,849	18,590,380	18,440,998	19,834,649	20,443,623	20,139,136	21,731,943	22,287,165	21,870,749
NS Agricultural College	5,319,745	6,487,290	6,195,404	5,864,290	7,765,343	6,814,816	6,425,241	9,121,253	7,099,244
NSCAD	7,416,317	7,110,728	7,198,489	8,175,473	8,246,155	8,210,814	8,957,502	8,931,213	8,951,111
St. Mary's	30,377,491	32,109,283	31,676,335	33,487,020	35,616,003	34,551,511	36,690,238	39,273,683	37,336,099
St. FX	25,567,570	26,147,109	26,002,225	28,184,741	29,451,676	28,818,209	30,880,767	32,962,148	31,401,112
U King's	5,333,801	4,594,454	4,806,784	5,879,784	5,260,366	5,581,528	6,442,218	5,963,147	6,325,762
U Sainte-Anne	3,275,690	4,021,433	3,275,690	3,610,999	4,252,691	3,610,999	3,956,411	4,505,013	3,956,411
Total	\$284,628,932	\$284,628,932	\$284,628,934	\$313,764,377	\$313,764,377	\$313,764,379	\$343,777,672	\$343,777,672	\$343,777,673

Source: Higher Education Branch, NS Department of Education

The following series of graphs (Figures 2.4 to 2.9) illustrates government funding of the university system from several perspectives in current and constant dollars from 1990–91 to 2010–11 (the last two years are projections): funding levels and funding per student in current and constant dollars; and provincial comparisons of funding per student and of funding per capita. Funding levels, funding per student, and funding per capita are three common approaches to examining the extent of public sector support.

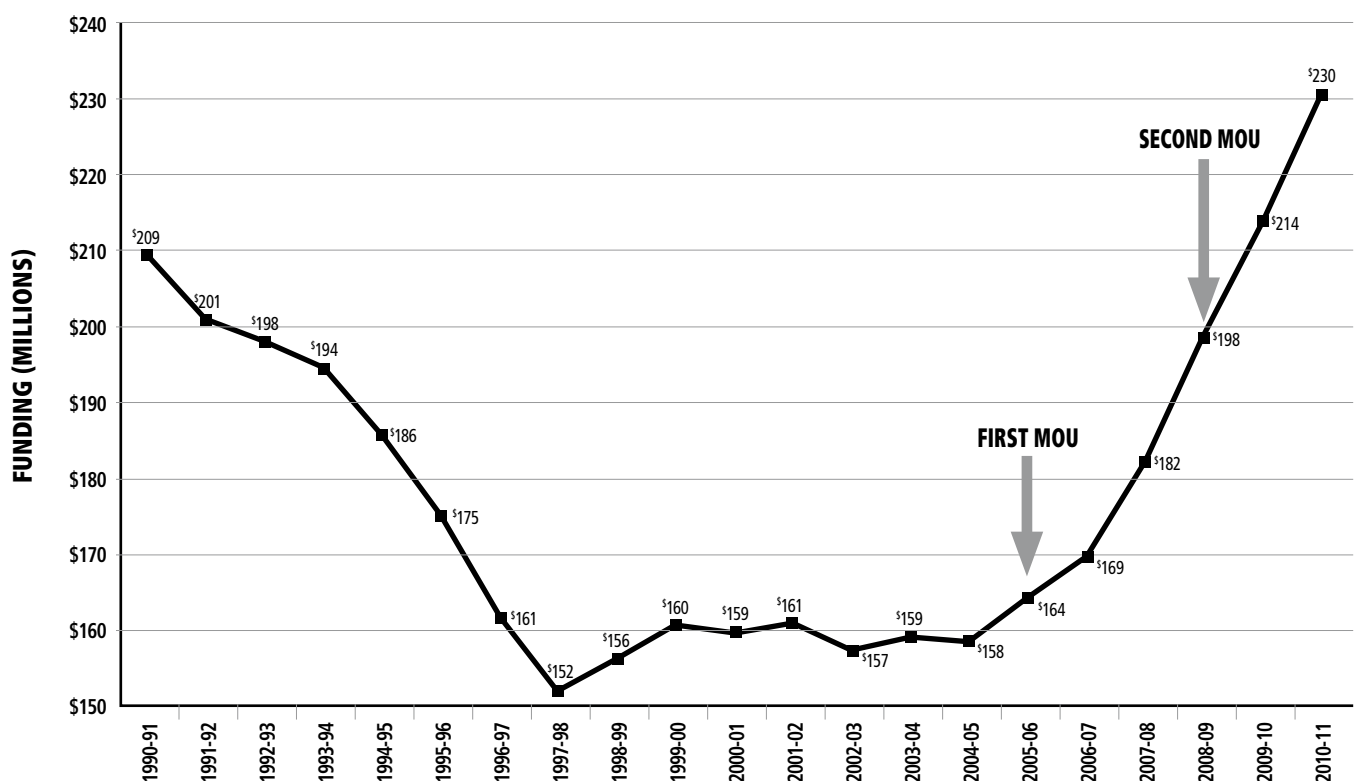
In current dollars, grants to universities were \$209 million in 1990–91; they dipped to \$175 million in 1997–98, and only returned to their 1990–91 value by 2003–04 (Figure 2.4). The first memorandum of understanding (MOU) began in 2005–06. Over the next three years, funding in current dollars increased from \$224 million to \$289 million, and under the second MOU will increase to \$349 million by the end of the 2010–11 fiscal year.

FIGURE 2.4 University Funding, Current Dollars, 1990-91 to 2010-11



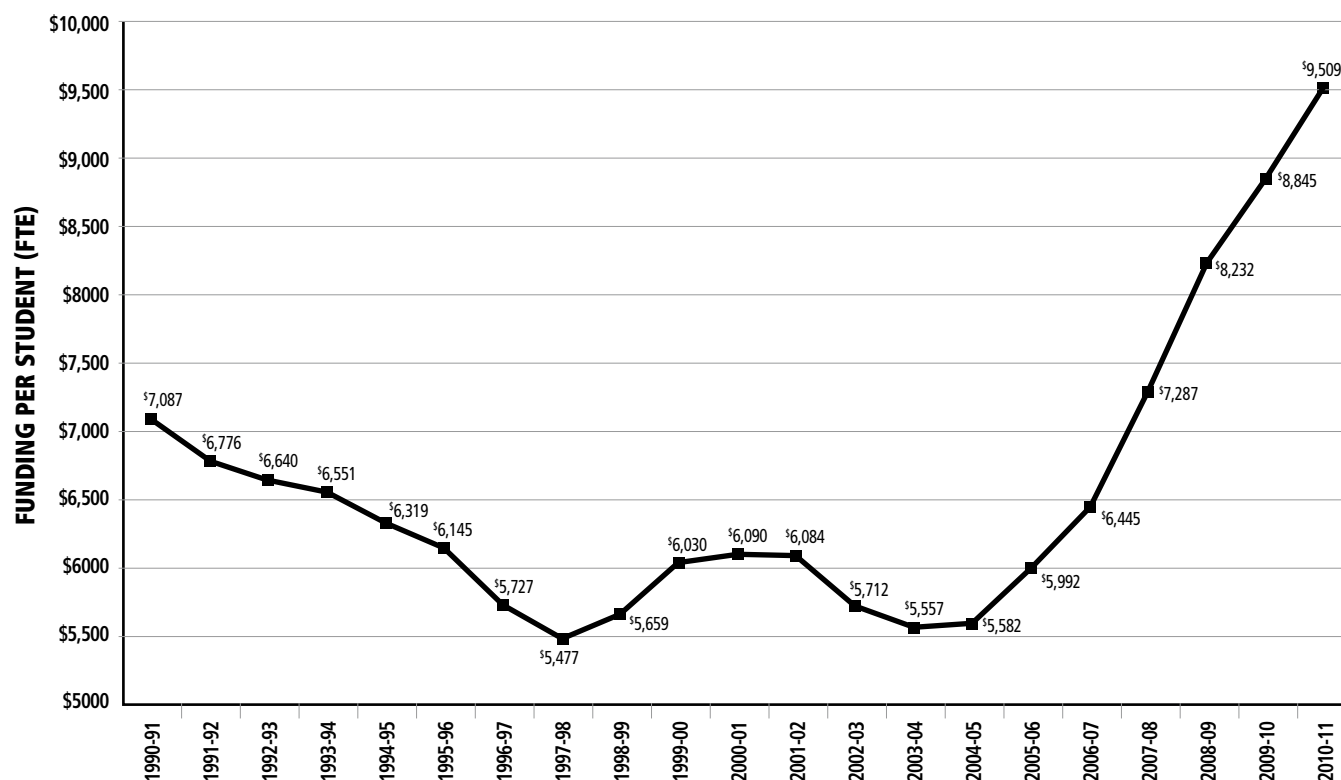
Source: Higher Education Branch, NS Department of Education

FIGURE 2.5 University Funding, Constant (1990) Dollars, 1990-91 to 2010-11



Source: Higher Education Branch, NS Department of Education

FIGURE 2.6 University Funding per Student, Current Dollars, 1990-91 to 2010-11

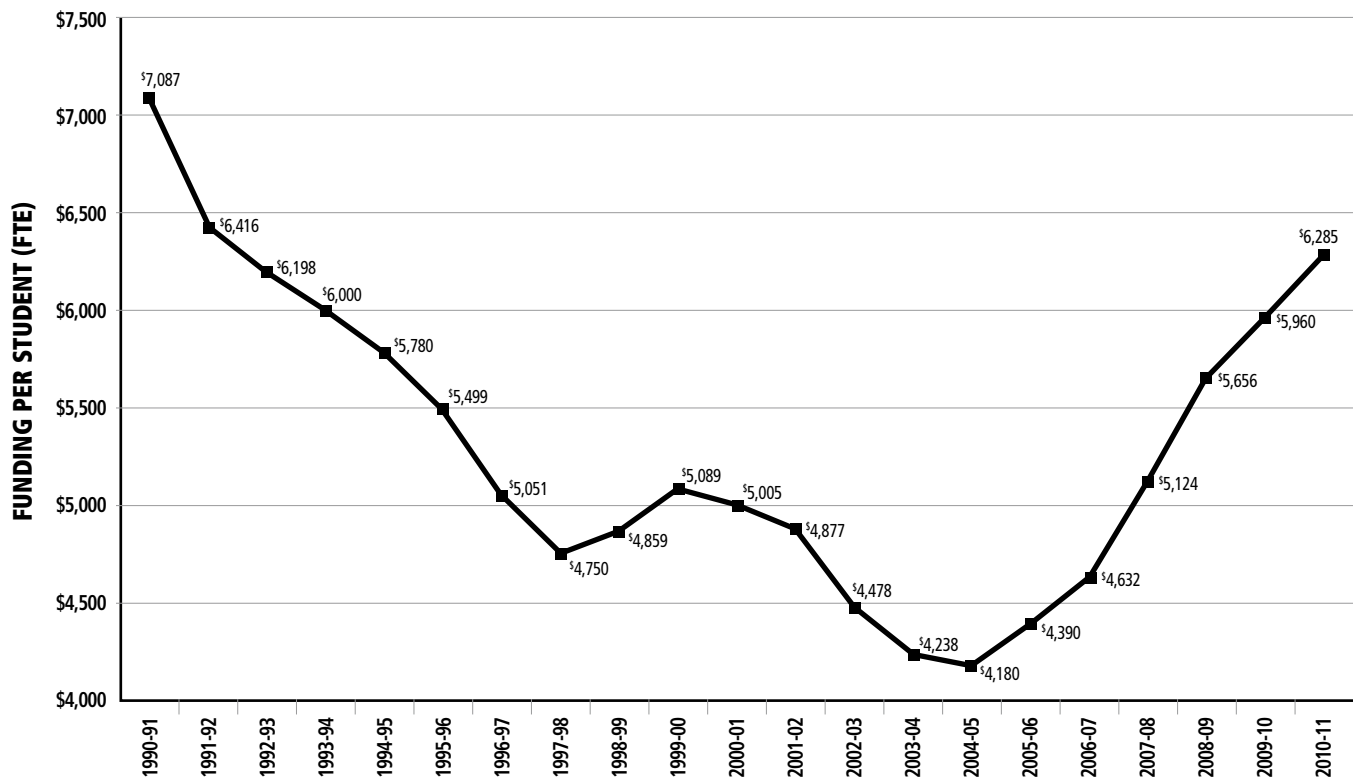


Source: Higher Education Branch, NS Department of Education

When measured in constant (1990) dollars, university grants went from \$209 million in 1991–91 to a low of \$152 million in 1997–98, returned to the 1990–91 level only by the second year of the second MOU in 2009–10, and will top out at a projected \$230 million in 2010–11 (Figure 2.5).

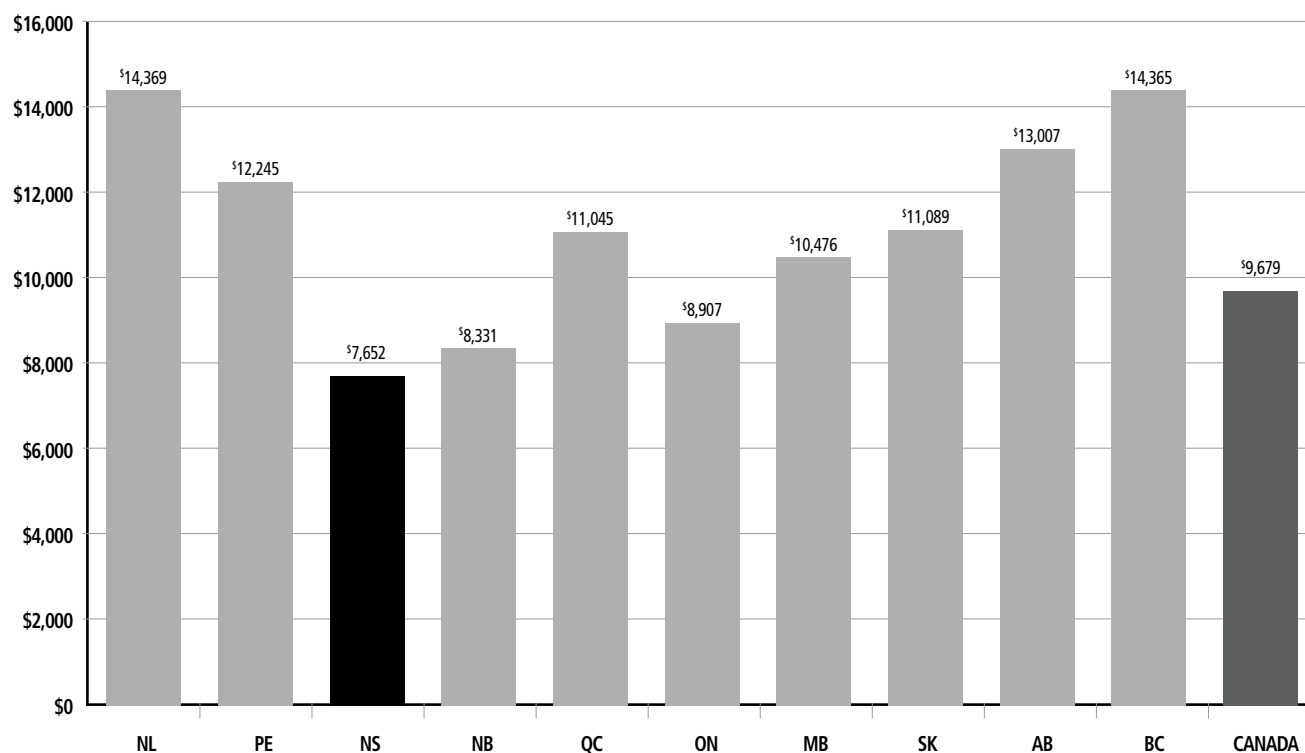
When university funding is divided by full-time-equivalent (FTE) enrolment, funding per student fell steadily from 1990–91 to 1997–98, but achieved sustained increases only after 2004–05, reaching \$9,500 by 2010 (Figure 2.6). When measured in real terms, funding per FTE declined from \$7,087 per student in 1990 to \$4,180 by 2004–05, and by the end of the second MOU will still not have reached the real funding per student that was in place in 1991–92. (Figure 2.7 show, for example, that in 1991–92 it was \$6,416 and in 2010–11 it will be \$6,285.)

FIGURE 2.7 University Funding per Student, in Constant (1990) Dollars, 1990-91 to 2010-11



Source: Higher Education Branch, NS Department of Education

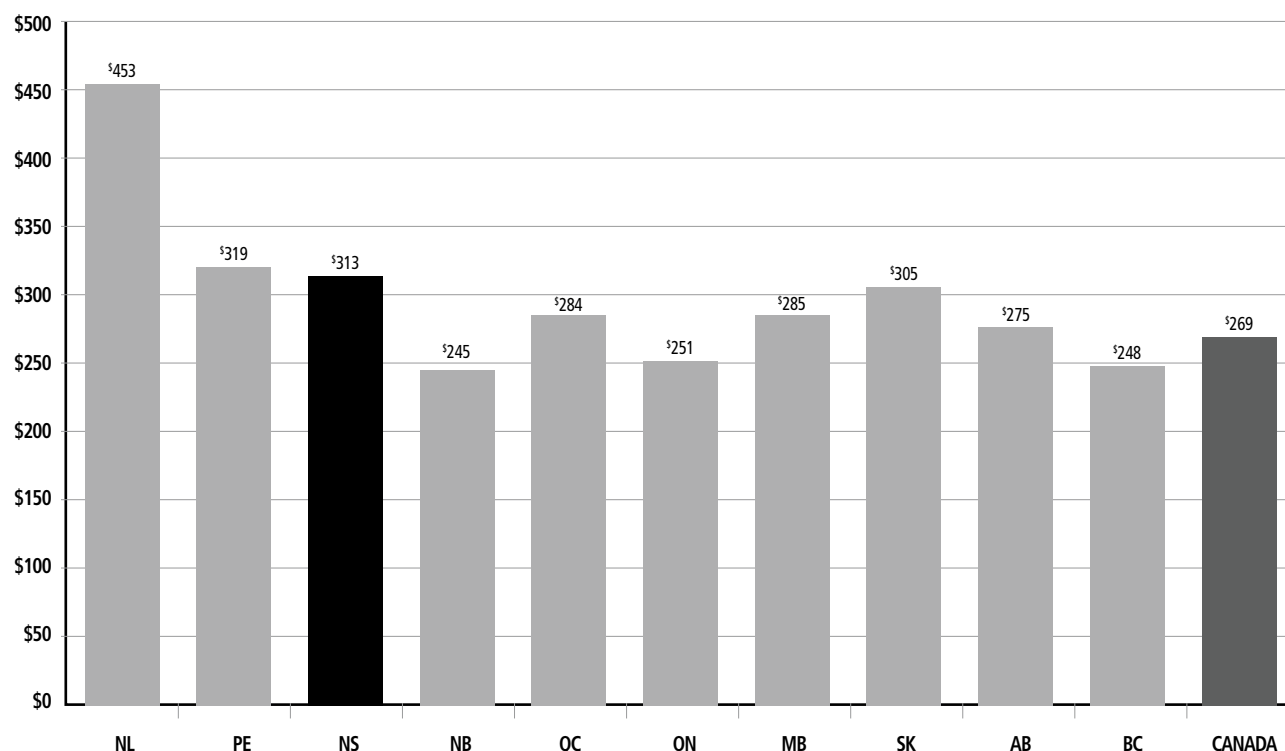
To examine the comparative position of Nova Scotia, Figure 2.8 shows funding per student (FTE) by province for the latest year available (2007–08). Nova Scotia has the lowest funding per student of any province in Canada, at \$7,652. This is often explained by the fact that 40 per cent of Nova Scotia students were from out of province, with 30 per cent coming from other Canadian provinces and 10 per cent being international students. The underlying premise is that Nova Scotia makes more extensive use of its capacity than would be the case if it primarily relied on students from within the province. This issue will be discussed at greater length in Section 4.1. It is worth noting that New Brunswick (with 31 per cent of students from out of province) and Alberta (with 30 per cent) still rank above Nova Scotia in funding per student. As well, Nova Scotia, along with New Brunswick and Ontario, is well below the national average of \$9,679 per student.

FIGURE 2.8 **Funding per Student (Full-time Equivalent), by Province, 2007-08**

Source: Higher Education Branch, NS Department of Education

Figure 2.9 tells quite a different story by displaying public sector funding on a per-capita basis. In 2007–08, Nova Scotia had the third-highest funding per capita in Canada, at \$313, trailing only Newfoundland at \$453 and PEI (slightly) at \$319. All three provinces are well above the national average, whereas New Brunswick, Ontario, and British Columbia are below it. As discussed further in Section 4.1, it is not entirely coincidental that three of the four smallest provinces (by population) are also at the top of the league tables in funding per capita.

FIGURE 2.9 Funding per Capita, by Province, 2007-08



Source: Higher Education Branch, NS Department of Education

2.3 Enrolments

The next series of tables and graphs illustrates various components of university enrolments. In the university system, 82 per cent of enrolment in 2009–10 consisted of full-time students and 18 per cent part-time, out of total enrolment of 42,628 (Figure 2.10). This composition of students has remained relatively unchanged for the last decade. Among the individual institutions, Mount Saint Vincent University has by far the highest percentage (50 per cent) of part-time students. At the other end of the range, University of King's College has only 2 per cent part-time enrolment. For the other institutions, part-time students constitute 10–20 per cent of the student body.

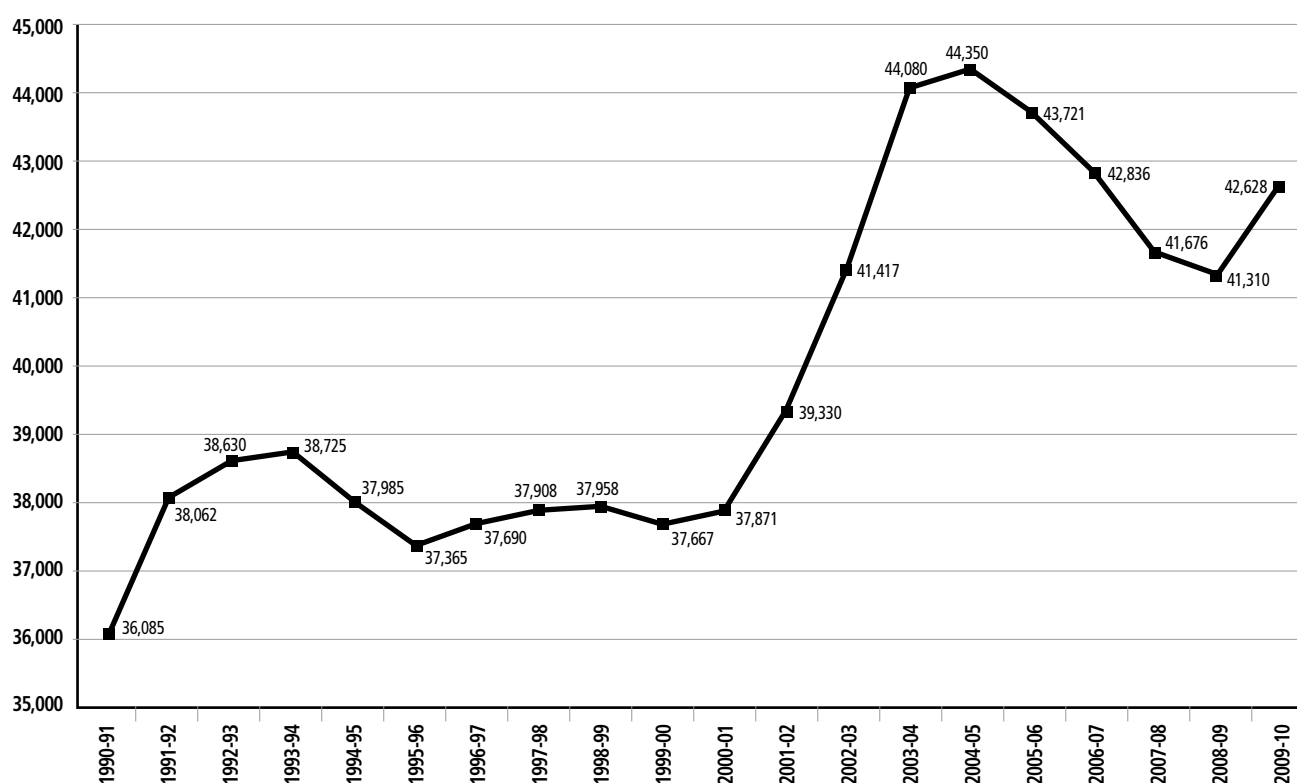
FIGURE 2.10 Full-time and Part-time Enrolments, by University, 2009-10

Institution	Full-time		Part-time		Total
	Number	% of Total	Number	% of Total	
Acadia University	3,106	86%	515	14%	3,621
Atlantic School of Theology	50	40%	75	60%	125
Cape Breton University	2,532	81%	575	19%	3,107
Dalhousie University	13,810	86%	2,160	14%	15,970
Mount Saint Vincent University	1,973	50%	1,990	50%	3,963
Nova Scotia Agricultural College	813	90%	91	10%	904
Nova Scotia College of Art & Design	844	82%	183	18%	1,027
Saint Mary's University	6,275	86%	1,006	14%	7,281
St. Francis Xavier University	4,123	85%	752	15%	4,875
University of King's College	1,140	98%	29	2%	1,169
Université Sainte-Anne	465	79%	121	21%	586
Total	35,131	82%	7,497	18%	42,628

Source: Association of Atlantic Universities, 2009-10 Survey of Enrolments

Tracking university enrolments by headcount (rather than by FTE), Figure 2.11 indicates that in 1991 there were 36,085 students in the system and in 2009–10 there were 42,628, an increase in enrolment of 6,543 (18 per cent). The impact played by the Ontario double cohort begins in 2002–03, when students chose to enrol in Nova Scotia universities a year prior to the full impact of the double cohort. Half of the enrolment growth in 2003–04 was a result of increased enrolments from Ontario. Ontario enrolments continued to grow, but at a far less dramatic rate, through 2006–07. The enrolment declines in 2005–06 and 2006–07 were primarily the result of declines in enrolments from the Atlantic and Western provinces, and international enrolments. The 1,160-seat enrolment decline in 2007–08 was almost wholly attributable to declines in enrolments from Ontario and the three Atlantic provinces excluding Nova Scotia.

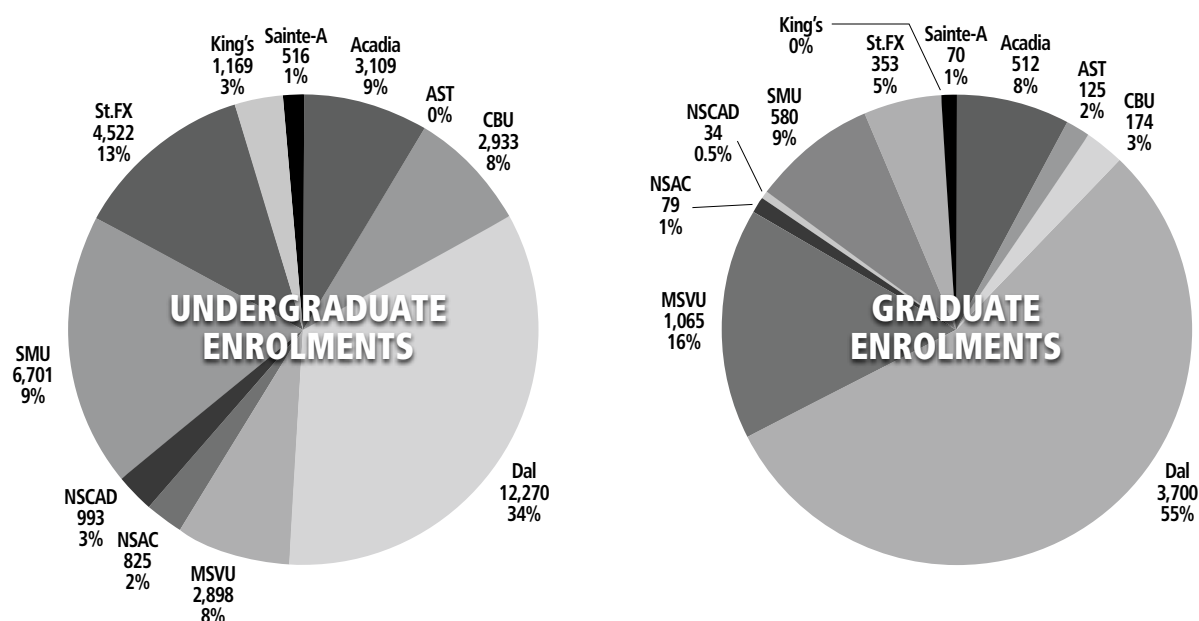
FIGURE 2.11 Province-wide University Enrolment (Headcount), 1990-91 to 2009-10



Source: Maritime Provinces Higher Education Commission (PSIS data); and Association of Atlantic Universities (2009-10 Survey of Enrolments)

The pie charts (Figure 2.12) show the breakdown of undergraduate and graduate enrolments by individual university. Dalhousie University has just over one-third of the system's total undergraduate enrolments, followed by Saint Mary's at 19 per cent and St. Francis Xavier at 13 per cent. Acadia, Cape Breton, and Mount Saint Vincent come in around 9 per cent each, with the other universities making up the balance. In terms of graduate enrolments, Dalhousie has over half (55 per cent) of the total of 6,692 graduate students in Nova Scotia. MSVU, with its M.Ed. program is the only other provincial institution with a graduate student enrolment in double digits (16 per cent). With the exception of Dalhousie and AST, the provincial universities are predominately undergraduate institutions.

FIGURE 2.12 Undergraduate and Graduate Enrolments, by University



Source: Association of Atlantic Universities, 2009-10 Survey of Enrolments

Examining enrolments by residence of origin in 2008–09 (Figure 2.13), Saint Mary's has the highest proportion of international students, at 16 per cent of its total enrolment, followed by Acadia at 13 per cent. For the system, international students constitute 9 per cent of this total. Students from other Canadian provinces make up 32 per cent of the total, with King's at 57 per cent and Dalhousie at 44 per cent having the highest proportion of these students among Nova Scotia universities. In summary, the latest statistics indicate that 59 per cent of Nova Scotia university students are from Nova Scotia (24,352), 32 per cent are from other Canadian provinces (13,135), and 9 per cent are international (3,823).

Nova Scotia ranks third highest in percentage of international enrolments, following British Columbia at 17.2 per cent and New Brunswick at 11.5 per cent. The lowest international enrolment is in Newfoundland, at 5.6 per cent. National comparisons of enrolments by province of origin are challenged by reporting inconsistencies in Statistics Canada data.

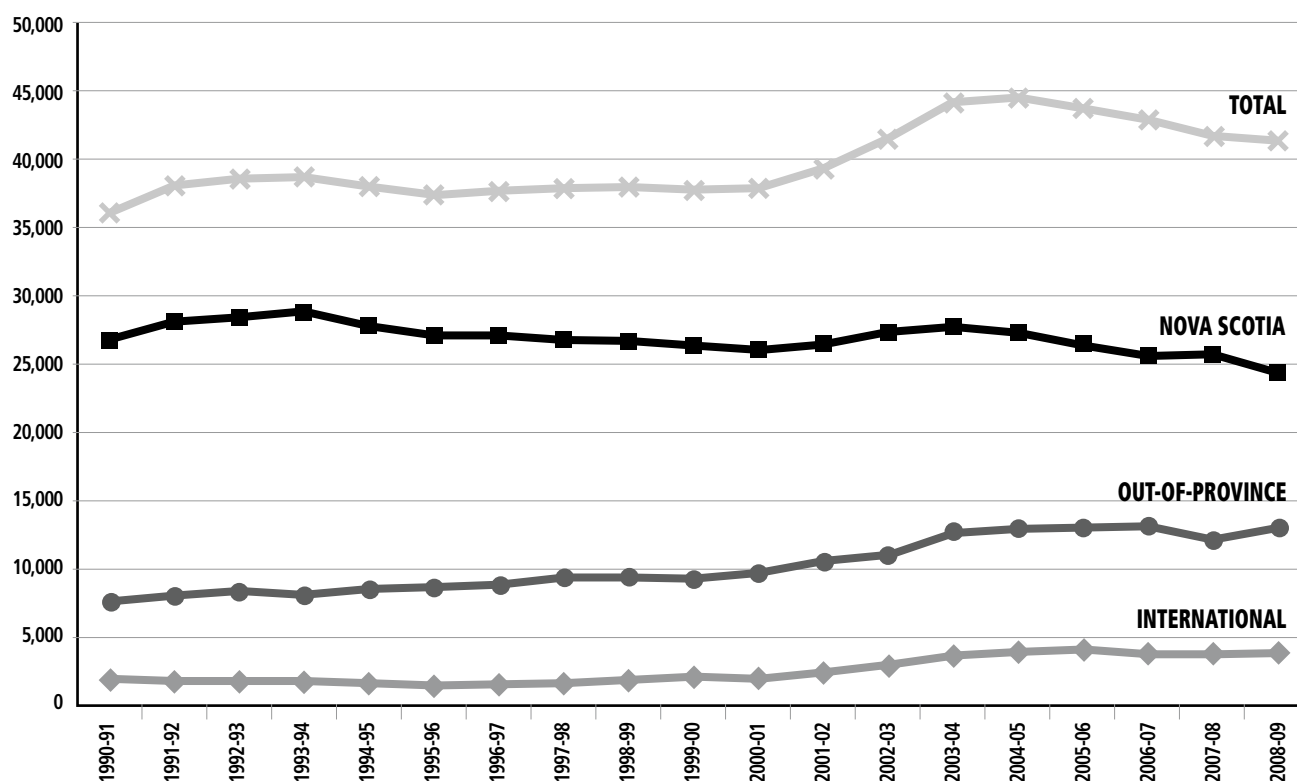
FIGURE 2.13 Enrolment (Headcount) by Residence of Origin, by University, 2008-09

University	Nova Scotia		Out-of-Province		International		Total
	Number	% of Total	Number	% of Total	Number	% of Total	
Acadia University	2,005	54%	1,244	33%	488	13%	3,737
Atlantic School of Theology	82	64%	44	34%	2	2%	128
Cape Breton University	2,331	76%	445	15%	277	9%	3,053
Dalhousie University	7,231	49%	6,411	44%	1,086	7%	14,728
Mount Saint Vincent University	2,890	75%	576	15%	368	10%	3,834
Nova Scotia Agricultural College	543	66%	198	24%	79	10%	820
Nova Scotia College of Art & Design	554	54%	418	40%	62	6%	1,034
Saint Mary's University	4,905	69%	1,068	15%	1,173	16%	7,146
St. Francis Xavier University	2,936	57%	2,012	39%	222	4%	5,170
University of King's College	455	41%	628	57%	28	3%	1,111
Université Sainte-Anne	420	77%	91	17%	38	7%	549
Total	24,352	59%	13,135	32%	3,823	9%	41,310

Source: Maritime Provinces Higher Education Commission (PSIS data)

Looking at the patterns from 1990–91 to 2008–09, Figure 2.14 shows that the percentage of international students was steady for the decade of the 1990s and rose in the early part of this decade, levelled off at just below 5,000 in 2005–06, and has trended slightly downward thereafter. Out-of-province students showed a steady increase for the decade 1990–2000, with a boost from the Ontario double cohort in the middle of this decade; fell for one year; and then rebounded. Nova Scotians attending Nova Scotia universities dropped consistently from the early 1990s to 2000, bounced up briefly, and then dropped steadily to the end of 2008–09. The pattern evident from this data is that all universities have relied on students from outside of the province (other provinces and international) for the bulk of the enrolment increases over the past 20 years.

FIGURE 2.14 **Province-wide University Enrolment (Headcount), by Residence of Origin, 1990-91 to 2008-09**



Source: Maritime Provinces Higher Education Commission (PSIS data)

Figure 2.15 provides information on enrolments by program of study at each university. As you would expect, there is similarity in terms of the arts, sciences, and humanities offerings at what are essentially small- to moderate-sized liberal arts universities. There are unique program offerings at more specialized universities, such as NSCAD, AST, and NSAC. Even among the most typical non-specialist institutions, there is SMU where 40 per cent of students are enrolled in commerce and business administration. In professional areas such as health programming, there is a heavy concentration at Dalhousie, which constitutes 21 per cent of total enrolment and accounts for 78 per cent of the system programming in this category.

FIGURE 2.15 Enrolments by Program of Study

Area of Study	Acadia	AST	CBU	DAL	MSVU	NSAC	NSCAD	St.FX	SMU	UKing's	USainte-A	Total
Agricultural and Biological Sciences	471		32	1,008	287	476		317	132	29		2,754
Arts or Science - General	57		840	1,682	258		33	1,147	1,717	494	91	6,317
Commerce and Administration	499		583	1,430	414			766	2,470		51	6,215
Education, Physical Education, Recreation and Leisure	724		61	446	617		10	886	6		208	2,959
Engineering and Applied Sciences	41		121	1,461		65		67	140			1,895
Fine and Applied Arts	135			172			781	67		14		1,168
Health Professions and Occupations	31		281	2,720				430			6	3,467
Humanities and Related	389	74	21	752	414		30	261	303	361	19	2,624
Mathematics and Physical Sciences	266		108	877	61			129	113	11		1,565
Social Sciences and Related	472		397	2,306	456	12		360	1,060	166	1	5,230
Other	74		43	224	65	168	30	62	160	0	56	882
Total	3,159	74	2,486	13,078	2,572	722	885	4,490	6,101	1,075	432	35,076

Program Enrolment Distribution Within Each University

Area of Study	Acadia	AST	CBU	DAL	MSVU	NSAC	NSCAD	St.FX	SMU	UKing's	USainte-A	Total
Agricultural and Biological Sciences	15%	0%	1%	8%	11%	66%	0%	7%	2%	3%	0%	8%
Arts or Science - General	2%	0%	34%	13%	10%	0%	4%	26%	28%	46%	21%	18%
Commerce and Administration	16%	0%	23%	11%	16%	0%	0%	17%	40%	0%	12%	18%
Education, Physical Education, Recreation and Leisure	23%	0%	2%	3%	24%	0%	1%	20%	0%	0%	48%	8%
Engineering and Applied Sciences	1%	0%	5%	11%	0%	9%	0%	1%	2%	0%	0%	5%
Fine and Applied Arts	4%	0%	0%	1%	0%	0%	88%	1%	0%	1%	0%	3%
Health Professions and Occupations	1%	0%	11%	21%	0%	0%	0%	10%	0%	0%	1%	10%
Humanities and Related	12%	100%	1%	6%	16%	0%	3%	6%	5%	34%	4%	7%
Mathematics and Physical Sciences	8%	0%	4%	7%	2%	0%	0%	3%	2%	1%	0%	4%
Social Sciences and Related	15%	0%	16%	18%	18%	2%	0%	8%	17%	15%	0%	15%
Other	2%	0%	2%	2%	3%	23%	3%	1%	3%	0%	13%	3%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Program Enrolment Distribution Across All Universities

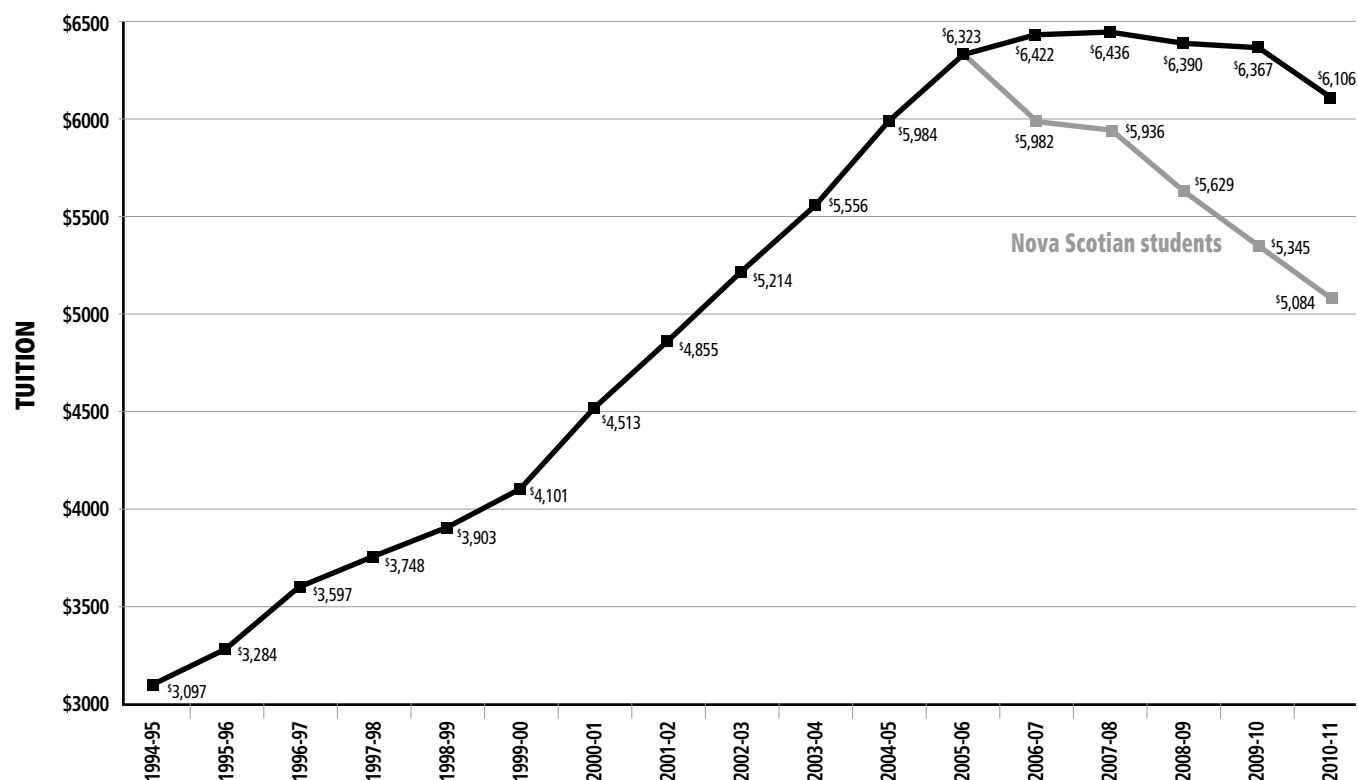
Area of Study	Acadia	AST	CBU	DAL	MSVU	NSAC	NSCAD	St.FX	SMU	UKing's	USainte-A	Total
Agricultural and Biological Sciences	17%	0%	1%	37%	10%	17%	0%	12%	5%	1%	0%	100%
Arts or Science - General	1%	0%	13%	27%	4%	0%	1%	18%	27%	8%	1%	100%
Commerce and Administration	8%	0%	9%	23%	7%	0%	0%	12%	40%	0%	1%	100%
Education, Physical Education, Recreation and Leisure	24%	0%	2%	15%	21%	0%	0%	30%	0%	0%	7%	100%
Engineering and Applied Sciences	2%	0%	6%	77%	0%	3%	0%	4%	7%	0%	0%	100%
Fine and Applied Arts	12%	0%	0%	15%	0%	0%	67%	6%	0%	1%	0%	100%
Health Professions and Occupations	1%	0%	8%	78%	0%	0%	0%	12%	0%	0%	0%	100%
Humanities and Related	15%	3%	1%	29%	16%	0%	1%	10%	12%	14%	1%	100%
Mathematics and Physical Sciences	17%	0%	7%	56%	4%	0%	0%	8%	7%	1%	0%	100%
Social Sciences and Related	9%	0%	8%	44%	9%	0%	0%	7%	20%	3%	0%	100%
Other	8%	0%	5%	25%	7%	19%	3%	7%	18%	0%	6%	100%
Total	9%	0%	7%	37%	7%	2%	3%	13%	17%	3%	1%	100%

Source: Maritime Provinces Higher Education Commission (PSIS data)

2.4 Tuition

Average tuition levels at Nova Scotia universities increased (in current dollar terms) from \$3,097 in 1994–95 to a peak of \$6,436 in 2007–08 (Figure 2.16). At that point Nova Scotia tuition was \$1,778 above the Canadian average, and highest among Canadian provinces. The first of a series of tuition-reduction measures was introduced in 2006–07 when monies from the federal Infrastructure Trust Fund were directed to a one-time reduction in tuition for Nova Scotia students studying in Nova Scotia: by \$440 for full-time students and \$220 for part-time students. This was followed in 2007–08 by another one-time reduction of \$500 for Nova Scotia students and coincided with an increase in funding with an amendment in the MOU that froze tuition in the third year. The second MOU, which started in 2008–09, continued the tuition freeze and, in addition, a bursary of \$761 was introduced for Nova Scotia students studying in Nova Scotia, from the newly established Nova Scotia University Student Bursary Trust. The impact of the trust was to lower tuition fees for Nova Scotia students closer to the Canadian average.

FIGURE 2.16 Average Tuition in Nova Scotia in Current Dollars, 1994-95 to 2010-11



Source: Statistics Canada; and Higher Education Branch, NS Department of Education

In 2009–10, tuition continued to be frozen under the MOU, and another \$261 was added to the bursary, for a total of \$1,022 for Nova Scotia students studying in Nova Scotia universities. The final year of bursary from the Nova Scotia University Student Bursary Trust will be 2010–11, when another \$261 will be added to provide a bursary of \$1,283 for Nova Scotia students studying at Nova Scotia universities. Canadian students from out of province studying at Nova Scotia universities will receive a \$261 bursary. The line labelled “Nova Scotian students” on Figure 2.16 traces the impact of these tuition reduction initiatives from 2006–07 to 2010–11, when the average tuition for Nova Scotians is projected to be \$5,084, compared to \$6,106 for Canadian out-of-province students.

Figure 2.17 shows the bursary cost estimates for Nova Scotia students and out-of-province students, with the total cost for 2010–11 of \$29.1 million.

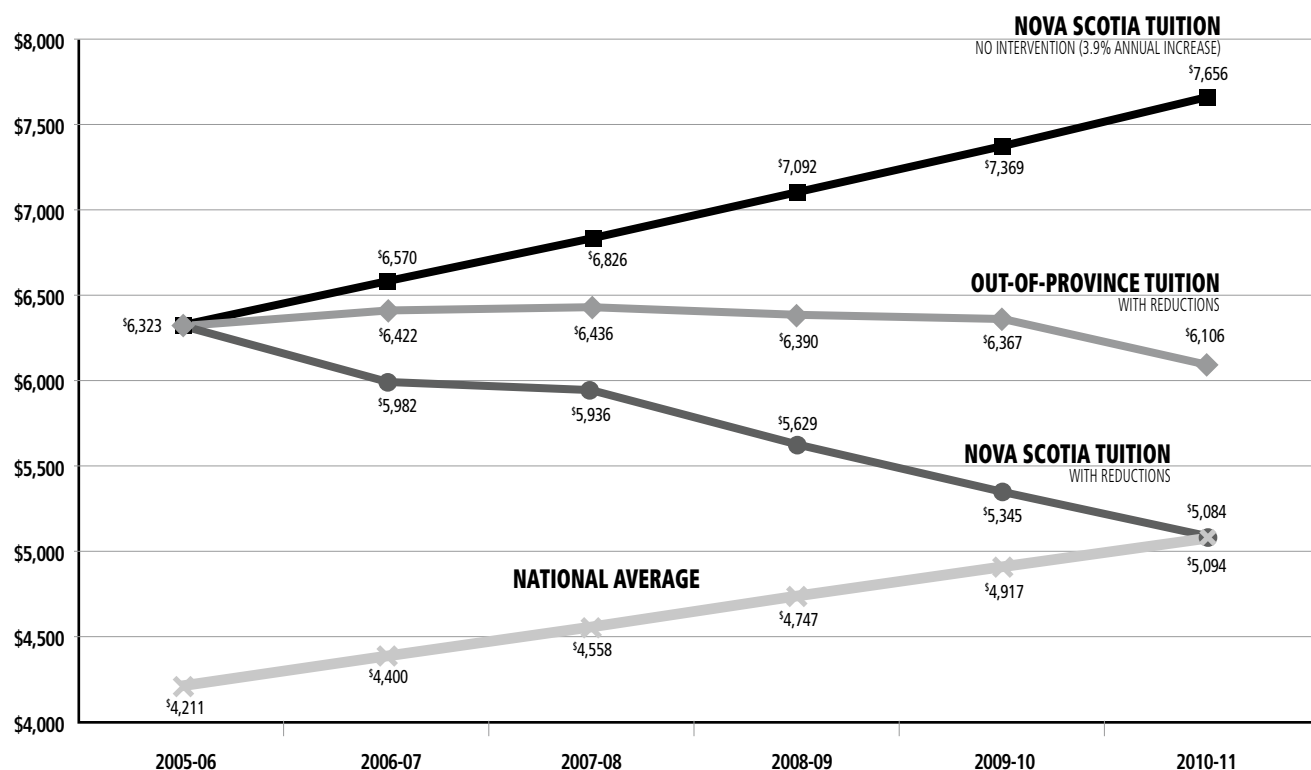
FIGURE 2.17 Bursary Cost Estimates, 2010-11

	Nova Scotia Students	Out-of-Province Students	Total
Full-Time Equivalent (FTE), 2008-09	20,320	11,446	31,766
Bursary for 2010-11	\$1,283	\$261	
Total Cost	\$26,070,560	\$2,987,406	\$29,057,966

Source: Higher Education Branch, NS Department of Education

Four facets of tuition in Nova Scotia from 2005–06 to 2010–11 are tracked in Figure 2.18. From top to bottom, the first line shows what Nova Scotia tuition would have been with no freeze and an estimated annual increase of 3.9 per cent, which was the amount allowed in the first two years of the first MOU (it is also close to the national average rate of increases). Had there been no intervention, tuition over the period would have risen from \$6,323 to \$7,656. Instead, tuition for Nova Scotia students at the end of the period will have fallen to \$5,084 and, assuming the national average for tuition increases at a 3.6 per cent annual pace, the Nova Scotia figure will be \$10 below the national average by 2010–11. The second line traces tuition for out-of-province Canadian students studying in Nova Scotia and shows that their tuition will be \$6,106 by 2010–11. The third line from the top shows actual Nova Scotia tuitions each year, and the bottom line shows the national average, assuming an annual increase of 3.6 per cent.

FIGURE 2.18 **Nova Scotia Tuition Reduction to National Average, 2005-06 to 2010-11**



Source: Statistics Canada; and Higher Education Branch, NS Department of Education

2.5 Student Debt

Between 1990 and 2008, the average student debt in Nova Scotia, at the time of repayment, has increased from \$7,660 to \$24,387, an increase of 218 per cent. In constant dollars there was an increase of 119 per cent (from \$7,660 to \$16,749). The spike in debt after 1992 was the result of the elimination of the Nova Scotia Bursary Program, which provided the full Nova Scotia student loan portion as a non-repayable bursary. All funding provided from 1992 onward has been in the form of repayable loans. As discussed further in Section 4.1, eliminating the bursary program along with increasing tuition has resulted in students in Nova Scotia graduating with the highest debt levels in the country. In 2008, there was a slight decrease in debt as a result of the tuition reduction measures outlined above.

There has been a significant increase in the number of university students applying for, and receiving, assistance (see Figure 4.3 in Section 4 of the report). The Student Assistance Office launched a number of initiatives in 2008 to assist students in financing their education. In that year, the province began lending directly to students. The Direct Lend initiative achieved savings by being able to borrow at the provincial government's borrowing rate instead of through chartered banks at prime plus one-half percent. The savings achieved through this initiative were re-invested in the Student Assistance programs. The loan interest rates were reduced by two percentage points, and an upfront non-repayable grant of 20 per cent was introduced, along with a grant for students with dependents. A number of debt-management measures have also been introduced to assist students in repaying their loans, including the repayment assistance program and a payment deferral program.

In general, Nova Scotia is a low-income province with high costs for university education, and has a student assistance program that still leaves students with significant unmet need. The assistance provided leaves students with the second-highest level of repayable loans in the country.

2.6 Participation Rates

When participation rate is defined as the number of home province students enrolled in university in their home province, relative to the 18–24 year-old age group of that province, Nova Scotia has a rate of 29.0, which is third highest in the country. Newfoundland is highest at 30.9, followed by Ontario at 29.5.

Defining participation rate as the number of each province's students enrolled in university anywhere in Canada, relative to the 18–24 year-old age group of that province, Nova Scotia has a rate of 35.9, which is second highest in the country. Prince Edward Island is highest at 36.9.

Finally, if the participation rate is defined as the number of university students studying in a province, regardless of origin, relative to the 18–24 year-old age group of that province, Nova Scotia has a rate of 47.8, which is second highest in the country. New Brunswick is highest at 52.6.

2.7 Research

In 2007–08, total research income from all sources in Nova Scotia reached \$170 million (see Figure 5.1 in Section 5). Dalhousie accounted for \$124 million or 73 per cent of that total. The second-highest total at almost \$13 million is at St.FX, with half of that coming from private-sector sources. SMU received \$10.5 million, with 80 per cent of that coming from various federal government agencies or programs. Perhaps surprising, given its size, NSAC is fourth, with almost \$9 million in research funding. Almost 60 per cent of that funding came from two sources: other federal departments and other levels of government. In both instances, most of that would be from the federal and provincial departments of agriculture.

In Atlantic Canada, 63 per cent of all the research and development performed in the region takes place within the university sector. In contrast, at the national level, just over 30 per cent of all R&D takes place within universities. (Gardner Pinfold Consulting Economists Ltd., 2006). The most commonly cited reason for this contrast is the lack of concentrated industrial centres in Atlantic Canada, compared to Ontario or Alberta. Whatever the reason, the importance of a solid and productive research base to the economy of our region should not be underestimated.

As shown in Figure 2.19, Dalhousie leads Nova Scotia universities in federal research dollars, with 68 per cent of total research grants awarded. However, when measured in terms of federally sponsored research per faculty member, the Nova Scotia Agricultural College ranks first among the nine universities that successfully applied for federal grant funding (see Figure 5.2 in Section 5). This results primarily from the fact that NSAC's small faculty complement is relatively more research-oriented.

Section 5 offers a fuller discussion of research funding and its relevance to commercialization and technology transfer.

FIGURE 2.19 **Total Federally Sponsored Research, by University, (\$000), 2007-08**

Granting Council	Acadia	AST	CBU	DAL	MSVU	NSAC	NSCAD	SMU	St.FX	UKing's	USainte-A	Total
Social Sciences & Humanities (SSHRC)	332	0	118	3,763	830	90	0	1,407	937	131	5	7,613
Health Canada	0	0	0	345	82	0	0	0	0	0	0	427
Natural Sciences & Engineering (NSERC)	1,374	0	244	16,985	263	1,052	0	1,875	2,664	0	0	24,457
Canadian Institutes of Health Research	96	0	0	16,260	16	0	0	60	0	0	0	16,432
Canadian Foundation for Innovation	29	0	403	4,584	23	420	0	1,782	653	0	1	7,895
Canada Research Chairs	775	0	500	6,825	450	350	0	775	1,029	0	190	10,894
Other	1,124	0	2,129	11,556	400	2,399	0	2,431	860	0	8	20,907
Total	3,730	0	3,394	60,318	2,064	4,311	0	8,330	6,143	131	204	88,625
Percentage of Total	4.2%	0.0%	3.8%	68.1%	2.3%	4.9%	0.0%	9.4%	6.9%	0.1%	0.2%	100.0%

Source: Canadian Association of University Business Officers, Report 3.1a

2.8 Infrastructure

Funding reductions to universities in the 1990s, not only in Nova Scotia but across the country, forced university administrations to reduce spending on infrastructure maintenance. According to private industry standards, annual spending on infrastructure renewal should amount to approximately 2 per cent of the current replacement value of that infrastructure. The current replacement value of Nova Scotia's university infrastructure is estimated at \$2.4 billion (Figure 2.20); and based on the above standard, annual spending on infrastructure renewal should be approximately \$48 million.

FIGURE 2.20 **Current Replacement Value of University Infrastructure (\$000), 2006**

Institution	Current Replacement Value
Acadia University	286,231
Atlantic School of Theology	11,114
Cape Breton University	150,069
Dalhousie University	1,103,173
Mount Saint Vincent University	121,130
Nova Scotia Agricultural College	123,692
Nova Scotia College of Art & Design	46,574
St. Mary's University	183,782
St. Francis Xavier University	288,135
University of King's College	25,107
Université Sainte-Anne	75,957
Total	\$2,414,964

Source: Atlantic Universities, Campus Infrastructure Renewal, February 2006, Association of Atlantic Universities

Over the last decade there have been numerous efforts, led mainly by the province's universities, dealing with the issue of maintenance of their operations facilities. For example, in 1999 a report was prepared by a joint working group of the Council of Nova Scotia University Presidents (CONSUP) and the Department of Education, and submitted to the Minister of Education. The report proposed an escalating funding schedule stabilizing at Year 5 with contributions of \$5 million from the universities and \$3 million in federal/provincial funds to address deferred maintenance. It addressed the ongoing annual facilities renewal funding, and proposed an escalating funding schedule stabilizing at Year 5 with contributions of \$6 million from the universities and \$15 million from government. Neither the province nor the federal government provided the proposed funding.

In 2004, the four Atlantic provinces submitted a regional funding request to the federal government for \$500 million, but there was no federal response to this proposal. The prospect of special funding for the Atlantic region was obviated when the federal government announced the \$2 billion Federal Infrastructure Trust Fund in 2006.

Nova Scotia received almost \$29 million from this fund. In anticipation of this funding, the provincial legislature had passed an act directing that any federal funds from this program be used for tuition reduction, student financial assistance, and apprenticeship programs. None of the \$29 million went towards infrastructure renewal.

In early 2008, the Council of Atlantic Ministers of Education and Training completed a document entitled *Business Case for Infrastructure Investment in Colleges and Universities in Atlantic Canada*. The updated infrastructure renewal data in this study identified the total Atlantic university need at \$830 million, with Nova Scotia's requirement estimated to be \$543 million. By the time the report was finalized, the federal budget for 2008–09 had been announced, and the Atlantic officials determined that there was little value in presenting a case to the federal government at that time.

In the spring of 2008, the Province of Nova Scotia created the Nova Scotia Crown Share University Infrastructure Trust Fund to provide capital funding to Nova Scotia universities. The allocation of funding is shown in Figure 2.21. The Nova Scotia Agricultural College was ineligible for funding from the trust due to its status as a consolidated entity of the province. The total amount provided for, \$23 million, represents 4 per cent of the over \$540 million estimated to be needed for full infrastructure renewal.

FIGURE 2.21 **Allocation of Nova Scotia University Infrastructure Trust Funding**

Institution	Traditional Alterations & Renovations Distribution (with NSAC removed)	Nova Scotia Crown Share Infrastructure Trust Funding
Acadia University	12.2%	\$2,848,106
Atlantic School of Theology	0.4%	\$85,236
Cape Breton University	6.1%	\$1,418,198
Dalhousie University	48.6%	\$11,380,515
Mount Saint Vincent University	6.2%	\$1,453,337
Nova Scotia College of Art & Design	2.7%	\$621,186
St. Mary's University	10.2%	\$2,386,869
St. Francis Xavier University	10.7%	\$2,508,168
University of King's College	1.3%	\$304,739
Université Sainte-Anne	1.9%	\$433,645
Total	100%	\$23,440,000

Source: Higher Education Branch, NS Department of Education

KNOWLEDGE INFRASTRUCTURE PROGRAM (KIP)

In April 2009, Industry Canada formally announced that Nova Scotia would be receiving \$56.7 million in federal funding for university and community college infrastructure projects under the Knowledge Infrastructure Program (KIP). Through the cost-sharing arrangement in the program, the province and its partners, the universities and NSCC will contribute \$73.8 million in funding. This brings the total value of projects approved for Nova Scotia to \$130.5 million, with \$108 million (\$48.2 million in federal funding) going to the university sector and \$22.5 million (\$8.5 million in federal funding) to NSCC. The funding breakdown by university is shown in Figure 2.22. Nova Scotia's share of the \$2 billion federal program is 3.04 per cent. This is more than the province's share of the country's population, which is approximately 2.88 per cent.

FIGURE 2.22 Knowledge Infrastructure Program (KIP) Funding Allocation

University	Project Cost	Federal Funding	Dept. of Education Provincial Grant	Total DOE Provincial and Federal Funding	Strategic Opportunities Fund Inc. (SOFI)	Other Funding ¹	Total Project Funding	% Provincial Project Funding
Acadia University	\$4,158,478	\$2,075,300	\$2,079,239	\$4,154,539	\$0	\$3,939	\$4,158,478	50.0%
Cape Breton University	\$15,017,500	\$3,870,890	\$2,535,345	\$6,406,235	\$4,959,602	\$3,651,663	\$15,017,500	16.9%
Dalhousie University	\$33,000,000	\$14,334,255	\$8,308,261	\$22,642,516	\$10,205,821	\$151,663	\$33,000,000	25.2%
Mount Saint Vincent University	\$3,400,000	\$1,698,227	\$1,060,998	\$2,759,225	\$640,775	\$0	\$3,400,000	31.2%
Nova Scotia Agricultural College ²	\$599,000	\$299,500	\$0	\$299,500	\$0	\$299,500	\$599,000	50.0%
Nova Scotia College of Art & Design	\$3,959,500	\$1,977,685	\$453,492	\$2,431,177	\$1,528,323	\$0	\$3,959,500	11.5%
Saint Mary's University	\$22,325,000	\$11,150,856	\$1,742,516	\$12,893,373	\$9,431,627	\$0	\$22,325,000	7.8%
St. Francis Xavier University	\$22,698,954	\$11,337,638	\$1,831,070	\$13,168,708	\$9,530,246	\$0	\$22,698,954	8.1%
University of King's College	\$345,000	\$172,320	\$172,500	\$344,820	\$0	\$180	\$345,000	50.0%
Université Sainte-Anne	\$2,553,000	\$1,275,168	\$316,579	\$1,591,748	\$0	\$961,252	\$2,553,000	12.4%
Total	\$108,056,432	\$48,191,840	\$18,500,000	\$66,691,840	\$36,296,394	\$5,068,197	\$108,056,432	

1. Acadia, CBU, Dalhousie, NSAC, King's, and Sainte-Anne have other funding sources for the balance of their KIP project costs.

2. \$299,500 of NSAC funding is coming from the provincial capital budget.

Source: Higher Education Branch, NS Department of Education

2.9 Budgetary Considerations for 2011–12

The final year of the current three-year MOU on university funding provides for \$349 million. A major component of this MOU was a tuition freeze, whose impact was offset by annual funding increases for each year of the MOU. The tuition reduction measures designed to lower Nova Scotia tuition fees to the national average were administered through the Nova Scotia University Student Bursary Trust Fund. The fund is due to be exhausted by the end of 2010–11. An additional \$29 million would need to be added to the system operating grant if the policy choice were made to maintain tuition fees at 2010–11 levels. In the absence of any offsetting funds, tuition fees would have to rise to cover the shortfall, or operating expenditures at the universities would have to be lowered, or some combination of the two. This issue is dealt with in Section 3.2 on revenue projections.

SECTION 3:

Outlook for Nova Scotia Universities

3.1 Enrolment Projections

3.1.1 Introduction

The labour market in Canada is going to require a substantial increase in the number of university-educated individuals over the next 10 to 15 years. Recent examination of labour market requirements by Human Resources Skills Development Canada indicates that normal economic growth in the next 10 years is going to create almost 1.5 million new jobs, about three-quarters of which will be in areas or occupations that will require post-secondary education. During that period, as well, there will be almost four million current positions that will come open because of the retirement of baby boomers. The combined effects of increasing labour demand in a growing economy and the retirement of the older cohorts in the population mean a very substantial increase in the requirement for university- and college-trained individuals in Canada. Further exacerbating the problem is that the normal replacement process for those who are retiring, through entrance into the labour market of younger people, will not take place at the pace that we had tended to see historically. This is a result, of course, of the decline in population growth rates over the last couple of decades.

In addition to the standard labour-market demand requirements just referred to, there are other reasons to anticipate a requirement for higher levels of education for the Canadian population. There is a reasonably clear link between levels of educational attainment and productivity growth. If we combine this with the poor Canadian record on productivity growth in recent years, there will be a need to increase the productivity of the labour force through growth in the formation of human capital—i.e., in raising educational attainment levels. What is clear, as well, is that increases in educational attainment tend to give rise to increases in living standards. This is discussed further, with a specific reference to university students, in Section 5.1.

The challenge for the economy and, no less, for the universities is that the supply of individuals who will be attending university is about to decline across the country. That is, if the university systems are going to continue to rely on the age cohort that typically forms the bulk of undergraduate enrolments (17–29 year-olds) and that cohort will be declining over the next 20 years, there is the potential for a serious mismatch between the demand for university-educated individuals and the supply of people willing and able to engage in post-secondary education. The supply pressure may be partially mitigated by increases in participation rates. Indeed, participation rates among this primary age cohort have been trending up moderately over the last 15 years. If that trend continued it would help offset the pending decline in the key age cohort.

It has also been suggested that efforts need to be made to increase the participation rate in the key age cohort of those groups that have been traditionally under-represented in university populations. These include visible minorities—such as aboriginals, African-Canadians, and persons with disabilities—as well as people from low-

income families. Another group that is not represented significantly in the typical university population is older or mature students. It may be hoped, and certainly many analysts are suggesting, that in the context of a desire for life-long learning the participation of mature students could be substantially increased. Finally, Canadian universities have already been tapping the international student market to supplement or increase the population base upon which they draw for enrolments. Individual provinces, of course, can attract students from other provinces, but from a national point of view this would necessarily be a zero-sum game.

This section of the report examines the implications of the demographic projections as a foundation for looking at enrolment and participation rate projections that are relevant to universities in Nova Scotia. It also considers the prospects for significant increases in the participation rates of the under-represented groups and mature student populations referred to above. This analysis will then form the basis for the enrolment projections that are used in Section 3.2 on revenue and financial projections for the university system in the province.

3.1.2 Population Projections

As can be seen from Figure 3.1, the age distribution in Canada has been moving the country to an older population. While the total population will increase, this maturing pattern will continue inexorably for the next two decades. The familiar story of the baby boom bulge moving into senior citizenry does not need recounting here. For universities, the aging of the population will mean a diminishing base of potential enrollees from the age cohort that has traditionally provided the majority of undergraduates.

FIGURE 3.1 Projections of Total Population and 17-29 Year-olds for Canada, Provinces, and Territories, ('000), 2010-2030 (five-year intervals)

	2010 Total	2010 17-29	2015 Total	2015 17-29	2020 Total	2020 17-29	2025 Total	2025 17-29	2030 Total	2030 17-29
Newfoundland and Labrador	512.9	83.0	511.5	74.5	510.8	68.0	509.5	63.0	506.5	60.3
Prince Edward Island	140.7	25.3	143.2	24.6	145.6	22.4	147.8	20.7	149.3	20.1
Nova Scotia	937.1	154.4	956.3	143.4	966.4	130.0	974.6	118.1	979.0	112.6
New Brunswick	756.5	126.8	761.2	119.7	765.6	110.1	768.3	101.5	767.8	97.4
Quebec	7,804.0	1,305.7	7,984.8	1,281.7	8,147.0	1,224.4	8,283.8	1,153.8	8,381.8	1,144.5
Ontario	13,237.1	2,347.3	13,931.0	2,419.8	14,635.5	2,398.3	15,335.0	2,333.9	16,002.9	2,329.9
Manitoba	1,207.8	222.0	1,243.5	223.5	1,280.7	216.0	1,316.8	208.2	1,349.6	208.0
Saskatchewan	983.4	181.8	978.6	166.7	977.4	151.9	977.1	142.4	976.1	140.3
Alberta	3,445.8	659.6	3,630.9	648.4	3,807.9	628.0	3,971.5	617.2	4,117.8	625.6
British Columbia	4,496.3	798.4	4,742.2	800.8	4,990.7	782.5	5,233.1	767.6	5,460.0	777.6
Yukon Territories	31.5	6.4	32.0	6.2	32.6	5.8	33.3	5.4	33.9	5.2
Northwest Territories	45.9	10.3	48.5	10.8	50.7	10.2	52.6	9.9	54.1	9.8
Nunavut	30.9	7.6	31.8	8.3	32.4	8.2	32.9	8.2	33.2	7.7
CANADA*	33,629.9	5,928.6	34,995.5	5,928.4	36,343.3	5,755.8	37,636.3	5,549.9	38,812.0	5,539.0

*Canada totals may not agree with sum of components due to rounding

Source for Nova Scotia population data: Nova Scotia Department of Finance

Source for population data for the rest of Canada: Statistics Canada

At the national level, this key cohort of 17–29 year-olds is projected to peak by 2013 and decline steadily from that point on. By 2030, this age group will be smaller by 400,000 or 6.5 per cent relative to its current level. The picture for the provinces and, specifically, for Nova Scotia is broadly similar. As indicated in Figure 3.2, although Nova Scotia's population will continue to increase over the next 20 years, the prime age group for universities has

already peaked and will shrink by 11,000 in the next 5 years, and by another 31,000 in the subsequent 15 years. By 2030, the 17–29 year-old population will be more than 25 per cent smaller than it is today.

FIGURE 3.2 Population Projection for 17-29 Year-olds, Canada and Provinces, ('000), 2010-2030

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	Territories	Canada*
2010	83.0	25.3	154.4	126.8	1,305.7	2,347.3	222.0	181.8	659.6	798.4	24.3	5,928.6
2011	81.4	25.3	152.4	125.8	1,299.0	2,368.2	223.2	179.6	658.3	802.7	24.5	5,940.4
2012	79.8	25.3	150.3	124.7	1,296.1	2,390.3	224.2	176.8	657.2	805.4	25.0	5,955.1
2013	78.2	25.0	148.2	123.3	1,294.8	2,406.7	224.6	173.7	655.4	806.1	25.0	5,961.0
2014	76.3	24.9	145.8	121.6	1,289.6	2,416.0	224.4	170.3	652.3	804.2	25.3	5,950.7
2015	74.5	24.6	143.4	119.7	1,281.7	2,419.8	223.5	166.7	648.4	800.8	25.3	5,928.4
2016	73.1	24.0	141.2	117.7	1,271.3	2,420.8	222.3	163.4	644.6	797.3	25.0	5,900.7
2017	71.9	23.6	139.1	116.2	1,263.3	2,424.0	221.2	160.5	641.3	794.7	24.8	5,880.6
2018	70.8	23.3	136.5	114.3	1,254.3	2,423.6	219.9	157.6	637.5	791.9	24.6	5,854.3
2019	69.4	22.8	133.4	112.1	1,242.3	2,413.5	218.2	154.9	632.5	787.1	24.4	5,810.6
2020	68.0	22.4	130.0	110.1	1,224.4	2,398.3	216.0	151.9	628.0	782.5	24.2	5,755.8
2021	66.6	22.1	126.8	108.0	1,206.5	2,384.8	214.1	149.3	624.8	778.2	24.2	5,705.4
2022	65.6	21.7	124.1	106.2	1,190.8	2,371.6	212.4	147.2	622.4	774.8	24.1	5,660.9
2023	64.4	21.4	121.8	104.5	1,175.9	2,358.3	210.7	145.1	619.9	771.8	23.9	5,617.7
2024	63.7	21.0	119.9	102.9	1,164.1	2,346.7	209.4	143.7	618.3	769.8	23.8	5,583.3
2025	63.0	20.7	118.1	101.5	1,153.8	2,333.9	208.2	142.4	617.2	767.6	23.5	5,549.9
2026	62.1	20.5	116.3	100.4	1,145.7	2,323.9	207.2	141.5	616.5	766.5	23.6	5,524.2
2027	61.5	20.6	115.1	99.3	1,141.0	2,319.9	206.8	140.8	617.6	767.5	23.2	5,513.3
2028	61.0	20.4	114.2	98.6	1,140.3	2,320.7	206.9	140.7	619.8	769.9	23.1	5,515.6
2029	60.8	20.2	113.5	98.0	1,142.3	2,324.8	207.5	140.3	622.4	773.3	23.0	5,526.1
2030	60.3	20.1	112.6	97.4	1,144.5	2,329.9	208.0	140.3	625.6	777.6	22.7	5,539.0

*Canadian total is adjusted based on updated NS Department of Finance Projections for Nova Scotia

Source for all provinces except NS: Population Projections for Canada, Provinces and Territories 2005-2031, 2005 Statistics Canada Catalogue no. 91-520-XIE

Source for NS: NS Department of Finance

There are three provinces in which the drop-off in the prime university age category will be delayed for the next few years: British Columbia, Manitoba, and Ontario. In fact, Ontario will see a 77,000 increase (3 per cent) in 17–29 year-olds between 2010 and 2017. The increases in Manitoba and British Columbia are proportionately much more modest and for a shorter period (i.e., only until 2013). However, all three will experience a steady decline over the subsequent 10 years, with a modest upturn only after 2025.

Given the importance to Nova Scotia universities of students from out of province, the population projections elsewhere in Canada are of some interest. In particular, as Ontario has been a significant source of such students, the continued increase in the 17–29 year-old population to 2017 is relevant to a discussion of the enrolment-level challenges that the system is already facing.

3.1.3 Enrolment and Participation Rate Projections – Prime Age Cohort

The projections for Canada and the provinces contained in Figure 3.3 are for full-time enrolments of 17–29 year-olds for the period 2010–30. Statistics Canada, using the population demographics for this age group, used three different assumptions about participation rates of this cohort: maintaining participation rates at the average level that existed between 2003–04 and 2005–06; maintaining participation rates at the average level that existed between 1990–91 and 2005–06 until 2016–17, then remaining constant thereafter; and matching male participation rates to that observed for females between 2002–03 and 2005–06. The enrolment projection in Figure 3.3 is underpinned by the first participation rate assumption.

FIGURE 3.3 Full-Time University Enrolment Projections for 17-29 Year-olds, by Province, 2006-2030

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC
2006-2007	14,579	4,103	27,628	19,784	153,673	325,069	33,075	28,121	67,197	101,654
2007-2008	14,358	4,122	27,806	19,720	152,907	329,178	33,377	27,931	67,397	102,647
2008-2009	14,079	4,126	27,800	19,626	152,664	332,724	33,604	27,618	67,461	103,336
2009-2010	13,759	4,085	27,676	19,443	153,047	335,962	33,781	27,240	67,461	103,767
2010-2011	13,439	4,025	27,509	19,222	154,023	338,888	33,911	26,824	67,323	104,054
2011-2012	13,139	3,997	27,267	19,014	155,403	341,977	34,021	26,360	67,167	104,328
2012-2013	12,881	3,962	27,040	18,801	156,835	345,197	34,118	25,898	67,047	104,515
2013-2014	12,623	3,925	26,776	18,546	157,438	347,321	34,131	25,387	66,763	104,398
2014-2015	12,294	3,879	26,375	18,219	156,750	347,787	33,960	24,784	66,230	103,906
2015-2016	11,970	3,784	25,880	17,834	155,055	347,229	33,674	24,180	65,649	103,268
2016-2017	11,719	3,687	25,412	17,480	152,899	346,236	33,402	23,655	65,120	102,636
2017-2018	11,502	3,615	24,976	17,143	150,513	344,808	33,112	23,170	64,581	101,992
2018-2019	11,288	3,532	24,491	16,764	147,872	342,576	32,766	22,729	64,032	101,263
2019-2020	11,069	3,448	23,995	16,418	145,045	339,568	32,383	22,322	63,532	100,496
2020-2021	10,868	3,386	23,529	16,111	142,160	336,359	32,018	21,942	63,134	99,783
2021-2022	10,682	3,342	23,085	15,842	139,690	333,489	31,724	21,638	62,879	99,206
2022-2023	10,513	3,310	22,712	15,621	137,914	331,097	31,483	21,372	62,755	98,886
2023-2024	10,389	3,258	22,436	15,411	136,910	329,342	31,309	21,175	62,715	98,771
2024-2025	10,278	3,206	22,176	15,226	136,467	327,961	31,198	21,045	62,776	98,748
2025-2026	10,173	3,187	21,935	15,094	136,165	327,014	31,131	20,967	62,940	98,830
2026-2027	10,097	3,214	21,780	15,003	135,986	327,199	31,139	20,924	63,226	99,142
2027-2028	10,030	3,231	21,670	14,930	136,031	328,202	31,226	20,916	63,556	99,576
2028-2029	9,993	3,204	21,604	14,861	136,211	329,336	31,368	20,911	63,854	100,056
2029-2030	9,965	3,188	21,565	14,795	136,354	330,601	31,504	20,901	64,165	100,646
2030-2031	9,943	3,196	21,554	14,768	136,641	332,510	31,647	20,925	64,589	101,329
Change from 2009-10 to 2015-16	-1,789	-302	-1,796	-1,609	2,007	11,267	-107	-3,060	-1,812	-498

Source: Scenario 1 Postsecondary Enrolment Trends to 2031, Three Scenarios – 2007, Statistics Canada, ISBN: 978-0-662-47190-5

Full-time university enrolment is anticipated to decline from 2010–11 onward in six of the ten Canadian provinces: the four Atlantic provinces, Saskatchewan, and Alberta. Ontario is projected to experience an increase of about 9,000 in enrolment between the coming university year and 2014–15, and then a steady drop until 2026–27. According to the Statistics Canada projections, British Columbia will see a very modest increase for two years (of around 400), while Quebec and Manitoba will peak a year later. At a national level, enrolments will rise by just under 8,000 between 2010 and 2014 before tailing off.

Focusing on Nova Scotia, this set of projections anticipates that the full-time enrolment of 17–29 year-olds will continue the recent pattern of slippage. After a recent peak of just under 28,000 in 2007–08, levels are expected to fall steadily over the entire 2010–30 period. The participation rate of this cohort is assumed to increase very slightly until 2014, stabilize until 2020, and then steadily drift upwards afterwards (see Figure 3.4).

FIGURE 3.4 Participation Rate Projections for 17-29 Year-olds, Canada and Provinces, 2010-2030

Year	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	Canada*
2010	16.2%	15.9%	17.8%	15.2%	11.8%	14.4%	15.3%	14.8%	10.2%	13.0%	13.4%
2011	16.1%	15.8%	17.9%	15.1%	12.0%	14.4%	15.2%	14.7%	10.2%	13.0%	13.4%
2012	16.1%	15.7%	18.0%	15.1%	12.1%	14.4%	15.2%	14.6%	10.2%	13.0%	13.4%
2013	16.1%	15.7%	18.1%	15.0%	12.2%	14.4%	15.2%	14.6%	10.2%	13.0%	13.4%
2014	16.1%	15.6%	18.1%	15.0%	12.2%	14.4%	15.1%	14.6%	10.2%	12.9%	13.4%
2015	16.1%	15.4%	18.0%	14.9%	12.1%	14.3%	15.1%	14.5%	10.1%	12.9%	13.4%
2016	16.0%	15.4%	18.0%	14.9%	12.0%	14.3%	15.0%	14.5%	10.1%	12.9%	13.3%
2017	16.0%	15.3%	18.0%	14.8%	11.9%	14.2%	15.0%	14.4%	10.1%	12.8%	13.2%
2018	15.9%	15.2%	17.9%	14.7%	11.8%	14.1%	14.9%	14.4%	10.0%	12.8%	13.2%
2019	15.9%	15.1%	18.0%	14.6%	11.7%	14.1%	14.8%	14.4%	10.0%	12.8%	13.1%
2020	16.0%	15.1%	18.1%	14.6%	11.6%	14.0%	14.8%	14.4%	10.1%	12.8%	13.1%
2021	16.0%	15.1%	18.2%	14.7%	11.6%	14.0%	14.8%	14.5%	10.1%	12.7%	13.1%
2022	16.0%	15.3%	18.3%	14.7%	11.6%	14.0%	14.8%	14.5%	10.1%	12.8%	13.1%
2023	16.1%	15.2%	18.4%	14.7%	11.6%	14.0%	14.9%	14.6%	10.1%	12.8%	13.1%
2024	16.1%	15.3%	18.5%	14.8%	11.7%	14.0%	14.9%	14.6%	10.2%	12.8%	13.1%
2025	16.1%	15.4%	18.6%	14.9%	11.8%	14.0%	15.0%	14.7%	10.2%	12.9%	13.2%
2026	16.3%	15.7%	18.7%	14.9%	11.9%	14.1%	15.0%	14.8%	10.3%	12.9%	13.2%
2027	16.3%	15.7%	18.8%	15.0%	11.9%	14.1%	15.1%	14.9%	10.3%	13.0%	13.3%
2028	16.4%	15.7%	18.9%	15.1%	11.9%	14.2%	15.2%	14.9%	10.3%	13.0%	13.3%
2029	16.4%	15.8%	19.0%	15.1%	11.9%	14.2%	15.2%	14.9%	10.3%	13.0%	13.3%
2030	16.5%	15.9%	19.1%	15.2%	11.9%	14.3%	15.2%	14.9%	10.3%	13.0%	13.4%

*Canadian total excludes Territories

Participation Rate Formula: Projected Full Time University Enrolment 17-29 Year-olds / Total Population 17-29 Year-olds

Enrolment Source: Scenario 1 Postsecondary Enrolment Trends to 2031, Three Scenarios - 2007, Statistics Canada, ISBN: 978-0-662-47190-5

The enrolment level projections for Nova Scotia are sensitive to two key sets of assumptions. The first relates to the assumed participation rate of the prime age cohort, and the second is the extent to which the province's universities will be able to rely on students from other Canadian jurisdictions and from other countries.

With respect to the first issue, Figure 3.5 indicates the enrolment levels of Nova Scotia students in provincial universities with the associated participation rate and the total enrolment of Nova Scotia students in their home province and in other parts of Canada. These are historical data covering the 1998–99 to 2007–08 period.

FIGURE 3.5 **Enrolment (Headcount*), Population, and Participation Rate of 18-24 Year-olds, 1998-99 to 2007-08**

	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Enrolment of Nova Scotian Students in Nova Scotia	25,743	23,277	26,559	27,384	27,921	28,380	27,078	25,056	25,356	25,149
Enrolment of Nova Scotian Students in All of Canada	30,393	27,915	31,389	32,433	33,393	33,699	32,715	31,002	31,551	31,119
Population of 18-24 Year-olds in Nova Scotia	86,885	86,361	85,945	85,323	85,984	87,263	87,750	87,315	86,754	86,695
Participation Rate of Nova Scotian Students in Nova Scotia	29.6%	27.0%	30.9%	32.1%	32.5%	32.5%	30.9%	28.7%	29.2%	29.0%
Participation Rate of Nova Scotian Students in All of Canada	35.0%	32.3%	36.5%	38.0%	38.8%	38.6%	37.3%	35.5%	36.4%	35.9%

*This table reports enrolments in units of headcount, where every student is counted equally, regardless of whether they are studying full-time or part-time. Previous tables have reported enrolments in units of full-time equivalents, which counts part-time students as one-third of a unit.

Source: Statistics Canada

What is noteworthy from the table is that both home province and total Canadian enrolment levels of Nova Scotians peaked in 2003–04 and declined thereafter. Equally relevant is that participation rates in both instances also peaked at the same time and have moderated since that period. The level declines are not so surprising given the demographic changes occurring for this age cohort by the middle of the decade. The decline in the participation rate levels is somewhat different than the national trend of modestly rising rates. In particular, in Ontario both enrolment levels and participation rates rose for the province's students studying in the home province and those attending university in another jurisdiction in Canada.

The fact that the Statistics Canada enrolment projections cited above imply a moderately rising participation rate of Nova Scotia students implies a downside risk to enrolment expectations, at least from students within the province. Another way of quantifying the risk is to calculate the participation rate increase that would be necessary to sustain current levels of enrolment in the province's universities. To achieve that result, the participation rate of 18–24 year-olds in Nova Scotia attending a provincial university would have to rise by almost 3 percentage points.

An increase of this magnitude is not outside the realm of possibility. In fact, as can be seen in Figure 3.5, even in the 10 years from 1998–2008, the participation rate for Nova Scotia students in university in Nova Scotia ranged from a low of 27 per cent to a high of 32.5 per cent; the equivalent numbers for Nova Scotia university students in total were 32.3 per cent and 38.8 per cent. The more recent downward trend would, however, dampen enthusiasm about the prospects for a reversal of that pattern.

A more appropriate source of enrolment optimism is the high degree of reliance of Nova Scotia institutions on out-of-province students. As can be seen from Figure 3.6, in 2008–09, 34 per cent of FTE enrolments in the Nova Scotia university system were from other jurisdictions in Canada and another 9.5 per cent were international. Among the out-of-province students, by far the largest contingent was from Ontario, constituting almost 45 per cent of the total in that category. Equally relevant, the proportion of out-of-province students in the provincial system rose steadily through the past decade, most notably from Ontario. In 2001–02, enrolment from other parts of Canada was just under 29 per cent, of which one-third was from Ontario. Looking at total enrolment changes over the period, Nova Scotia student numbers fell by 1,600

between 2001 and 2008, and out-of-province enrolments rose by almost 2,500, with Ontario accounting for the bulk of the increase (2,200).

FIGURE 3.6 Full-time Equivalent University Enrolments for Nova Scotia, by Residence of Origin, 2001-02 to 2008-09

Year	NL	PE	NS	NB	ON	Other Provinces	Territories	Canadians Living Elsewhere	International	Total
2001-02	1,693	727	21,470	2,086	3,045	1,535	48	294	2,085	32,985
2002-03	1,478	747	22,461	2,250	3,608	1,679	58	232	2,630	35,143
2003-04	1,314	745	22,737	2,375	4,894	1,891	65	237	3,266	37,523
2004-05	1,129	778	22,437	2,399	5,166	2,024	74	365	3,547	37,920
2005-06	951	752	21,437	2,396	5,291	2,097	84	704	3,673	37,384
2006-07	827	763	21,070	2,390	5,491	2,146	69	337	3,485	36,577
2007-08	696	711	21,054	2,142	4,961	2,089	84	351	3,428	35,515
2008-09	705	767	19,861	2,239	5,218	2,433	84	458	3,310	35,076
2008-09 Share of NS Enrolments	2.0%	2.2%	56.6%	6.4%	14.9%	6.9%	0.2%	1.3%	9.4%	100.0%

Source: Maritime Provinces Higher Education Commission (PSIS data)

With the Ontario prime age cohort for university attendants projected to increase steadily until 2017, the Nova Scotia university systems' recent reliance on Ontario for enrolment suggests a prospect for stemming the anticipated decline in student numbers. However, while such a possibility could soften the blow, it is far less likely to be able to completely mitigate the decline, let alone reverse the expected direction.

In Figure 3.7, Nova Scotia university enrolments are projected to 2015–16. They are based on the Statistics Canada projections applied to FTE enrolments and broken down by origin of the students: Nova Scotia, other Canadian provinces, and international. Assuming that international student numbers remain fixed at the 2008–09 level (arguably an optimistic assumption given declining numbers since 2005–06) and that enrolments from Nova Scotia and other provinces reflect their projected demographic patterns, the student levels are expected to continue to fall in Nova Scotia. From an FTE enrolment of 35,076 in 2008–09, the number is projected to be almost 1,600 lower by 2015–16. This includes a decline of almost 1,400 in Nova Scotia student enrolments and just under 200 out-of-province student enrolments. However, student numbers from Ontario are, in this projection, expected to increase by about 225 over that period.

FIGURE 3.7 Full-time Equivalent University Enrolment Projections for Nova Scotia, by Residence of Origin, 2009-10 to 2015-16

Year	NL	PE	NS	NB	ON	Other Provinces	Territories	Canadians Living Elsewhere	International	Total
2009-10	689	760	19,772	2,219	5,268	2,421	84	458	3,310	34,981
2010-11	673	748	19,654	2,193	5,314	2,411	84	458	3,310	34,846
2011-12	658	743	19,481	2,170	5,363	2,405	84	458	3,310	34,671
2012-13	645	737	19,318	2,145	5,413	2,402	84	458	3,310	34,512
2013-14	632	730	19,130	2,116	5,446	2,398	84	458	3,310	34,305
2014-15	616	721	18,843	2,079	5,454	2,392	84	458	3,310	33,957
2015-16	600	704	18,490	2,035	5,445	2,385	84	458	3,310	33,510

Source: Nova Scotia Enrolment Distribution, by Residence of Origin, from Maritime Provinces Higher Education Commission, applied to enrolment trends from Scenario 1 Postsecondary Enrolment Trends to 2031, Three Scenarios - 2007, Statistics Canada, ISBN: 978-0-662-47190-5

In summary, to this point, enrolment projections are based on the expected changes in the size of the age cohort on which universities depend for the bulk of their undergraduate populations. With the notable exception of Ontario, this group will shrink in all jurisdictions within three years and is already falling in Atlantic Canada. In Ontario, the cohort will increase in size until 2017. Using reasonable (even, arguably, mildly optimistic) assumptions about participation rates, the Nova Scotia university system can look forward to declining numbers of (Canadian) students over the next five years and beyond.

3.1.4 Enrolment Potential – International Students

Nova Scotia universities collectively rely more heavily on international student enrolment than is the case in most other provinces. For example in the Ontario university system, students from other countries make up 6.5 per cent of total enrolments, while in Quebec it is 8.5 per cent. The national average is about 8 per cent. In Nova Scotia, the proportion of international students has been around 9.5 per cent since the middle of the decade.

In the projections in Figure 3.7, it was assumed that international student numbers would remain constant at the 2008–2009 level of 3,310 (over the 2009–2016 period). In the context of a projected decline in both home province and out-of-province enrolment levels, this would imply a modest but steady increase in the international share of enrolment, reaching 9.9 per cent by 2015–16. The assumption of a constant level and rising share is somewhat optimistic, given that both the number of students from other countries and their proportion of the province's student population peaked in 2004–05 at 3,670 and 9.8 per cent respectively.

The prospects of increasing materially the level of international student enrolments are, arguably, limited for several reasons. First, because the decline in the prime university-age population is expected to be widespread in Canada and elsewhere, the competition to attract international students will almost certainly intensify. Recently, for example, Ontario announced plans to aggressively promote its post-secondary institutions abroad. British Columbia is already a significant player in the market for foreign students, with 17 per cent of its total enrolments being generated by that group. The competition will not only be from other Canadian institutions, but from universities in the US, United Kingdom, and other parts of Europe, as well.

This is not to suggest that a targeted, country-specific marketing approach would not work, but there are several considerations other than more intense competition that merit attention. First, while China has been the single largest source of international students (30 per cent of the Nova Scotia system total), the country has also been building domestic capacity in post-secondary education, increasing the competition for students from within China. Second, reliance on foreign countries, especially emerging-market countries, is much riskier given that visa and travel policies in the home country can change without advance warning. New restrictions can radically alter the number of students from a particular country that may be permitted to study abroad.

A third issue worth noting is that most foreign students come and will be coming from countries where English is not the first language spoken. As well, the customs and behavioural norms can be sharply different from those taken for granted in North America. As a result, there are costs associated with helping foreign students prepare for and acclimate themselves to a challenging linguistic and cultural environment. These include English-as-a-second-language structures, housing and student services, counselling and, on occasion, financial problems. The more an institution and the system are inclined to rely on international student enrolment, the greater are the potential costs that need to be faced to ensure a successful academic and social outcome for those students.

3.1.5 Enrolment Potential – Visible Minorities

Unfortunately there is very little information available on the current participation of young adults from visible minority groups. The only recent statistical information comes from a 2005 national survey done by Statistics Canada as part of its Youth in Transition Survey series. The summary of key results is provided in Figure 3.8. With respect to visible minorities as a group, the 24–26 year-olds constituted 12 per cent of the total cohort. Interestingly, as a group, their participation in at least some post-secondary education overall was higher than that of the non-visible minority group (87 per cent versus 78 per cent) and they were more likely to have attended a university (62 per cent versus 49 per cent). However, as a specific visible minority, aboriginal students had a lower participation rate than non-aboriginals (61 per cent and 80 per cent respectively). (Drummond, Alexander, Fard, 2010, p. 18).

FIGURE 3.8 Post-Secondary Participation of Young Adults Aged 24-26 in December 2005, by Selected Demographic Characteristics

	Share of Total Population (%)	Participation Rate Attended Post-Secondary Education (%)	Type of Institution Attended			Type of University Program	
			Attended Other Post-Secondary Institution (%)	Attended College / CEGEP (%)	Attended University (%)	Bachelor's (%)	Graduate Students (%)
All Demographic Factors	100	79	17	33	50	87	13
Visible Minority	12	87	11	27	62	87	13 E
Not a Visible Minority	88	78	17	34	49	86	14
Type of Community							
Rural	22	65	20	40	40	90	10 E
Urban	77	82	16	32	52	86	14
Gender							
Men	51	74	18	33	49	88	12
Women	49	85	15	33	52	86	14
Province							
Newfoundland and Labrador	2	83	19	23	58	94	6 E
Prince Edward Island	1	75	18	25	57	95	F
Nova Scotia	3	81	11	31	58	89	11 E
New Brunswick	2	78	17	32	52	91	9
Quebec	25	79	14	38	48	79	21
Ontario	36	83	9	40	51	89	11
Manitoba	4	72	15	24	61	93	7 E
Saskatchewan	3	76	26	16	58	87	F
Alberta	11	71	28	24	48	91	9
British Columbia	13	80	33	20	47	87	13 E
CANADA	100	79	17	33	50	87	13

E – Use with caution

F – Too unreliable to be published

Source: TD Economics Special Report, May 17, 2010. Post-Secondary Participation of Young Adults Aged 24-26 in December 2005, By Selected Demographic Characteristics (listed in the References under Drummond, Alexander & Fard, 2010)

The other information available is on the self-identified visible (ethnic/racial) populations in Nova Scotia's public schools. This is relevant to any consideration of increasing enrolment from among these groups. The results of two distinct surveys are shown in Figures 3.9 and 3.10. They must be interpreted with extreme care, as the students were free to choose not to respond. Both tables provide information on the range of ethnic backgrounds in the student population. Some schools that participated in the Department of Education survey from Figure 3.9 were

approached because they had a significant number of ethnically/racially diverse students. Therefore, the data collected would assume higher percentages of ethnic student populations than would be found in the province as a whole. In many cases, some ethnic groups live in certain geographic areas around the province so it would be expected that schools in these areas would not represent the Nova Scotia general student population.

FIGURE 3.9 Self-Identified Ethnicity of Senior High School Students, from Department of Education Survey, 2009

Ethnicity	Number	%
White	6,677	78%
Black	257	3%
Asian	145	2%
Mi'kmaq	274	3%
Arabic	77	1%
Other	445	5%
Multi-Racial	163	2%
Unreported	522	6%
Total	8,560	100%

The survey had an approximate response rate of 13%

Source: NS Department of Education

FIGURE 3.10 Self-Identified Ethnicity of Junior and Senior High School Students, from Halifax Regional School Board Survey, 2007-08 to 2009-10

Ethnicity	Number	% Respondents	% High School Population
Aboriginal	789	7%	3%
Black	858	7%	3%
Racially Visible	1,498	12%	6%
White	8,872	74%	33%
Total Respondents	12,017	100%	45%

Note: The Halifax Regional School Board Student Identification Survey was a voluntary survey funded by the Department of Education as a pilot in 2004–05. Students in Grades 7–12 had the option to respond to the survey, and survey respondents represented 46 per cent of the total Grade 7–12 population in the HRSB for 2007–10. HRSB staff report that while student identification data collection is ongoing, the numbers have not changed significantly since 2007. For the purpose of the survey, Black was defined as: African; African-American; African-Canadian; African-Caribbean; African-Nova Scotian; or Black and Aboriginal, included Mi'kmaq, Inuit, and Métis.

Notwithstanding the caveats, the numbers are an accurate representation of the school population, and the order-of-magnitude results indicate that two groups in particular—African Nova Scotians and Mi'kmaq—appear, from the limited data available, to represent a modest share of the current and prospective total high school population in Nova Scotia from which to look for university enrollees.

It would be very desirable to increase the participation of African Nova Scotians and Mi'kmaq, for a variety of social and economic reasons. However, from the perspective of an enrolment forecast, the number of potential university students in the province appears to be quite small and, even with markedly higher participation rates, unlikely to be a significant source of increased enrolments. They, therefore, would not be able to provide an offset to the overall decline in the prime age cohort.

3.1.6 Enrolment Potential – Mature Students

As already mentioned, there is a looming mismatch between the need for highly skilled and well-educated people in the workforce and the availability of individuals to match the requirements of a more demanding labour market. The prime age cohort that has typically been the source of those skills when they enter the job market is about to decline nationally and is already shrinking in Nova Scotia. An alternative source of workers with higher education is the age cohort already in the labour market who, it is often argued, will have to engage more extensively in life-long learning. That is, they will have to return to the post-secondary education system to enhance or broaden their skills. From the perspective of the universities, these potential “mature” students represent a prospective offset to the projected decline in the enrolment of 17–29 year-olds. There is no single definition of what constitutes a mature student but, for the purposes of this section of the report, it will be designated as the population aged 30–49 years. This comprises the people most likely to return to post-secondary education in mid-career to expand their range of skills and improve their career prospects. This is not to suggest that those over 50 are uninterested in career advancement or enhanced education. However, they are unlikely, as a group, to be as inclined to return to the university or college systems for another diploma or degree.

Several significant factors make it unlikely that an increase in the numbers of mature students would be sufficient to offset the anticipated decline in the younger age cohort. First, the population of 30–49 is itself projected to be shrinking nationally until 2015, although increasing modestly thereafter until 2030 (see Figure 3.11). In Nova Scotia, however, this age cohort will be getting steadily smaller for the next 20 years. Indeed, this will be the case for all the Atlantic provinces. In contrast, Ontario’s decline will occur until 2014 and then reverse direction. However, while Nova Scotia’s universities can hope to attract a larger share of Ontario students from among the 17–29 year-old group, it is far less likely to be possible to do that from among people already in the labour market.

FIGURE 3.11 Population Projections for 30-49 Year-olds, Canada and Provinces, ('000), 2010-2030

	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	Canada*
2010	146.7	37.6	259.5	214.7	2,259.8	3,968.8	330.0	252.0	1,027.3	1,301.0	9,797.4
2011	144.1	37.1	253.7	212.1	2,247.1	3,963.7	328.1	249.4	1,027.7	1,301.4	9,764.4
2012	141.9	37.0	247.5	209.1	2,233.2	3,960.0	326.5	246.9	1,028.8	1,303.7	9,734.6
2013	140.7	36.9	241.8	206.6	2,214.1	3,954.6	325.4	244.4	1,029.9	1,305.3	9,699.7
2014	138.9	36.8	236.9	204.0	2,198.6	3,951.5	324.5	242.9	1,031.9	1,309.0	9,675.0
2015	137.4	36.7	233.0	201.8	2,184.6	3,957.9	325.1	241.9	1,036.4	1,316.6	9,671.4
2020	131.3	38.0	227.7	198.6	2,200.6	4,094.6	335.9	245.0	1,079.3	1,373.4	9,924.4
2025	128.7	38.7	223.7	196.9	2,259.1	4,285.9	348.2	246.3	1,114.6	1,437.3	10,279.4
2030	125.3	38.6	217.3	192.7	2,213.3	4,434.9	353.0	241.2	1,123.8	1,479.0	10,419.1

*Canadian total excludes Territories and is adjusted based on updated NS Department of Finance Projections for Nova Scotia

Source for all provinces except NS: Population Projections for Canada, Provinces and Territories 2005-2031, 2005 Statistics Canada Catalogue no. 91-520-XIE

Source for NS: NS Department of Finance

A second factor is the historically small fraction of the mature population that enrolls in university in Nova Scotia. The participation rate of this group is less than 1 per cent, which is why enrolment from this group has been a small share of total enrolment (less than 6 per cent in 2008–09). As can be seen from Figure 3.12, a significant proportion of mature student enrolment is from the 30–39 year-old group, with a sharp fall-off in students from the 40–49 year-old category. The point is that the universities would have to count on drawing from the “younger” segment of the mature student population.

FIGURE 3.12 **Full-time Equivalent Enrolment of 30-49 Year-old Nova Scotians in Nova Scotia Universities, 1999-2008**

	NS 30-34	NS 35-39	NS 40-44	NS 45-49	Total NS 30-49	Population NS 30-49	Participation Rate*	Total NS FTE Enrolment	% NS Enrolment	Total FTE Enrolment	% Total Enrolment
1999-2000	901	620	435	264	2,220	297,298	0.75%	21,551	10.3%	31,521	7.0%
2000-2001	904	565	428	259	2,155	295,286	0.73%	21,263	10.1%	31,870	6.8%
2001-2002	933	584	409	260	2,186	293,207	0.75%	21,779	10.0%	32,985	6.6%
2002-2003	1,042	614	402	247	2,305	292,806	0.79%	22,813	10.1%	35,143	6.6%
2003-2004	1,027	613	421	272	2,333	290,704	0.80%	23,151	10.1%	37,523	6.2%
2004-2005	1,012	542	416	274	2,245	287,576	0.78%	23,046	9.7%	37,920	5.9%
2005-2006	952	509	394	262	2,117	282,807	0.75%	21,790	9.7%	37,384	5.7%
2006-2007	881	531	409	253	2,074	278,748	0.74%	21,298	9.7%	36,577	5.7%
2007-2008	881	549	365	251	2,046	273,050	0.75%	21,086	9.7%	35,515	5.8%
2008-2009	894	518	332	261	2,005	267,946	0.75%	19,893	10.1%	35,076	5.7%

* Participation Rate = Nova Scotians aged 30-49 enrolled in Nova Scotia Universities / Nova Scotia population aged 30-49

Source: Enrolment data from Maritime Provinces Higher Education Commission (PSIS data). Population data from Statistics Canada - Table 051-0001

A third factor to consider is that, for mature students, the decision to attend is linked almost entirely to its impact on the individual's future career path and earnings. The biggest cost faced by any student is the income forgone while engaging in post-secondary education. For mature students, most of whom are already employed, this cost is much larger than for those entering right out of high school. In addition, the time period over which the economic return to post-secondary education is expected to be achieved is shorter for this mature group than for the younger age cohort. The high cost and lower expected return, along with a range of time commitments (family, social, volunteer/civic, etc.) explain the much lower participation rates for this group and the decline in participation going progressively from the 30–34 year-olds to the 45–49 year-olds.

As a result of these considerations, the nature of the participation of older students has been, and will likely continue to be, radically different from that of the 17–29 year-olds. They will tend to be part-time rather than full-time students and will attend more sporadically than will be the case for younger students. Their focus will be more intensely on career and income prospects, making post-secondary education almost exclusively an investment in the future rather than “consumption” in the present. Consequently, the course of studies chosen will likely be in disciplines where there is a more clearly defined “skill” enhancement that can be applied in the workplace.

All of this suggests that attempts to raise the participation of mature students will require significant changes in the approach institutions have been using to teach primarily younger people. Everything from teaching styles to class scheduling would have to be adjusted to ensure a quality of education comparable to that experienced by the traditional undergraduate student.

Success in attracting mature students could offset or even reverse the projected shrinkage in student enrolments. For example, an increase in the participation rate of 30–49 year-olds from the current 0.75 per cent to 1 per cent would increase annual enrolments by an average of 600 over the next five years, while a doubling of the rate would bring in 1700–2000 more students per year to the system (see Figure 3.13). However, given that the participation rate for this group has been persistently below 1 per cent, there should not be great enthusiasm attached to the prospects of raising that rate significantly.

FIGURE 3.13 Enrolment Projections for 30-49 Year-old Nova Scotians in Nova Scotia Universities, 2010-2030, based on Variable Participation Rates

Year	0.5% Participation Rate	0.75% Participation Rate	1.0% Participation Rate	1.5% Participation Rate
2010	1,297	1,946	2,595	3,892
2011	1,268	1,903	2,537	3,805
2012	1,238	1,856	2,475	3,713
2013	1,209	1,813	2,418	3,627
2014	1,184	1,776	2,369	3,553
2015	1,165	1,748	2,330	3,495
2016	1,154	1,730	2,307	3,461
2017	1,147	1,720	2,293	3,440
2018	1,142	1,713	2,284	3,427
2019	1,140	1,710	2,281	3,421
2020	1,139	1,708	2,277	3,416
2021	1,134	1,701	2,268	3,403
2022	1,130	1,695	2,260	3,390
2023	1,126	1,689	2,251	3,377
2024	1,123	1,684	2,245	3,368
2025	1,118	1,677	2,237	3,355
2026	1,114	1,671	2,228	3,341
2027	1,108	1,663	2,217	3,325
2028	1,102	1,654	2,205	3,307
2029	1,095	1,643	2,190	3,285
2030	1,086	1,629	2,173	3,259

Enrolment formula: Participation Rate x Population Projections

30-49 Year-olds, Canada and Provinces, 2010-2030

Source: Based on data from the Maritime Provinces Higher Education Commission and Nova Scotia Department of Finance

3.2 Revenue and Expenditure Projections

3.2.1 Introduction

There are three main drivers of the financial situation that will be faced by universities in Nova Scotia over the next five years. These include the operating grant provided by the government, the level of tuition and other fees that will be generated by students, and the operating costs incurred by the university. While other income received is not insignificant (15–20 per cent of system operating revenue) it is too variable among institutions to be formally evaluated. It is also a source of revenue that is totally unaffected by government policy. Government policy directly determines the overall level of the grant for the university system, as well as its distribution among the individual institutions; it also may set the level of tuition fees. Enrolment in the universities is obviously dependent upon the choices made by students both to participate in university and to attend a university in the province. Finally, the universities fundamentally dictate what their operating costs are. Most of this, of course, is the result of individual decisions by the universities, including their contractual arrangements with faculty and staff.

In what follows, the financial projections for the university system will be based on a variety of assumptions made about government policy with respect to grants and tuition fees, about enrolment projections, and about operating-cost decisions made by the university. The time frame being examined is the next five years. It is

important to make clear that these are not predictions of what will happen, but a set of scenarios that universities and the government could face in the medium term. They establish the framework within which the system might operate, and provide a key component of the background for examining policy options that the government might have to consider for the university sector.

3.2.2. Key Assumptions

GOVERNMENT OPERATING GRANT

As discussed above, changes in the level of the operating grant for the system have been grounded in forecasts about the total costs for the universities collectively. In the most recent memorandum of understanding (MOU), the grant increased at an average annual rate of approximately 10 per cent. This reflects projected increases in university operating costs of about 5 per cent, plus another 5 per cent to cover the revenue forgone by freezing tuition fees rather than allowing increases at about the national rate. The allocation of the grant to individual institutions has been linked to enrolment levels weighted by its distribution across the programs of each institution. In Canada, funding formulas have tended to be cost-based, enrolment-based, or some combination of the two. However, the predominate focus, particularly in Nova Scotia, has been on enrolment. As well, in most provincial funding systems there have usually been some programs or institutions where funding has been predominately targeted. This has not been the case in Nova Scotia.

In the projections that follow, varying assumptions have been used about enrolment and about possible patterns of cost increases for the system. For the latter, the main assumption has been a continuation of the recent (5 per cent) trend in university operating expenditure increases. However, one can also start from different perspectives of the principle on which the government ought to establish its operating grant. Three such principles are used here: maintaining the grant at a constant rate per capita, at a constant share of total government expenditures, and at a constant share of GDP.

The rationale for a constant per-capita funding approach would be that the province is already in the upper range of dollars per capita allocated to support university education (see Figure 2.9), and that Nova Scotia taxpayers should not be expected to further increase their comparative contribution to the university system.

The rationale for a constant share of expenditures would be that, with a substantial increase in university funding in recent years, the appropriate proportional contribution of government funding has now been reached. With enrolments more likely to be moderating than rising in the foreseeable future, maintaining the share of government spending for universities might actually be seen as generous.

The rationale for an allocation based on the province's level of GDP would be that, as the province's prosperity increases, the ability to afford a range of publicly funded services also rises, and funding for universities should be linked to the taxpayers' capacity to support. An alternative way of viewing this principle is that, since productivity growth—a key element of rising real GDP—cannot readily be estimated for public sector activities, the pace of government expenditure growth ought to match the overall rate of growth of the economy. Since the rate of growth in GDP is the sum of population/labour force growth and productivity growth, such a principle would cause government spending to rise at a faster rate than the population growth.

In the projections below, four different assumptions are used on which to base a possible pace of government funding for universities: the operating grant increases at the rate necessary to ensure fiscal balance in the system; it increases (decreases) at the rate of growth (decline) in the provincial population (constant per capita); it increases (decreases) at the same rate as overall government spending (constant share of expenditures); it changes at the same pace as the level of economic activity (constant share of GDP).

The projections illustrate a range of possible operating grant patterns and do not presuppose that any one of them reflects the “correct” principle upon which government funding ought to be based. This issue is discussed further in Section 4.2.

TUITION FEES

In the upcoming university academic year (2010–11), the target of lowering university tuition fees in Nova Scotia to the national average is expected to be reached. There are four broad tuition policy options from which the government can choose going forward. They include: further reducing tuition levels; freezing tuition at current (2010–11) levels; allowing tuition levels to increase but at a regulated pace (e.g., a maximum percentage rate of increase); or completely deregulating tuition fees and allowing each institution to set its own tuition levels.

In the projections below, the first option is left out on the practical grounds that a government contemplating broad fiscal restraint is unlikely to consider enhancing further the subsidy required to drive tuition fees below the national average. The other three options are used in the scenario projections. A fuller analysis and discussion of tuition fee policy options is provided in Section 4.1.

ENROLMENT LEVELS

Based on the enrolment projections discussed in Section 3.1, three different system enrolment assumptions are made below: a decrease in Nova Scotia and out-of-province enrolment and constant international student numbers; no change in Nova Scotia, out-of-province, and international enrolments; and an increase in Nova Scotia, out-of-province, and international enrolments. It should be noted that, for all three projections, participation rates of the prime age group for potential enrolment (17–29 year-olds) in university education would increase. In the projections, it is assumed that variations in tuition fees do not affect enrolment levels. The relationship between tuition fees and post-secondary education participation are explored further in Section 4.1.

UNIVERSITY OPERATING EXPENDITURES

The operating expenses for the province’s universities have been increasing at a rate slightly below 5 per cent for the past six years. A key factor in that growth has been the pace of increase in faculty and staff compensation, which constitutes over 70 per cent of total operating expenses and has grown at a rate slightly above 5 per cent. In the absence of a structural change in typical contractual arrangements, the 5 per cent growth rate in operation costs will continue into the foreseeable future. This is one of three assumptions about universities’ costs that are used in the projections. The other two are a 50 per cent reduction in the rate of increase (to 2.5 per cent) and changes in operating costs that balance the system accounts under varying grant and tuition increase circumstances.

FUNDING GAP

The final issue to be dealt with before proceeding to a range of possible projections is that, even if the government were to choose to discontinue the policy of reducing tuition levels for Nova Scotia and out-of-province students, it would have to deal with the \$29 million gap in funding created by discontinuing the student bursary program that financed the reduction in fees in 2010–11. In the tables, unless otherwise noted, the tuition revenues shown for Nova Scotia and out-of-province students are net of the bursary payments. The tuition revenue subtotal explicitly adds in the bursary payments for years 2008–09 to 2010–11, after which it is zero. Tuition fee increase projections use the 2010–11 net tuition levels as the starting point.

3.2.3 System Projections – Impact of Assumptions

To provide a perspective on the order-of-magnitude impact on the system's financial situation, it is worth looking at each of the key assumptions in isolation—including operating grants, enrolments, tuition fees, and operating expenses—to see how specific rates of change are assumed.

In Figure 3.14, regarding the impact on system revenue of varying the principle upon which government support for the university is based, it is clear that an operating grant linked to population growth (constant per capita growth in funding) implies a reduction of \$4 million in the absolute level of support over the five years from 2010–11 to 2015–16. This reflects current projections of a modest decline in the province's population over that period. By contrast, a grant linked to GDP growth (constant percentage of GDP) would yield a \$51 million total increase over the same time horizon. This implies a medium term average GDP growth rate of 2.5–3 per cent. Finally, if the government transfer to the universities maintains the sector's share of total public sector expenditures, the grant would increase over that five-year period by a total of only \$8 million. This is based on Nova Scotia Department of Finance projections of less than a 2.5 per cent increase in total spending between 2010–11 and 2015–16.

FIGURE 3.14 Impact of Funding Principles on System Operating Grant Projections

Year	Operating Grant Projections Based on Constant Share of Provincial Expenditures		Operating Grant Projections Based on Constant Per Capita Funding		Operating Grant Projections Based on Constant Share of GDP	
	(\$000)	%	(\$000)	%	(\$000)	%
2008-09	\$288,745	11.59%	\$288,745	11.59%	\$288,745	11.59%
2009-10	\$317,245	9.87%	\$317,245	9.87%	\$317,245	9.87%
2010-11	\$348,319	9.79%	\$348,319	9.79%	\$348,319	9.79%
2011-12	\$353,353	1.45%	\$347,715	-0.17%	\$358,309	2.87%
2012-13	\$354,942	0.45%	\$346,592	-0.32%	\$367,468	2.56%
2013-14	\$352,432	-0.71%	\$345,599	-0.29%	\$377,150	2.63%
2014-15	\$353,690	0.36%	\$345,035	-0.16%	\$388,362	2.97%
2015-16	\$356,978	0.93%	\$344,719	-0.09%	\$399,438	2.85%
Total Change from 2010-11	\$8,659	2.49%	-\$3,600	-1.03%	\$51,119	14.68%

Operating Grant values for 2008-09, 2009-10 & 2010-11 are actuals. Operating Grant values for 2011-12 onward are projections.

Source: NS Department of Finance

Assuming constant enrolment of all three categories of students, and allowing a 4 per cent rise in tuition fees (approximately the six-year trend in the national average rate), the impact on revenue of varying tuition fees is an increase of \$46 million (\$49 million if ancillary fees also increase at the same rate) over the five-year period. If tuition is frozen and enrolment declines, as currently projected, by 1 per cent for Nova Scotia and out-of-province students, tuition revenue will fall in the five-year period by about \$7 million (\$7.5 million if fees are included).

If the recent trend of 5 per cent growth were to continue, total university operating expenses would rise by \$207 million between 2010–11 and 2015–16. If the pace were to be cut in half (from 5 per cent to 2.5 per cent growth), the system's operating costs would rise by just under \$100 million.

An obvious, albeit preliminary, conclusion of the foregoing is that if the government were to continue to increase its operating grant to universities but at a rate lower than in recent years—say the rate of growth of GDP (2.5 to 3 per cent)—and allowed tuition levels to rise at the (recent) national rate, the university system would run

a sizable and increasing deficit unless it cut its operating expense growth quite dramatically. This situation is shown in Figure 3.15. With enrolment increasing modestly, tuition fees rising at 4 per cent annually, and the government's grant increasing at the pace of GDP, the university system deficit would be over \$67 million by 2015–16 if the 5 per cent pace of inflation for operating costs were maintained. Clearly this is not an outcome that the government or the universities would or could tolerate. Also note that the most optimistic set of assumptions about enrolment, tuition fees, and the government grant are used in the projections.

FIGURE 3.15 Tuition Increases 4%, Enrolment Increases (1% NS, 1% Out-of-Province, 5% International) from 2011-12 Onward

Year	Total Operating Expenses	Total Revenue with Operating Grant Based on Constant Share of GDP	
	(\$000)	(\$000)	Variance
2008-09	\$677,713	\$677,713	\$0
2009-10	\$712,242	\$712,242	\$0
2010-11	\$750,296	\$750,296	\$0
2011-12	\$788,269	\$753,138	-\$35,130
2012-13	\$828,402	\$785,498	-\$42,903
2013-14	\$870,833	\$819,819	-\$51,013
2014-15	\$915,709	\$857,203	-\$58,506
2015-16	\$963,188	\$896,086	-\$67,103

Source: Higher Education Branch, NS Department of Education

3.2.4 System Projections – Scenarios

The projections examined below illustrate the range of possible alternatives that the government and the university system might face over the medium term. This provides some of the background for evaluating policy options the government should be contemplating as it looks forward to negotiating with the universities the grant to be provided to the system.

From the perspective of the fiscal position of the university system, arguably the worst-case scenario (referred to as the pessimistic case) would be one in which operating costs continue to increase at 5 per cent per year, tuition levels are frozen, enrolment declines, and the government grant increases at a substantially slower rate than in recent years (and much lower than operating costs) or actually declines. This situation is illustrated in Figure 3.16, in which the financial consequences of following each one of the three “principles” of funding is utilized: constant share of government expenditures; constant per capita; and constant proportion of GDP. The system's deficits by 2015 would be \$203 million, \$215 million, and \$160 million respectively.

FIGURE 3.16 Operating Grant Projections for System, Present to 2015-16: No Tuition Increase

Year	Total Operating Expenses (\$000)	Total Revenue with Operating Grant Projections based on 2010-11 share of Provincial Expenditures (\$000)		Total Revenue with Operating Grant Based on Equal Per Capita Share (\$000)		Total Revenue with Operating Grant Based on Equal Share of GDP (\$000)	
	(\$000)	(\$000)	Variance	(\$000)	Variance	(\$000)	Variance
2008-09	\$677,713	\$677,713	\$0	\$677,713	\$0	\$677,713	\$0
2009-10	\$712,242	\$712,242	\$0	\$712,242	\$0	\$712,242	\$0
2010-11	\$750,296	\$750,296	\$0	\$750,296	\$0	\$750,296	\$0
2011-12	\$788,269	\$732,092	-\$56,177	\$726,454	-\$61,815	\$737,048	-\$51,221
2012-13	\$828,402	\$739,958	-\$88,444	\$731,608	-\$96,794	\$752,484	-\$75,917
2013-14	\$870,833	\$743,824	-\$127,008	\$736,992	-\$133,841	\$768,543	-\$102,290
2014-15	\$915,709	\$750,999	-\$164,710	\$742,344	-\$173,365	\$785,671	-\$130,038
2015-16	\$963,188	\$760,036	-\$203,152	\$747,777	-\$215,411	\$802,496	-\$160,693

Source: Higher Education Branch, NS Department of Education

Since such an outcome clearly is not sustainable, it is worth looking at what the changes in each of the three main drivers, taken separately, would have to be to balance the finances of the universities collectively. That is, by how much would the operating grant or tuition fees have to rise, or the operating costs alone have to decline, to prevent a deficit. The outcomes are indicated in Figures 3.17 to 3.19.

FIGURE 3.17 Operating Grant Projections for System, Present to 2015-16: Operating Grant Varies to Balance

Assumptions:

- a) Operating expenditure increases by 5% annually
- b) Domestic enrolments decreasing according to Statistics Canada enrolment trend projections; international enrolments held constant
- c) Tuition and ancillary fees frozen
- d) Other revenue increases according to existing trend (5.9% annually)
- e) Operating grant varies to balance
- f) No variance

Year	CAUBO Operating Expenses ¹		Enrolments ²						Tuition and Ancillary Fees (\$)				Tuition and Ancillary Fees Revenue (\$000)				Other Revenue ³		Operating Grant Projections Based on System Expenditures ⁴		Total Revenue	
	(\$000)	%	NS	Province	INT	Total Increase	NS	Out-of-Province	INT	Increase	NS	Province	INT	Subtotal	Bursary	Total Tuition Revenue	(\$000)	%	(\$000)	%	(\$000)	%
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076		\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860	\$13,629	\$285,489	\$103,478	\$288,745	11.59%	\$677,713	5.48%
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	-0.3%	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057	\$20,767	\$286,824	\$108,172	\$317,245	9.87%	\$712,242	5.09%
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	-0.4%	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933	\$29,000	\$285,933	\$116,044	\$348,319	9.79%	\$750,296	5.34%
2011-12	\$787,811	5.0%	19,481	11,880	3,310	34,671	-0.5%	\$6,229	\$7,176	\$14,875	0.0%	\$121,350	\$85,259	\$49,231	\$255,840	\$0	\$255,840	\$122,898	\$409,073	17.44%	\$787,811	5.00%
2012-13	\$827,202	5.0%	19,318	11,884	3,310	34,512	-0.5%	\$6,229	\$7,176	\$14,875	0.0%	\$120,340	\$85,288	\$49,231	\$254,859	\$0	\$254,859	\$130,158	\$442,186	8.09%	\$827,202	5.00%
2013-14	\$868,562	5.0%	19,130	11,865	3,310	34,305	-0.6%	\$6,229	\$7,176	\$14,875	0.0%	\$119,164	\$85,152	\$49,231	\$253,547	\$0	\$253,547	\$137,846	\$477,169	7.91%	\$868,562	5.00%
2014-15	\$911,990	5.0%	18,843	11,804	3,310	33,957	-1.0%	\$6,229	\$7,176	\$14,875	0.0%	\$117,378	\$84,712	\$49,231	\$251,321	\$0	\$251,321	\$145,988	\$514,681	7.86%	\$911,990	5.00%
2015-16	\$957,589	5.0%	18,490	11,711	3,310	33,510	-1.3%	\$6,229	\$7,176	\$14,875	0.0%	\$115,176	\$84,040	\$49,231	\$248,447	\$0	\$248,447	\$154,611	\$554,532	7.74%	\$957,589	5.00%
Total Change from 2010-11	\$207,293	27.6%	-1,164	-172	0	-1,336	-3.8%	\$0	\$0	\$0	0.0%	-\$7,251	-\$1,235	\$0	-\$8,486			\$38,567	\$206,212	59.20%	\$207,293	27.63%

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and international locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals.

Source: Higher Education Branch, NS Department of Education

FIGURE 3.18 Operating Grant Projections for System, Present to 2015-16, With Tuition Increased to Offset Maintaining 2010-11 Per Capita Funding

Assumptions:

- a) Operating expenditure increases by ~5% annually according to CAUBO trend
- b) Domestic enrolments decreasing according to Statistics Canada enrolment trend projections; international enrolments held constant
- c) Tuition and ancillary fees vary to balance
- d) Other revenue increases by 5.9% annually
- e) Operating grant based on 2010-11 per capita funding
- f) No variance

Year	CAUBO Operating Expenses ¹		Enrolments ²					Tuition and Ancillary Fees (\$)					Tuition and Ancillary Fees Revenue (\$000)					Other Revenue ³		Operating Grant Projections Based Equal Per Capita Share ⁴		Total Revenue
	(\$000)	%	NS	Out-of-Province	INT	Total Increase	NS	Out-of-Province	INT	Increase	NS	Out-of-Province	INT	Subtotal	Bursary	Total Tuition Revenue	(\$000)	%	(\$000)	%		
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076	0.0%	\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860	\$285,489	\$103,478	\$288,745	6.81%	\$677,713	5.48%	
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	0.0%	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057	\$20,767	\$286,824	\$108,172	\$317,245	9.87%	\$712,242	5.09%
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	0.0%	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933	\$29,000	\$285,933	\$116,044	\$348,319	9.79%	\$750,296	5.34%
2011-12	\$788,269	5.1%	19,481	11,880	3,310	34,671	-0.5%	\$7,734	\$8,910	\$18,469	24.2%	\$150,670	\$105,859	\$61,126	\$317,655	\$0	\$317,655	\$122,898	\$347,715	-0.17%	\$788,269	5.06%
2012-13	\$828,402	5.1%	19,318	11,884	3,310	34,512	-0.5%	\$8,595	\$9,902	\$20,524	11.1%	\$166,044	\$117,680	\$67,928	\$351,652	\$0	\$351,652	\$130,158	\$346,592	-0.32%	\$828,402	5.09%
2013-14	\$870,833	5.1%	19,130	11,865	3,310	34,305	-0.6%	\$9,518	\$10,965	\$22,727	10.7%	\$182,068	\$130,101	\$75,219	\$387,388	\$0	\$387,388	\$137,846	\$345,599	-0.29%	\$870,833	5.12%
2014-15	\$915,709	5.2%	18,843	11,804	3,310	33,957	-1.0%	\$10,526	\$12,127	\$25,136	10.6%	\$198,348	\$143,147	\$83,191	\$424,686	\$0	\$424,686	\$145,988	\$345,035	-0.16%	\$915,709	5.15%
2015-16	\$963,188	5.2%	18,490	11,711	3,310	33,510	-1.3%	\$11,630	\$13,399	\$27,772	10.5%	\$215,037	\$156,906	\$91,916	\$463,858	\$0	\$463,858	\$154,611	\$344,719	-0.09%	\$963,188	5.18%
Total Change from 2010-11	\$212,892	28.4%	-1,164	-172	0	-1,336	-3.8%	\$5,401	\$6,222	\$12,897	86.7%	\$92,610	\$71,631	\$42,685	\$206,925			\$38,567	-\$3,600	-1.03%	\$212,892	28.37%

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and international locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals.

Source: Higher Education Branch, NS Department of Education

FIGURE 3.19 Operating Grant Projections for System, Present to 2015-16: Operating Expenditures Vary to Balance

Assumptions:

- a) Operating expenditures vary to balance
- b) Domestic enrolments decreasing according to Statistics Canada enrolment trend projections; international enrolments held constant
- c) Tuition and ancillary fees frozen
- d) Other revenue increases according to existing trend (5.9% annually)
- e) Operating grant based on constant per capita share
- f) No variance

f) No variance		Enrolments ²													Tuition and Ancillary Fees (\$)				Tuition and Ancillary Fee Revenue (\$000)				Other Revenue ³		Operating Grant Based on Constant Per Capita Share ⁴		Total Revenue				
Year	CAUBO Operating Expenses ¹	Out-of-Province		INT		Total Increase		NS		Out-of-Province		INT		Increase		NS		Out-of-Province		INT		Subtotal		Bursary		Total Tuition Revenue		(\$000)		%	
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076		\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860	\$13,629	\$285,489	\$103,478	\$288,745	11.59%						\$677,713	5.48%				
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	-0.3%	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057	\$20,767	\$286,824	\$108,172	\$317,245	9.87%						\$712,242	5.09%				
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	-0.4%	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933	\$29,000	\$285,933	\$116,044	\$348,319	9.79%						\$750,296	5.34%				
2011-12	\$726,454	-3.2%	19,481	11,880	3,310	34,671	-0.5%	\$6,229	\$7,176	\$14,875	0.0%	\$121,350	\$85,259	\$49,231	\$255,840	\$0	\$255,840	\$122,898	\$347,715	-0.17%						\$726,454	-3.18%				
2012-13	\$731,608	0.7%	19,318	11,884	3,310	34,512	-0.5%	\$6,229	\$7,176	\$14,875	0.0%	\$120,340	\$85,288	\$49,231	\$254,859	\$0	\$254,859	\$130,158	\$346,592	-0.32%						\$731,608	0.71%				
2013-14	\$736,992	0.7%	19,130	11,865	3,310	34,305	-0.6%	\$6,229	\$7,176	\$14,875	0.0%	\$119,164	\$85,152	\$49,231	\$253,547	\$0	\$253,547	\$137,846	\$345,599	-0.29%						\$736,992	0.74%				
2014-15	\$742,344	0.7%	18,843	11,804	3,310	33,957	-1.0%	\$6,229	\$7,176	\$14,875	0.0%	\$117,378	\$84,712	\$49,231	\$251,321	\$0	\$251,321	\$145,988	\$345,035	-0.16%						\$742,344	0.73%				
2015-16	\$747,777	0.7%	18,490	11,711	3,310	33,510	-1.3%	\$6,229	\$7,176	\$14,875	0.0%	\$115,176	\$84,040	\$49,231	\$248,447	\$0	\$248,447	\$154,611	\$344,719	-0.09%						\$747,777	0.73%				
Total Change from 2010-11	-\$2,519	-0.3%	-1,164	-172	0	-1,336	-3.8%	\$0	\$0	\$0	0.0%	-\$7,251	-\$1,235	\$0	-\$8,486			\$38,567	-\$3,600	-1.03%						-\$2,519	-0.34%				

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and international locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals.

Source: Higher Education Branch, NS Department of Education

Given an enrolment decline of 1 per cent, a tuition freeze, and no reduction in operating cost inflation, the operating grant would have to increase by \$206 million (or 59 per cent) over the five years from 2010–11 to 2015–16 for the system to avoid a deficit (Figure 3.17). If, on the other hand, tuition increases have to bear the entire burden of preventing a deficit, and assuming the other worst-case assumptions, average tuition fees would have to nearly double over a five-year period, increasing by almost \$5,500 for Nova Scotia students, over \$6,000 for out-of-province students and close to \$13,000 for international students (Figure 3.18). If the entire adjustment to declining enrolments, a tuition freeze, and an outright decline in the operating grant were to come from the universities' operating costs, the latter would have to essentially remain flat for five years. More precisely, to retain annual balance, operating expenses would have to decline by 3 per cent in 2011–12 and then rise by less than 1 per cent annually thereafter (Figure 3.19). Finally, if eliminating the prospective deficits had to come from increasing enrolment, the university student population would have to increase by almost 90 per cent over the five years following 2010–11.

Whether it would be appropriate for the government to simultaneously freeze tuition fees and reduce the size of the operating grant—forcing the universities to dramatically rein in their operating costs—is a discussion left for Section 4. However, it is useful to examine the impact of relaxing the assumptions made in the so-called worst-case scenario. These include: allowing for the possibility of rising enrolment, for tuition fee increases, and for moderation in the rate of operating cost growth.

As already indicated, enrolment in Nova Scotia's university system would have to almost double to offset the deficit that would occur from the worst-case scenario outlined above. If, more reasonably, Nova Scotia and out-of-province enrolment were assumed to increase by 1 per cent and international by 5 per cent, the net fiscal impact, relative to the worst case, would be a positive swing of \$28 million cumulatively over five years (from a

FIGURE 3.21 Operating Grant Projections for System, Present to 2015-16, With Tuition Increased 4% Annually

Assumptions:

- a) Operating expenditure increases by ~5% annually according to CAUBO trend
- b) Domestic enrolments decreasing according to Statistics Canada enrolment trend projections; international enrolments held constant
- c) Tuition and ancillary fees increase 4% annually
- d) Other revenue increases according to existing trend (5.9% annually)
- e) Operating grant varies to balance

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Year	CAUBO Operating Expenses ¹		Enrolments ²					Tuition and Ancillary Fees (\$)				Tuition and Ancillary Fees Revenue (\$000)			
	(\$000)	%	NS	Out-of-Province	INT	Total	Increase	NS	Out-of-Province	INT	Increase	NS	Out-of-Province	INT	Subtotal
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076	0.0%	\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	0.0%	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	0.0%	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933
2011-12	\$788,269	5.1%	19,481	11,880	3,310	34,671	-0.5%	\$6,478	\$7,464	\$15,470	4.0%	\$126,204	\$88,670	\$51,200	\$266,074
2012-13	\$828,402	5.1%	19,318	11,884	3,310	34,512	-0.5%	\$6,738	\$7,762	\$16,089	4.0%	\$130,159	\$92,247	\$53,248	\$275,655
2013-14	\$870,833	5.1%	19,130	11,865	3,310	34,305	-0.6%	\$7,007	\$8,073	\$16,732	4.0%	\$134,044	\$95,784	\$55,378	\$285,206
2014-15	\$915,709	5.2%	18,843	11,804	3,310	33,957	-1.0%	\$7,287	\$8,395	\$17,402	4.0%	\$137,316	\$99,101	\$57,593	\$294,010
2015-16	\$963,188	5.2%	18,490	11,711	3,310	33,510	-1.3%	\$7,579	\$8,731	\$18,098	4.0%	\$140,129	\$102,248	\$59,897	\$302,274
Total Change from 2010-11	\$212,892	28.4%	-1,164	-172	0	-1,336	-3.8%	\$1,350	\$1,555	\$3,223	21.7%	\$17,702	\$16,973	\$10,666	\$45,341

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and International locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals.

Source: Higher Education Branch, NS Department of Education

FIGURE 3.20 Operating Grant Projections for System, Present to 2015-16: No Tuition Increase, Enrolment Increased (1% NS, 1% Out-of-Province , 5% International) from 2011-12 Onward

Year	Total Operating Expenses (\$000)	Total Revenue with Operating Grant Projections Based on 2010-11 Share of Provincial Expenditures (\$000)		Total Revenue with Operating Grant Based on Equal Per Capita Share (\$000)		Total Revenue with Operating Grant Based on Equal Share of GDP (\$000)	
	(\$000)	(\$000)	Variance	(\$000)	Variance	(\$000)	Variance
2008-09	\$677,713	\$677,713	\$0	\$677,713	\$0	\$677,713	\$0
2009-10	\$712,242	\$712,242	\$0	\$712,242	\$0	\$712,242	\$0
2010-11	\$750,296	\$750,296	\$0	\$750,296	\$0	\$750,296	\$0
2011-12	\$788,269	\$737,723	-\$50,545	\$732,085	-\$56,183	\$742,679	-\$45,589
2012-13	\$828,402	\$751,254	-\$77,148	\$742,904	-\$85,498	\$763,780	-\$64,622
2013-14	\$870,833	\$761,264	-\$109,569	\$754,432	-\$116,401	\$785,983	-\$84,850
2014-15	\$915,709	\$775,654	-\$140,055	\$766,999	-\$148,710	\$810,326	-\$105,383
2015-16	\$963,188	\$792,719	-\$170,470	\$780,460	-\$182,729	\$835,178	-\$128,010

Source: Higher Education Branch, NS Department of Education

decline of \$7.5 million to an increase of \$20.5 million). As shown in Figure 3.20, such an improvement would make only a small dent in the system deficits under any of the three operating grant approaches. Alternatively, if the government were to change tuition policy to allow fees to increase annually at the national average growth rate—assumed to be the 4 per cent pace of the past six years—the net fiscal impact would be about \$46 million. Since tuition fees would have to virtually double in five years to mitigate the deficit generated in the worst-case situation, it is not surprising that a much slower pace of increase would, by itself, have a modest impact (Figure

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Bursary	Total Tuition Revenue	Other Revenue ³ (\$000)	Operating Grant ⁴			Operating Grant Projections based on 2010-11 Share of Provincial Expenditures			Operating Grant Based on Equal Per Capita Share			Operating Grant Based on Equal Share of GDP		
		(\$000)	(\$000)	%	(\$000)	(\$000)	%	(\$000)	(\$000)	%	(\$000)	(\$000)	%	(\$000)
\$13,629	\$285,489	\$103,478	\$288,745	11.59%	\$677,713	\$288,745	6.81%	\$677,713	\$288,745	6.81%	\$677,713	\$288,745	6.81%	\$677,713
\$20,767	\$286,824	\$108,172	\$317,245	9.87%	\$712,242	\$317,245	9.87%	\$712,242	\$317,245	9.87%	\$712,242	\$317,245	9.87%	\$712,242
\$29,000	\$285,933	\$116,044	\$348,319	9.79%	\$750,296	\$348,319	9.79%	\$750,296	\$348,319	9.79%	\$750,296	\$348,319	9.79%	\$750,296
\$0	\$266,074	\$122,898	\$399,296	14.64%	\$788,269	\$353,353	1.45%	\$742,325	\$347,715	-0.17%	\$736,687	\$358,309	2.87%	\$747,281
\$0	\$275,655	\$130,158	\$422,589	5.83%	\$828,402	\$354,942	0.45%	\$760,754	\$346,592	-0.32%	\$752,404	\$367,468	2.56%	\$773,281
\$0	\$285,206	\$137,846	\$447,781	5.96%	\$870,833	\$352,432	-0.71%	\$775,483	\$345,599	-0.29%	\$768,651	\$377,150	2.63%	\$800,202
\$0	\$294,010	\$145,988	\$475,711	6.24%	\$915,709	\$353,690	0.36%	\$793,688	\$345,035	-0.16%	\$785,033	\$388,362	2.97%	\$828,360
\$0	\$302,274	\$154,611	\$506,304	6.43%	\$963,188	\$356,978	0.93%	\$813,863	\$344,719	-0.09%	\$801,604	\$399,438	2.85%	\$856,322
	\$16,341	\$38,567	\$157,985	45.36%	\$212,892	\$8,659	2.49%	\$63,566	-\$3,600	-1.03%	\$51,308	\$51,119	14.68%	\$106,026

FIGURE 3.22 Operating Grant Projections for System, Present to 2015-16: Operating Grant Varies to Balance

Assumptions:

- a) Operating expenditure increases by 2.5% annually
- b) Domestic enrolments decreasing according to Statistics Canada enrolment trend projections; international enrolments held constant
- c) Tuition and ancillary fees frozen
- d) Other revenue increases according to existing trend (5.9% annually)
- e) Operating grant varies to balance
- f) No variance

Year	CAUBO Operating Expenses ¹		Enrolments ²					Tuition and Ancillary Fees (\$)				Tuition and Ancillary Fees Revenue (\$000)					Other Revenue ³		Operating Grant Projections Based on System Expenditures ⁴		Total Revenue
	(\$000)	%	NS	Out-of-Province	INT	Total Increase	NS	Out-of-Province	INT	Increase	NS	Out-of-Province	INT	Subtotal	Bursary	Total Tuition Revenue	(\$000)	%	(\$000)	%	
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076	\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860	\$13,629	\$285,489	\$103,478	11.59%	\$288,745	5.48%	
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057	\$20,767	\$286,824	\$108,172	9.87%	\$317,245	5.09%	
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933	\$29,000	\$285,933	\$116,044	9.79%	\$348,319	5.34%	
2011-12	\$769,054	2.5%	19,481	11,880	3,310	34,671	\$6,229	\$7,176	\$14,875	0.0%	\$121,350	\$85,259	\$49,231	\$255,840	\$0	\$255,840	\$122,898	12.06%	\$390,315	2.50%	
2012-13	\$788,280	2.5%	19,318	11,884	3,310	34,512	\$6,229	\$7,176	\$14,875	0.0%	\$120,340	\$85,288	\$49,231	\$254,859	\$0	\$254,859	\$130,158	3.32%	\$403,264	2.50%	
2013-14	\$807,987	2.5%	19,130	11,865	3,310	34,305	\$6,229	\$7,176	\$14,875	0.0%	\$119,164	\$85,152	\$49,231	\$253,547	\$0	\$253,547	\$137,846	3.31%	\$416,594	2.50%	
2014-15	\$828,187	2.5%	18,843	11,804	3,310	33,957	\$6,229	\$7,176	\$14,875	0.0%	\$117,378	\$84,712	\$49,231	\$251,321	\$0	\$251,321	\$145,988	3.43%	\$430,878	2.50%	
2015-16	\$848,891	2.5%	18,490	11,711	3,310	33,510	\$6,229	\$7,176	\$14,875	0.0%	\$115,176	\$84,040	\$49,231	\$248,447	\$0	\$248,447	\$154,611	3.47%	\$445,834	2.50%	
Total Change from 2010-11	\$98,595	13.1%	-1,164	-172	0	-1,336	-3.8%	\$0	\$0	\$0	0.0%	-\$7,251	-\$1,235	\$0	-\$8,486	\$0	-\$37,486	\$38,567	28.00%	\$97,514	13.14%

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and international locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals.

Source: Higher Education Branch, NS Department of Education

3.21).

Finally, reducing the rate at which the universities' operating costs are increasing could, as already noted, have a substantial impact on the fiscal hole that would open up in the worst-case scenario. As shown in Figure 3.22, if operating costs grew at half the current pace (2.5 per cent versus 5 per cent), the system's financial situation would improve by almost \$115 million. The fiscal consequences in each of the three operating-grant approaches are substantial, although deficits remain in all three cases.

What the foregoing suggests is that, if the government were to apply some degree of restraint in its operating grant (i.e., at a minimum, reduce the pace of increase below the most recent MOU), the burden of avoiding a persistent system deficit would have to be shared by students (through higher tuition fees) and the individual institutions (through reduced inflation of operating costs).

VARYING DEGREES OF OPTIMISM

Given the extent to which any fiscal outcome depends on two key policy levers—tuition policy and operating grants—it is not possible to specify a single “realistic” or “baseline” projection. As discussed in Section 4.2, there is considerable room for debate about what constitutes an appropriate level of tuition fees, a fair share of the burden for Nova Scotia taxpayers, or an acceptable level of costs for the universities. Therefore, the most that can be achieved, in advance of making explicit recommendations, is a description of several scenarios that might be regarded as more “optimistic” than the worst-case one used so far. Note, however, that optimism is relative to the fiscal state of the system, not relative to the hopes or expectations of its relevant stakeholders.

In the first example, enrolments are assumed constant, tuition fees rise 4 per cent annually—hence maintaining parity with the national average—and the government grant maintains the universities' share of government spending. Universities' operating costs, in this example, are adjusted to generate system balance on an annual basis. As can be seen from Figure 3.23, operating costs would have to decline in 2011–12 but would increase by an average of about 2.6 per cent per year thereafter to achieve system fiscal balance.

FIGURE 3.23 Operating Grant Projections for System, Present to 2015-16: Operating Expenditures Vary to Balance

Assumptions:

- a) Operating expenditures vary to balance
- b) Enrolments fixed at 2010-11 levels
- c) Tuition and ancillary fees increase 4%
- d) Other revenue increases according to existing trend (5.9% annually)
- e) Operating grant based on constant share of provincial expenditure
- f) No variance

Year	CAUBO Operating Expenses ¹		Enrolments ²				Tuition and Ancillary Fees (\$)				Tuition and Ancillary Fees Revenue (\$000)				Other Revenue ³		Operating Grant Projections Based on Constant Share of Provincial Expenditures ⁴		Total Revenue	
	(\$000)	%	NS	Out-of-Province	INT	Total	Increase	NS	Out-of-Province	INT	NS	Out-of-Province	INT	Subtotal	Bursary	Tuition Revenue	(\$000)	%	(\$000)	%
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076	0.0%	\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860	\$285,489	\$103,478	11.59%	\$288,745	5.48%
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	-0.3%	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057	\$286,824	\$108,172	9.87%	\$317,245	5.09%
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	-0.4%	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933	\$285,933	\$116,044	9.79%	\$348,319	5.34%
2011-12	\$743,462	-0.9%	19,654	11,883	3,310	34,846	0.0%	\$6,478	\$7,464	\$15,470	4.0%	\$127,324	\$88,686	\$51,200	\$267,211	\$0	\$122,898	1.45%	\$353,353	-0.91%
2012-13	\$762,998	2.6%	19,654	11,883	3,310	34,846	0.0%	\$6,738	\$7,762	\$16,089	4.0%	\$132,417	\$92,233	\$53,248	\$277,899	\$0	\$130,158	0.45%	\$354,942	2.63%
2013-14	\$779,292	2.1%	19,654	11,883	3,310	34,846	0.0%	\$7,007	\$8,073	\$16,732	4.0%	\$137,714	\$95,923	\$55,378	\$289,015	\$0	\$137,846	-0.71%	\$352,432	2.14%
2014-15	\$800,253	2.7%	19,654	11,883	3,310	34,846	0.0%	\$7,287	\$8,395	\$17,402	4.0%	\$143,223	\$99,760	\$57,593	\$300,576	\$0	\$145,988	0.36%	\$353,690	2.69%
2015-16	\$824,187	3.0%	19,654	11,883	3,310	34,846	0.0%	\$7,579	\$8,731	\$18,098	4.0%	\$148,952	\$103,750	\$59,897	\$312,599	\$0	\$154,611	0.93%	\$356,978	2.99%
Total Change from 2010-11	\$73,891	9.8%	0	0	0	0	0.0%	\$1,350	\$1,555	\$3,223	21.7%	\$26,524	\$18,475	\$10,666	\$55,665		\$38,567	2.49%	\$73,891	9.85%

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and international locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals.

Source: Higher Education Branch, NS Department of Education

A second hypothetical case is one in which operating expenses are assumed to increase by 2.5 per cent per year, the grant is a constant share of total government spending, and enrolments are constant. In this instance, the balancing item is the pace of tuition fee increases. As displayed in Figure 3.24, tuition fees would jump 16 per cent in 2011–12 and average just over 4 per cent for the subsequent four years. The large increase in the first year is the result of the funding gap referred to above that occurs as the bursary program ends.

A final illustrative example is provided in Figure 3.25. If international enrolments increase modestly, universities gradually pare the rate of increase in operating costs (reaching 3 per cent by 2013–14), and tuition fees are allowed to rise by 3 per cent annually, the operating grant increase would be large in 2011–12 but drop to a 3 per cent average growth rate from 2012–13 on.

It must be reiterated that none of these projections is a forecast, a prediction, or a recommended policy path. Each is an illustration of the consequences of varying key assumptions about future enrolment patterns and government policy with respect to the universities' total operating grant and tuition fees, and the capacity/willingness of the university system to exercise cost restraint.

The general conclusion to draw from this exercise is that if neither the government nor the universities were willing to run deficits and the government were determined to extend fiscal restraint to the operating grant, both students and individual institutions would have to bear the burden of that restraint.

It is important to emphasize that in the preceding results, the \$29 million impact of discontinuing the bursary program shows up starkly in 2011–12 in all the tables. A decision by the government to fill part or all of that hole as a preliminary step in the next round of grants would have a material impact on the projections for 2011–12 and subsequent years.

FIGURE 3.2.4 Operating Grant Projections for System, Present to 2015-16: Tuition and Ancillary Fees Vary to Balance

Assumptions:

- a) Operating expenditure increases by 2.5% annually
- b) Enrolments fixed at 2010-11 levels
- c) Tuition and ancillary fees variable
- d) Other revenue increases according to existing trend (5.9% annually)
- e) Operating grant based on constant share of provincial expenditure
- f) No variance

Year	CAUBO Operating Expenses ¹		Enrolments ²					Tuition and Ancillary Fees (\$)				Tuition and Ancillary Fees Revenue (\$000)				Other Revenue ³	Operating Grant Projections Based on Constant Share of Provincial Expenditures ⁴		Total Revenue	
	(\$000)	%	NS	Out-of-Province	INT	Total Increase	NS	Out-of-Province	INT	Increase	NS	Out-of-Province	INT	Subtotal	Bursary		Total Tuition Revenue	(\$000)		%
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076	\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860	\$13,629	\$285,489	\$103,478	11.59%	\$677,713	5.48%
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057	\$20,767	\$286,824	\$108,172	9.87%	\$712,242	5.09%
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933	\$29,000	\$285,933	\$116,044	9.79%	\$750,296	5.34%
2011-12	\$769,054	2.5%	19,654	11,883	3,310	34,846	\$7,099	\$8,178	\$16,952	14.0%	\$139,519	\$97,180	\$56,104	\$292,802	\$0	\$292,802	\$122,898	1.45%	\$769,054	2.50%
2012-13	\$788,280	2.5%	19,654	11,883	3,310	34,846	\$7,351	\$8,468	\$17,552	3.5%	\$144,464	\$100,624	\$58,092	\$303,181	\$0	\$303,181	\$130,158	0.45%	\$788,280	2.50%
2013-14	\$807,987	2.5%	19,654	11,883	3,310	34,846	\$7,703	\$8,874	\$18,394	4.8%	\$151,387	\$105,446	\$60,876	\$317,710	\$0	\$317,710	\$137,846	-0.71%	\$807,987	2.50%
2014-15	\$828,187	2.5%	19,654	11,883	3,310	34,846	\$7,965	\$9,176	\$19,019	3.4%	\$156,533	\$109,031	\$62,946	\$328,509	\$0	\$328,509	\$145,988	0.36%	\$828,187	2.50%
2015-16	\$848,891	2.5%	19,654	11,883	3,310	34,846	\$8,178	\$9,421	\$19,528	2.7%	\$160,723	\$111,949	\$64,630	\$337,303	\$0	\$337,303	\$154,611	0.93%	\$848,891	2.50%
Total Change from 2010-11	\$98,595	13.1%	0	0	0	0	\$1,949	\$2,245	\$4,653	31.3%	\$38,296	\$26,674	\$15,400	\$80,369		\$51,369	\$38,567	2.49%	\$98,595	13.14%

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and international locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals.

Source: Higher Education Branch, NS Department of Education

FIGURE 3.25 Operating Grant Projections for System, Present to 2015-16: Operating Grant Varies to Balance

Assumptions:

- a) Operating expenditure increases by 5% in 2011-12, 4% in 2012-13, and 3% thereafter
- b) Enrolments fixed at 2010-11 levels for NS and Out-of-Province, increases 2.5% annually for International Students (INT)
- c) Tuition and ancillary fees increase 3% annually
- d) Other revenue increases by 4% annually
- e) Operating grant varies to balance
- f) Variance is zero

Year	CAUBO Operating Expenses ¹		Enrolments ²			Tuition and Ancillary Fees			Tuition and Ancillary Fees Revenue (\$000)			Other Revenue ³		Operating Grant Projections Based on System Expenditures ⁴		Total Revenue	
	(\$000)	%	NS	Out-of-Province	INT	Total Increase	NS	Out-of-Province	INT	Subtotal	Bursary	Tuition Revenue	(\$000)	%	(\$000)	%	(\$000)
2008-09	\$677,713	5.5%	19,861	11,905	3,310	35,076		\$6,751	\$7,437	\$14,875	0.0%	\$134,090	\$88,540	\$49,231	\$271,860	\$13,629	\$285,489
2009-10	\$712,242	5.1%	19,772	11,899	3,310	34,981	-0.3%	\$6,490	\$7,437	\$14,875	0.0%	\$128,328	\$88,498	\$49,231	\$266,057	\$20,767	\$286,824
2010-11	\$750,296	5.3%	19,654	11,883	3,310	34,846	-0.4%	\$6,229	\$7,176	\$14,875	0.0%	\$122,427	\$85,275	\$49,231	\$256,933	\$29,000	\$285,933
2011-12	\$787,811	5.0%	19,654	11,883	3,392	34,929	0.2%	\$6,416	\$7,392	\$15,321	3.0%	\$126,100	\$87,833	\$51,976	\$265,909	\$0	\$265,909
2012-13	\$819,324	4.0%	19,654	11,883	3,477	35,013	0.2%	\$6,609	\$7,614	\$15,781	3.0%	\$129,883	\$90,468	\$54,873	\$275,225	\$0	\$275,225
2013-14	\$843,903	3.0%	19,654	11,883	3,564	35,100	0.2%	\$6,807	\$7,842	\$16,254	3.0%	\$133,780	\$93,182	\$57,932	\$284,894	\$0	\$284,894
2014-15	\$869,220	3.0%	19,654	11,883	3,653	35,189	0.3%	\$7,011	\$8,077	\$16,742	3.0%	\$137,793	\$95,978	\$61,162	\$294,933	\$0	\$294,933
2015-16	\$895,297	3.0%	19,654	11,883	3,745	35,281	0.3%	\$7,221	\$8,320	\$17,244	3.0%	\$141,927	\$98,857	\$64,572	\$305,356	\$0	\$305,356
Total Change from 2010-11	\$145,001	19.3%	0	0	435	435	1.2%	\$992	\$1,143	\$2,369	15.9%	\$19,500	\$13,582	\$15,341	\$48,423	\$19,423	\$145,001

1. Figures from 2008-09 are actual. Figures for 2009-10 onward are estimates based on trend between 2004-05 and 2008-09.

2. FTE enrolments for 2008-09 are from the PSIS. Enrolments from 2009-10 onward are based on Statistics Canada enrolment projections, with all provinces gradually decreasing. Enrolments from the territories and international locations are fixed at 2008-09 amounts.

3. Other revenues for 2008-09, 2009-10 and 2010-11 = CAUBO Operating Expenses - Tuition Revenue - Operating Grant.

4. Operating grant values for 2008-09, 2009-10 & 2010-11 are actuals. Projections from 2011-12 onward = CAUBO Operating Expenses - Tuition Revenue - Other Revenue.

Source: Higher Education Branch, NS Department of Education

3.3 Operating Expenditures

3.3.1 Introduction

The purpose of this section is to assess the main drivers of the universities' operating expenditures in order to consider the institutions' capacity to effect change in these cost patterns.

In the financial projections in Section 3.2, it was noted that the recent pace of increase in operating expenditures in the Nova Scotia university system has averaged about 5 per cent annually. Several scenarios examined assume that this rate would continue for the next five years (the projections period). This section also examines situations in which the pace of increase might have to be lowered.

3.3.2 University Operating Cost Structures and Patterns

While some reference will be made to material differences in the cost structures of the individual institutions, the primary focus will be on the system's expenditure patterns. An extensive examination of each university's cost patterns would be well beyond the scope of work contemplated for the report. It would also require a much more detailed knowledge of each institution than could be reasonably developed in the time available.

In the MOU process that has been used to determine university funding levels in Nova Scotia, each institution provides a chart of accounts that estimates its costs in the major categories of its operations. As shown in Figure 2.2 (in Section 2.2), the estimated costs for the upcoming university year indicate that faculty salaries, staff and administration salaries, and benefits constitute just under 70 per cent of total operating expenditures, of which faculty salaries make up one-half or 36 per cent of the total. Of the balance of costs, the catch-all "other" category generates 10 per cent of expenditures, with student assistance the next largest specific category at 4.7 per cent.

In the period of the current MOU, the annual pace of increase in operating expenditures has been just over 5 per cent (5.3 per cent). This is comparable to the 4.8 per cent average rate of increase in operating costs over the previous nine years from 1990–2000 to 2007–08. That is the reason for using a 5 per cent growth ratio in Section 3.2. During that time, Nova Scotia universities' operating expenditures rose by just over 55 per cent (see Figure 3.26).

FIGURE 3.26 Universities' General Operating Expenditure by Province, (\$000) 1999-2008

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	% Change 1999-2000 to 2007-08
Newfoundland and Labrador	177,413	186,417	198,793	213,925	229,864	239,395	269,899	284,822	307,632	73%
Prince Edward Island	47,159	48,499	52,351	57,872	61,208	63,764	66,258	71,609	76,069	61%
Nova Scotia	411,932	434,364	452,658	489,016	533,782	561,940	594,692	618,568	644,388	56%
New Brunswick	219,096	232,291	247,436	271,912	279,305	296,741	312,562	322,723	337,698	54%
Quebec	1,937,680	2,052,985	2,236,134	2,473,558	2,627,122	2,787,860	2,941,886	3,104,795	3,218,145	66%
Ontario	3,324,317	3,456,300	3,590,265	4,007,547	4,336,248	4,752,533	5,257,274	5,866,385	6,308,081	90%
Manitoba	348,822	355,910	377,210	401,277	428,566	450,736	473,262	485,837	510,675	46%
Saskatchewan	296,341	315,397	357,784	389,433	401,410	421,133	464,777	481,022	510,264	72%
Alberta	837,921	934,461	973,523	1,072,822	1,102,210	1,182,895	1,282,796	1,443,880	1,566,057	87%
British Columbia	991,063	1,094,409	1,187,810	1,320,595	1,423,244	1,533,536	1,647,168	1,661,178	1,761,392	78%
Canada Total	8,591,744	9,111,033	9,673,964	10,697,957	11,422,959	12,290,533	13,310,574	14,340,819	15,240,401	77%

Source: Canadian Association of University Business Officers (CAUBO), Table 2.2A, from CAUBO Financial Statistics of Universities and Colleges, several years

Comparing university systems across the country, the province in which university operating costs grew fastest was Ontario (90 per cent increase over eight years), followed closely by Alberta (87 per cent). The smallest rate of increase was in Manitoba, where expenditures rose by less than 50 per cent in the 2000–2008 period. With an increase for all university systems in Canada of 77 per cent, Nova Scotia's 56 per cent was third lowest in the country, ahead only of New Brunswick and Manitoba.

The slower pace of increase reflects the fact that overall revenue growth—from government, students, and other sources—for universities in Nova Scotia was more modest in the past decade than in many other jurisdictions (see Section 3.2). With government grants increasing slowly early in the decade and growing more quickly in recent years, the pace of increase in tuition and other revenue was not sufficient to generate total revenue increases at the same rate as elsewhere in Canada. This was despite the sizeable jump in total enrolments from 2000 to 2004, and the maintenance of much higher enrolment levels than experienced in the 1990s.

The picture that emerges from this data is of a university system that has been relatively modestly funded over the last ten years. While the government's operating grant has risen rather sharply in recent years, to a considerable extent it has been designed as a catch-up for previous restraint in public sector support.

MAJOR CATEGORIES OF EXPENDITURES

There are several ways in which expenditures may be broken down for universities. The approach outlined in Figure 3.27 is one such method.

FIGURE 3.27 Major Cost Categories by Type and Province (\$000), 2007-08

Types of General Operating Expenditures	NL	PE	NS	NB	QC	ON	MB	SK	AB	BC	Total
Salaries and benefits											
1. Academic ranks	92,499	22,075	222,881	124,711	1,035,782	1,782,683	188,281	149,739	391,732	552,774	4,563,157
2. Other instruction and research	1,505	0	19,313	5,219	129,896	351,822	6,776	19,150	83,512	80,959	698,152
3. Other salaries and wages	90,689	22,974	162,308	85,459	908,060	1,652,082	137,306	163,132	458,200	490,472	4,170,682
4. Benefits	33,514	10,575	61,555	35,840	403,911	796,808	56,291	41,780	176,469	202,290	1,819,033
Salaries and Benefits Total	218,207	55,624	466,057	251,229	2,477,649	4,583,395	388,654	373,801	1,109,913	1,326,495	11,251,024
Salaries and Benefits as Percent of Total	70.9%	73.1%	72.3%	74.4%	77.0%	72.7%	76.1%	73.3%	70.9%	75.3%	73.8%
Other expenditures											
5. Travel	7,352	1,306	11,289	6,915	55,894	113,030	11,187	11,180	32,735	35,278	286,166
6. Library acquisitions	5,043	956	10,603	6,591	50,411	129,061	10,376	11,683	30,125	31,389	286,238
7. Printing and duplicating	1,904	293	3,697	1,413	17,932	43,521	3,304	1,902	6,462	9,832	90,260
8. Materials and supplies	14,062	3,439	15,622	9,415	64,879	191,970	17,514	9,208	40,939	36,974	404,022
9. Communications	1,468	185	5,792	4,078	12,911	39,586	4,299	2,684	9,761	12,250	93,014
10. Other operational expenditures	7,431	3,771	30,397	7,639	150,332	229,718	17,605	23,707	38,337	85,927	594,864
11. Utilities	17,602	3,626	28,043	16,352	79,208	194,162	18,416	16,684	61,479	25,006	460,578
12. Renovations and alterations	6,780	781	2,707	4,494	7,302	69,879	887	1,530	8,046	7,647	110,053
13. Scholarships, bursaries and prizes	7,578	3,313	29,573	5,227	39,239	390,856	4,718	17,957	45,420	71,658	615,539
14. Externally contracted services	9,405	143	19,397	6,791	91,037	88,527	12,675	13,971	40,394	24,527	306,867
15. Professional fees	5,168	1,276	5,086	5,200	81,354	79,858	3,401	5,180	39,415	39,367	265,305
16. Cost of goods sold	1	0	504	101	5,567	0	121	3,430	9,306	11,070	30,100
17. Interest	285	25	5,793	605	38,188	59,125	0	1,047	4,409	1,702	111,179
18. Furniture and equipment purchase	3,717	1,529	13,669	8,506	54,244	141,788	12,019	9,576	56,765	35,527	337,340
19. Equipment rental and maintenance	1,629	848	6,731	2,825	42,813	70,900	5,971	4,858	16,994	17,363	170,932
20. Internal sales and cost recoveries	0	-1,046	-14,398	-1,521	-68,847	-150,227	-472	1,144	-17,118	-17,720	-270,205
22. Buildings, land and land improvements	0	0	4,079	1,451	357	25,639	0	66	32,565	7,100	71,257
23. Lump sum payments	0	0	-253	387	17,675	7,293	0	656	110	0	25,868
Total All Expenditures	307,632	76,069	644,388	337,698	3,218,145	6,308,081	510,675	510,264	1,566,057	1,761,392	15,240,401

Source: Data are from 2007-08 CAUBO report, Table 2.2a. Line 21 in the CAUBO report is a subtotal, and has been omitted as it adds no real information in the context of this table.

The data provided in the table indicate the major cost categories for the province's universities. The division is between salaries and benefits on the one hand and a range of purchases and other expenditures on the other. In 2007–08, total salary and benefits constituted just over 72 per cent of all operating expenditures. This is in line with the share of compensation in operating costs in university systems across the country. The national average

is almost 74 per cent, with proportions ranging from 71 per cent in Newfoundland and Labrador to 77 per cent in Quebec. Full-time faculty account for 41 per cent of total salaries and benefits at the national level, and 48 per cent in Nova Scotia.

Of note in the other categories of expenditures, Nova Scotia's financial assistance to students makes up over 4.5 per cent of total university spending, which is slightly higher than the national average of 4 per cent.

A somewhat different breakdown of the operating expenditure data is offered in Figure 3.28.

In this case, compensation is not separated out but included in the several categories of functional activities. These include: administration and general; instruction and non-sponsored research; library; physical plant; student services; and computing and communications. Over the period from 1999–2000 to 2007–08, the increases in the Nova Scotia university system in each major category were: administration and general, 50 per cent; instruction and non-sponsored research, 48 per cent; non-credit instruction, 45 per cent; physical plant, 57 per cent; computing and communications, 40 per cent; student services, 134 per cent; and library, 36 per cent. To ensure that it is clear what is being measured, some elaboration of each category is warranted.

The administration and general category includes both academic support services, which directly underpin instruction, and non-sponsored research and other support, which includes all support services not related directly to instruction and research. Under this rubric would fall central administration, finance, human resources, etc. Instruction and non-sponsored research, along with non-credit instruction, would primarily include total compensation for faculty and other instructors, and associated costs (other than staff support) would be incorporated. Student services comprises supports for students (other than direct teaching, research, and related administrative services), such as counselling, career guidance, student health and transportation, and athletic and artistic programs. It also includes two financial services: student financial aid administration; and financial assistance, such as bursaries and scholarships. The three broad categories of administration, instruction, and student services constituted 77 per cent of total operating expenditures for Nova Scotia universities in 2007–08.

This particular data was used in a recent article in *Maclean's* magazine to focus on the apparent shift in spending priorities from instruction to administration in the largest 25 Canadian universities over the last 20 years. (Smith, 2010). The critical point made in the article was that the share of expenditures going to instruction had fallen from 65 per cent to 58 per cent between 1998 and 2008, while the proportion spent on central administration had risen from 12 per cent to 20 per cent over the same period. The conclusion drawn was that an increase in expensive administrators and their activities were squeezing out money from the main task of the universities, namely teaching. However, simply examining the proportional change in expenditures is of little value without a relatively detailed examination of what factors might be driving the adjustment. Without joining that debate, it is interesting to examine what the actual patterns are in the total university system in Canada, and in Nova Scotia specifically.

FIGURE 3.28 Universities' Expenditure Categories (Total and % of Total Expenditure), 2007-08

Universities	Administration and General		Computing and Communications		Instruction and Non-sponsored Research		Library		Non-credit Instruction		Physical Plant		Student Services		Total Functions	
	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%
Newfoundland and Labrador	43,004	14.0	13,226	4.3	144,946	47.1	18,412	6.0	14,094	4.6	49,583	16.1	18,532	6.0	307,632	100.0
Prince Edward Island	6,684	8.8	1,727	2.3	46,962	61.7	3,031	4.0	1,736	2.3	9,062	11.9	6,078	8.0	76,069	100.0
Nova Scotia	67,842	10.5	26,190	4.1	354,951	55.1	28,394	4.4	17,716	2.7	76,741	11.9	58,675	9.1	644,388	100.0
New Brunswick	35,281	10.4	15,522	4.6	186,549	55.2	20,116	6.0	7,286	2.2	46,588	13.8	20,767	6.1	337,698	100.0
Quebec	427,206	13.3	129,690	4.0	1,929,297	60.0	148,690	4.6	53,937	1.7	327,350	10.2	142,674	4.4	3,218,145	100.0
Ontario	629,704	10.0	183,929	2.9	3,597,728	57.0	295,667	4.7	151,830	2.4	643,148	10.2	681,878	10.8	6,308,081	100.0
Manitoba	41,458	8.1	20,611	4.0	300,932	58.9	30,256	5.9	23,031	4.5	51,616	10.1	34,116	6.7	510,675	100.0
Saskatchewan	55,208	10.8	23,179	4.5	285,156	55.9	28,403	5.6	21,496	4.2	54,859	10.8	34,179	6.7	510,264	100.0
Alberta	158,460	10.1	85,171	5.4	829,061	52.9	79,301	5.1	31,005	2.0	212,113	13.5	135,555	8.7	1,566,057	100.0
British Columbia	192,187	10.9	68,818	3.9	1,018,941	57.8	71,852	4.1	72,809	4.1	151,670	8.6	151,921	8.6	1,761,392	100.0
Canada Total	1,657,034	10.9	568,063	3.7	8,694,523	57.0	724,122	4.8	394,940	2.6	1,622,730	10.6	1,284,375	8.4	15,240,401	100.0

Source: CAUBO Table 2.4A from CAUBO Financial Statistics of Universities and Colleges, 2007-08

In 1999–2000, administration constituted just under 12 per cent of total university expenditures in Canada, while instruction utilized almost 59 per cent of university financial resources nationally (see Figure 3.29).

By 2007–08, the share utilized for administration had actually declined to just under 11 per cent while instruction also fell to 57 per cent. The one category in which expenditures did rise over the period was student services (by 2 percentage points).

For Nova Scotia, the patterns are similar to those at the national level. Expenditure on central administration declined slightly as a share of the total, from 11 per cent in 1999–2000 to 10.5 per cent in 2007–08, while those for instruction also fell from just under 59 per cent to 55 per cent over the same period. In contrast, student services utilized 6 per cent of resources a decade ago, but over 9 per cent currently.

In general, the changing shares of expenditures in whichever direction they are moving are not terribly relevant in the absence of greater detail about the elements in the broad categories and much more insight into the causes of the adjustments in shares. If, for example, universities were utilizing more of their resources to provide better human resource management services in their operations or to raise more funds from outside sources, these would be arguably good reasons for any increase in the central administration share of total spending. Conversely, a decrease in the share of resources being used for instruction is not necessarily evidence that the faculty and students are somehow being short-changed in the allocation of finances.

In any event, the size of the adjustments is not dramatic at a national or provincial level, and the topic does not warrant a significant degree of further attention in this report.

FIGURE 3.29 Universities' Expenditure Categories (Total and % of Total Expenditure), 1999-2000

Universities	Administration and General		Computing and Communications		Instruction and Non-sponsored Research		Library		Non-credit Instruction		Physical Plant		Student Services		Total Functions	
	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%	\$000	%
Newfoundland and Labrador	15,707	8.9	7,903	4.5	118,801	67.0	11,023	6.2	1,641	0.9	14,127	8.0	8,211	4.6	177,413	100.0
Prince Edward Island	3,866	8.2	1,025	2.2	31,769	67.4	2,246	4.8	0	0.0	6,145	13.0	2,108	4.5	47,159	100.0
Nova Scotia	44,922	10.9	18,688	4.5	241,879	58.7	20,873	5.1	12,240	3.0	48,789	11.8	24,541	6.0	411,932	100.0
New Brunswick	26,911	12.3	10,112	4.6	124,984	57.0	14,734	6.7	3,881	1.8	27,040	12.3	11,434	5.2	219,096	100.0
Quebec	237,005	12.2	75,329	3.9	1,205,327	62.2	99,939	5.2	33,181	1.7	217,692	11.2	69,207	3.6	1,937,680	100.0
Ontario	366,857	11.0	111,348	3.3	1,902,049	57.2	213,626	6.4	83,655	2.5	336,087	10.1	310,695	9.3	3,324,317	100.0
Manitoba	28,494	8.2	16,187	4.6	190,475	54.6	20,966	6.0	16,961	4.9	59,501	17.1	16,238	4.7	348,822	100.0
Saskatchewan	31,634	10.7	9,627	3.2	176,157	59.4	18,546	6.3	8,498	2.9	42,439	14.3	9,440	3.2	296,341	100.0
Alberta	110,172	13.1	43,168	5.2	453,312	54.1	50,349	6.0	26,364	3.1	112,710	13.5	41,846	5.0	837,921	100.0
British Columbia	142,713	14.4	27,731	2.8	577,859	58.3	59,827	6.0	50,975	5.1	72,669	7.3	59,289	6.0	991,063	100.0
Canada Total	1,008,281	11.7	321,118	3.7	5,022,612	58.5	512,129	6.0	237,396	2.8	937,199	10.9	553,009	6.4	8,591,744	100.0

Source: CAUBO Table 2.4A from CAUBO Financial Statistics of Universities and Colleges, 1999-2000

3.3.3 Compensation – Salaries and Benefits

The data from the Canadian Association of University Business Officers (CAUBO) on general operating expenditures provides a breakdown of salaries and benefits into four categories: academic ranks; other instruction and research; other salaries and wages; and benefits. The numbers for these categories for Nova Scotia universities over the period 1999–2000 to 2007–08 are displayed in Figure 3.30.

FIGURE 3.30 Nova Scotia Universities' Salaries and Benefits, 1999-2000 to 2008-09

Year	Academic Ranks ¹		Other Instruction and Research ²		Other Salaries and Wages ³		Benefits ⁴		Total	
	Unadjusted Dollars	Change Yr/Yr	Unadjusted Dollars	Change Yr/Yr	Unadjusted Dollars	Change Yr/Yr	Unadjusted Dollars	Change Yr/Yr	Unadjusted Dollars	Change Yr/Yr
1999-00	\$152,680	1.4%	\$12,583	60.0%	\$105,575	3.1%	\$35,077	3.8%	\$305,916	3.8%
2000-01	\$159,728	4.6%	\$12,732	1.2%	\$110,329	4.5%	\$37,616	7.2%	\$320,405	4.7%
2001-02	\$164,388	2.9%	\$13,379	5.1%	\$115,151	4.4%	\$39,918	6.1%	\$332,836	3.9%
2002-03	\$175,489	6.8%	\$14,661	9.6%	\$121,260	5.3%	\$47,960	20.1%	\$359,370	8.0%
2003-04	\$188,638	7.5%	\$15,054	2.7%	\$130,588	7.7%	\$53,715	12.0%	\$387,995	8.0%
2004-05	\$199,510	5.8%	\$14,880	-1.2%	\$141,006	8.0%	\$56,504	5.2%	\$411,900	6.2%
2005-06	\$210,320	5.4%	\$16,866	13.3%	\$147,191	4.4%	\$58,866	4.2%	\$433,243	5.2%
2006-07	\$217,146	3.2%	\$18,220	8.0%	\$154,210	4.8%	\$61,616	4.7%	\$451,192	4.1%
2007-08	\$222,881	2.6%	\$19,313	6.0%	\$162,308	5.3%	\$61,555	-0.1%	\$466,057	3.3%
2008-09	\$231,858	4.0%	\$20,867	8.0%	\$168,650	3.9%	\$66,383	7.8%	\$487,758	4.7%
Cumulative Change 1999-00 to 2008-09		51.9%		65.8%		59.7%		89.2%		59.4%

1. Includes payments to both full- and part-time staff members who hold an academic rank at the reporting institution and are engaged in instruction and research activities. The academic ranks include deans, professors, associate professors, assistant professors, and lecturers. Academic salaries also include payments to staff members in the academic ranks for various types of leave, such as administrative, academic, or sabbatical.

2. Includes payments to both full- and part-time staff and non-staff members without academic rank at the reporting institution, but who are engaged in instruction and research activities. The staff and non-staff members include instructors, tutors, markers, laboratory demonstrators, teaching assistants, research assistants, invigilators, clinical assistants, postdoctoral fellows, and others. Other instruction and research salaries also include payments made to graduate and undergraduate students undertaking instruction and research activities.

3. Includes salaries and wages not reported on lines 1 and 2. Specifically, Other Salaries and Wages includes payments to all full- and part-time non-instructional (support) staff including, among others, technicians, teaching and research laboratory technicians, clerical and secretarial, professional and managerial, janitorial, trades, and maintenance. Other Salaries and Wages also includes payments to individuals who may hold an academic rank or equivalent, but are engaged in activities other than instruction and research. Examples include the president, vice presidents, certain professional librarians, and computing center personnel.

4. Benefits arising as a result of early retirement are reported on a cash basis. Otherwise, the amounts reported as Benefits in the annual return are calculated following the same practices as those used by the institution for its audited financial statements. Benefits include the cost of an institution's contributions (with respect to salaries) for pensions (including payments for actuarial deficiencies and past service liability), group life insurance, salary continuance insurance, dental plans, workers' compensation, health taxes, tuition remission, employment insurance, and other costs of an employee benefit programs. Benefits also include the cost of benefits paid during early retirement periods, as well as the cost of post-retirement benefits. Whenever an institution pays a premium or sets aside a negotiated amount for an employee, these amounts should be included as Benefits.

Source: Canadian Association of University Business Officers (CAUBO), Table 2.2A, from CAUBO Financial Statistics of Universities and Colleges.

The “other instruction and research” category comprises teaching and research assistance and instructors without academic rank (often part-time instructors). Other salaries and wages go to anyone working at an institution not engaged in teaching or research.

The fastest growing category of compensation over that period has been in benefits (75 per cent), while the slowest cumulative growth was in faculty salaries (46 per cent). The income for non-ranked instructors and for all staff and administrators each grew by about 54 per cent. There is some data to separate out the split in the increases between changes in total compensation and the rate of increase per person in compensation. The rate of increase in salaries for full-time faculty averaged 3.3 per cent from 2000 to 2008. Among university faculty across Canada, Nova Scotia's ranked eighth in the rate of salary increases. This suggests that the pace of increase for that component of compensation has been comparatively modest.

3.3.4 Operating Cost Challenges

There are three specific operating cost issues related to faculty and staff that will influence the capacity of universities to deal with future revenue challenges. They comprise mandatory retirement, pension solvency, and elements of inflexibility in faculty complement levels.

In 2009, the Province of Nova Scotia enacted legislation eliminating mandatory retirement for all contract employees in the province. Similar legislation has been enacted across Canada. The impact on the university system will be significant as institutions had traditionally effected fiscal savings in salaries and benefits through the replacement of older, retiring faculty members with younger faculty members whose level of appointment and entering salaries were significantly lower than those leaving. With the elimination of mandatory retirement at age 65, it is reasonable to assume that many, if not all, of those faculty members who turn 65 in the next several years will choose to remain at their respective institutions. This will push up the operating costs above what would have been expected with former retirement provisions in the contracts.

The Council of Nova Scotia University Presidents (CONSUP) commissioned a study of the financial impact of the elimination of mandatory retirement. (Eckler, 2010). The results of the study indicate that in 2009–10 and 2010–11, the additional costs to the universities will be \$1.3 million and \$2.6 million respectively. Based on assumptions about the number of faculty who will stay past age 65 (and for how long) the system costs are projected to rise to \$6.6 million by 2013–14.

The current MOU with the universities commits the government to “provide additional funding if it is shown that a material impact [from eliminating mandatory retirement] has occurred.” The anticipated \$2.6 million cost in 2010–11 rising to \$6.6 million over the subsequent four years, if accurate, would constitute a material impact on university finances. To date, no decision has been reached about whether the additional funding will be provided.

Regarding the issue of pension solvency, CONSUP recently informed the government that the universities with defined benefit pension plans (Dalhousie, King’s, Université Sainte-Anne, and Acadia) will face dramatic cost increases in the coming years as a result of the financial impact of the current recession. CONSUP has requested that, in accordance with a provision of the current MOU, these universities be exempted from the solvency test provisions of the province’s current and proposed pension regulations for a period of at least five years so that they can restructure their pension plans.

Pension regulations had required universities to fully fund solvency deficiencies within five years. In 2009, the Nova Scotia government changed its regulations to extend solvency periods from five to ten years for solvency deficiencies identified between December 30, 2008 and January 2, 2011. The ten-year amortization regulation will present very significant financial pressure on these four universities. For example, Dalhousie currently contributes \$19.5 million annually to its pension plan. The application of the ten-year solvency rule would require Dalhousie to increase its annual contribution by \$14 million. By extending the period to fifteen years, the annual contribution increase would be reduced to \$5 million.

Universities in New Brunswick, Quebec, Manitoba and Alberta have a full exemption from pension solvency regulations. This is a policy worth considering in Nova Scotia.

While conventional labour legislation protects most employees from unwarranted dismissal (i.e., dismissal without cause), university tenure provisions generally make even dismissal with cause difficult to effect. Reducing faculty because of financial problems is a laborious and difficult process even where provision for such layoffs is made in the faculty contracts. (Several university presidents indicated that it can take up to two years to complete the

process.) All of the universities in Nova Scotia except Cape Breton University (CBU) have financial exigency clauses in their collective agreements. There is a three-step process to lay off faculty under the financial exigency clause, briefly described below:

1. The board of governors makes a formal statement of financial exigency, but only after an arbitration panel (including faculty and administration representatives) has reviewed the evidence that gave rise to the concern.
2. A bilateral committee evaluates the alternatives of which faculty layoffs are an option.
3. If the bilateral committee approves layoffs as the only real option, then another bilateral committee looks at how the layoffs are to be implemented.

This is not a criticism of academic freedom and tenure, which are the foundation for these types of exigency clauses. It is a statement about the degree of inflexibility that exists in most university faculty contracts for dealing with redundancies. In the face of impending financial strain from declining enrolment and fiscal restraint by government, this inflexibility will present significant challenges to the universities' capacity to respond to the strain. This will be even more the case in those contracts that mandate total faculty complements along with the more conventional compensation provisions.

3.4 Implications of the Outlook for Individual Institutions

The examination of the financial situation that the universities in Nova Scotia will face over the next five years indicates a system that will be under stress. The government is almost certainly going to apply restraint to the funding it provides the sector. The age cohort upon which the system depends most heavily for its undergraduate enrolments is declining already in Nova Scotia and in most of the rest of Canada. Even with a steady, albeit modest, increase in participation rates, university enrolments from this group are projected to decline in the province over the next five years. The potential to offset the decline by increasing international student numbers is limited, especially given the more intense competition everywhere to attract these students. The prospect of increasing enrolments from among groups that have had low participation rates historically looks equally dismal. Finally, the challenges of reducing expenditures in the universities or even the rate of increase have been noted. In particular, the inflexibility in faculty complement is an important component of that challenge.

No attempt has been made to disaggregate the projections to examine the situation for individual institutions. The challenges and uncertainties of setting out scenarios for the overall system are daunting enough. To incorporate into this analysis the added complications of such factors as varying tuition fee levels among the universities and significant differences in the makeup of the student populations would have made the exercise dubious in the extreme. Perhaps the most critical reason for not producing institution-specific scenarios is that individual universities can do what the system cannot do. They can make strategic decisions about revenue generation that could radically alter their outlook. What may be a zero-sum game for the institutions collectively is not for individual entities.

It is however possible to make some general observations about the likely impact on individual institutions. In particular, it is relevant to look at how the key drivers could put some universities at greater financial risk in a structural or long-term sense. Specifically, if enrolment declines occur for the sector as a whole, there will be significant individual differences in the enrolment changes. Some universities may actually be successful in raising the number of students recruited. As well, differential enrolment patterns will have a double impact on

the universities. Not only will a decline in numbers adversely affect tuition revenue but, if the current funding allocation formula continues to be used, the government operating grant will be negatively influenced as well.

The impact of differential enrolment patterns on government funding is independent of forthcoming decisions on the total grant for the system. A more modest pace of increase or an outright reduction in the pool of funds available to universities will hit particularly hard those institutions that are already “lean”—i.e., those that have been exercising their own fiscal restraint in recent years—irrespective of what is happening to their enrolments. However, without a detailed examination of the financial situation of each university, it is not possible to assess which ones are at greater risk from restraint-induced belt tightening.

Among the larger institutions, two universities appear to be most at risk to experience enrolment declines, namely MSVU and CBU.

MSVU is more at risk in part because its primary mission of educating and empowering women no longer provides it with a comparative advantage in attracting students. There is limited capacity to increase enrolments from non-traditional sources such as visible minorities and low-income individuals. The Mount has relied primarily on students from Nova Scotia and has not attracted or recruited out-of-province students to the extent that counterparts like Acadia and St.FX have. It relies on part-time enrolment, and the potential to materially increase part-time enrolment is likely to be quite small.

CBU is at relatively high risk of a decline in student enrolments, mainly because of its heavy reliance on students from industrial Cape Breton where the prime age cohort is projected to decline faster than in most other areas of the province. The university has attracted international students, but has not recruited significantly from other parts of Canada. As the newest four-year undergraduate institution in the province, it does not have the well-established reputation or brand identity that many of its counterparts have developed over many years of existence. This would make it difficult for CBU to mount a successful student recruitment campaign in Ontario, where the prime age cohort will continue to increase in the next five years.

Among the smaller specialized institutions, AST already has a very small student population, and the pattern for numbers of individuals undertaking ministerial training among the mainline Christian denominations is trending in the wrong direction. Université Sainte-Anne also has a small enrolment that has been falling in recent years and is at risk of continuing to decline, at least at the Church Point campus. It has a limited and declining college population as well.

The fact that these institutions appear to be at greater risk of enrolment declines than their counterparts does not obviate the possibility of their engaging in strategies to offset the risk. For that reason, it must be emphasized that the foregoing comments are not predictions about future enrolment patterns, but statements about relative risks faced by individual universities.

SECTION 4:

Policy Options to Consider

4.1 Tuition Fees and Student Financial Assistance

4.1.1 Introduction

Given that tuition fees are the most visible (if not the most significant) costs to students of university attendance, most of the discussion of tuition fee policy revolves around the impact fees have on accessibility and affordability. Understandably, students are interested in maintaining fees at as low a level as possible. In some European countries, in fact, public policy dictates that students pay no tuition fees at all.

However, there are two other groups with an evident interest in the tuition fee levels set or allowed by policy. Universities rely on both government grants and tuition fees as the major sources of revenue to cover operating costs. If, as discussed in the projections section, the transfers to universities from the public purse are likely to be moderated (slower pace of increase or actual reduction), tuition income is the only significant revenue source over which universities could exercise any control. They therefore have a financial interest in being able to raise fees.

Finally, taxpayers also have an interest in how much is contributed by them in the operating grants made to the university system. For a given level of system cost, the less revenue coming from student fees, the more that has to be provided by them. As citizens and taxpayers, they also have a stake in the social benefits generated by having a better-educated population. Hence, their interest is not necessarily in minimizing the size of the financial transfer to the university system but in ensuring that they are providing an appropriate level of subsidy to the operation of the university system.

Put this way, it is clear that recommendations for tuition policy have to consider not only the impact of changes on students, but also their implications for university operations and for taxpayers.

4.1.2 Accessibility, Affordability, and Costs/Benefits of University Education

The public discussions about the acceptable or appropriate level of tuition fees is often couched in terms of the impact of tuition levels on the accessibility to post-secondary education, particularly of low-income individuals, and on affordability to students more generally. The latter issue tends to be framed with reference to the levels of debt with which students are saddled when they graduate with a degree or diploma. What is typically missing from the discussion is any mention of the benefits of a post-secondary degree to the individuals enrolled in a university or college. In this section, accessibility and affordability issues are considered, but the context is broadened to incorporate analysis of the returns on a university education relative to the investment in it. The returns are to both individuals and society, and the costs are shared between them.

Accessibility may be defined as the extent to which students who are academically eligible choose to participate in or to enrol in university education. There are a number of barriers to accessibility, including financial costs, family background, and academic success in primary and secondary education. Data indicate that there is a relatively

low participation rate of low income, aboriginal, and African Canadians, as well as of people with disabilities, from among the prime age group (i.e., 17–29 year-olds) from which universities typically draw for their enrolment.

Empirical work casts doubt on the widespread perception that financial costs (principally tuition costs) and forgone income specific to post-secondary education, are the most significant barriers to participation. Work done by Frenette (2007) and by Berger and Motte (2007) indicate that parental education, reading scores, and a student's grade point average (GPA) account for, respectively, 30 per cent, 20 per cent, and 14 per cent of the gap in participation rates between youth in the first and fourth income quintiles. On the other hand, financial barriers account for only about 12 per cent of this participation rate gap. This is not insignificant, but is far from being the primary reason why we see the lower participation rates in university education and university enrolment of students from the under-represented groups.

Affordability refers to the costs of university attendance relative to the resources available to cover these costs. The focus on tuition fees as the most critical expense of university education overlooks two key points. The income forgone by students attending full-time university is actually by far the largest cost of a university education, even though it is not an actual out-of-pocket expense. Other expenses that are faced by students, whether in full- or part-time attendance—notably food and shelter—would have to be incurred whether or not the individual was working. These costs are a burden (i.e., they add to the resources requirements and ultimately to the debt incurred by students) precisely because those individuals are not earning income on a full-time basis. Second, the focus on the *costs* of university attendance tends to ignore the *benefits* of post-secondary education in the form of more stable employment and higher lifetime income enjoyed by university graduates compared to high school graduates.

Notwithstanding this, tuition fees are still a significant cost of university attendance, which raises the question of the appropriate level at which tuition fees ought to be set. The answer hinges on several considerations. First is the impact of tuition fee levels and changes in levels on the participation in university education, especially that of under-represented groups. The research cited above suggests that financial barriers are not as significant an impediment as other factors to the participation rates of under-represented groups. It therefore follows that the level of tuition fees, which are only a part of the financial burden borne by university attendees, is not likely, by itself, to be a major barrier to the degree of participation of low-income individuals, aboriginals, African Canadians, or people with disabilities.

That is not to deny the significant effect of tuition fee levels and other costs of university education on some individuals, especially those from the under-represented groups. It is, however, possible to infer from the empirical work that a broad reduction in tuition fee levels will be far less effective at increasing accessibility than other mechanisms directed specifically at financially disadvantaged individuals. As discussed at greater length below, the focus of public policy should not be on broadly constraining or reducing tuition fee levels, but rather on targeted financial assistance for those individuals who are most in need and for whom costs are a significant barrier to attendance.

The second factor to consider in the discussion of tuition policy is the effect that tuition fee levels and changes have on the level of student debt. It is true that an increase in tuition levels, particularly a substantial one, will have an impact on the level of resources required to participate in a university education, and will therefore increase the level of debt that some students incur. However, the larger influence on student debt levels comes from the other costs of attending university: food, shelter, clothing, personal expenses, etc. In the overall level of resources for students in full-time attendance at university, these costs constitute 56 per cent of the total cost annually of going to university.

Yet another consideration is the impact of various forms of student assistance on the *net* costs of university attendance. This includes not only the normal components of student assistance, such as loans, grants and bursaries, but also items like educational tax credits and scholarships, which help reduce the overall financial burden of university attendance and, hence, have to be netted out from the overall costs. In addition, some students are able to access resources from their family members as well as from summer employment. The fact that students from upper-middle income and higher-income groups are over-represented in university relative to their share of the population suggests that there is a relatively high percentage of individuals attending university who are able to access sufficient resources to attend without requiring the implicit subsidy involved in maintaining low tuition levels.

As already suggested, the benefits or the gains to individuals who graduate with a university degree have to be compared to the costs that they have incurred for the purpose of achieving that degree. For individuals who make an investment of both direct financial resources and foregone income, it is relevant to look at the relative value of a university education. One aspect of that value is that unemployment rates are substantially lower for both men and women who have a university degree compared to those with high school certificates and those with less than a high school education. A recent study by the Canada Millennium Scholarship Foundation reported that, in 2006, the unemployment rate for individuals with a university certificate or diploma at the bachelor's level was 4.5 per cent; the unemployment rate for individuals with a high school certificate or equivalent was almost 7.5 per cent; for students with no high school certificate it was 11 per cent. (Berger, Motte, & Parkin, 2009, p. 9). The differences are even more dramatic for aboriginal students. For those with a university degree, the unemployment rate was just under 6.5 per cent, while for those with only a high school certificate or equivalent, the unemployment rate was double that at 12.8 per cent. Those without a high school certificate had an unemployment rate of 22.5 per cent. Such high returns on investment in post-secondary education have to be factored in to a discussion of what is the appropriate level of tuition fees that ought to be established for a university system.

The most significant component of the economic/financial value of post-secondary education is the varying levels of income that differences in educational attainment generate. The evidence is clear that a significant premium is earned by those who hold an undergraduate degree. In the Canada Millennium Scholarship Foundation study cited earlier, calculations based on the Statistics Canada 2006 census show that, on average across Canada, a bachelor's degree holder will earn, over the course of a working lifetime (about 40 years), three-quarters of a million dollars more than an individual with a high school diploma. (Berger, Motte, & Parkin, 2009, p. 9). The study noted that this likely underestimates the real earning differentials between workers with higher and lower levels of education, because the data compare only those employed on a full-time basis. However, unemployment rates tend on average to be substantially higher for those who have a high school diploma or less compared to those with a university degree. Focusing on the provincial data, the differential between an individual in Nova Scotia with a bachelor's degree and an individual with a high school diploma (over the 40-year working lifetime) is slightly higher than the Canada average: \$765,000 in Nova Scotia compared to \$745,000 nationally.

There has also been empirical work to estimate the rates of return to individuals of university degrees. (Mousally-Sergieh & Vaillancourt, 2009). For men with undergraduate degrees, the average rate of return—the rate of return on a dollar invested—is about 11.5 per cent and for women it is about 14 per cent. For students who complete a medical degree, the rate of return for men and women is about 21 per cent. The rates of return vary across program areas. For example, the rate of return on an education degree for men is about 9 per cent and for women is about 14 per cent; for commerce, the comparable rates are 9 per cent for men and 19 per cent for women; and for health science, 18 per cent for both men and women.

The key point is that the rates of return on university education are substantially higher than individuals could possibly expect to earn from some alternative investment of the dollars they spend earning an undergraduate degree. This, in effect, is the counterpart to the lifetime earning premium that is generated by achieving an undergraduate university degree as compared to completing high school. Finally, in the year for which these results were estimated (2000), the rates of return had fallen from the ten-year earlier returns due primarily to rising tuition costs in Canada and to the increase in personal income taxes through the 1990s. The latter has an effect on the after-tax income of individuals, which was the basis for doing the rate-of-return calculations or estimations. Given the moderation in both tuition level inflation and income tax rates over the past decade, the rates of return are now likely higher than those reported above.

There are also attempts to calculate or estimate the return to society that occurs as a result of individuals achieving higher levels of education. The most obvious financial impact on society is that those individuals have higher incomes and will end up paying more in total taxes, which will help to fund public services for all and to redistribute income to lower-income individuals. Second, because those with higher levels of education tend to have lower levels of unemployment, they will also tend to draw less on social services, such as employment insurance and other social transfer payments.

To summarize to this point, in examining the costs to students of attaining a university degree, it is equally important to look at the benefits that accrue to the degree holders. This involves examining the present value of the additional stream of lifetime earnings and contrasting that with the current costs of university attendance. The data on rates of return, which show significantly positive rates, suggest that the present value of those higher lifetime earnings is considerably above the actual costs of attendance. The high rates of return to university education have to be factored into a discussion of the appropriate tuition level.

An issue related to this is the equity considerations that are associated with having society underwrite a significant portion of the costs of the post-secondary system. If, as appears to be the case, a relatively high percentage of university students come from relatively more affluent families, it raises the question of whether it is fair for middle-class and lower-middle-class taxpayers to effectively subsidize the university education of students from wealthier families. Second, if accessibility for under-represented groups is really the important issue that it is typically claimed to be, it suggests that the subsidy provided by middle-class taxpayers ought to be much more targeted to those with more significant financial disadvantages. The way in which that targeting could be done is to have all students directly pay a relatively higher share of the total costs of university operations through higher tuition fees and then reduce significantly the costs for those who come from lower-income groups by using student assistance programs more effectively.

In short, it appears from the empirical data that tuition fees and enrolment rates are not strongly (inversely) correlated. Financial costs (including costs other than tuition) are fourth on the list of barriers that influence the gap in participation rates between low-income individuals and high-income individuals. It's worth noting that, in the period when tuition levels in both Nova Scotia and other provinces were rising significantly from the mid-1990s onward, participation rates were also steadily increasing. This further indicates that, over the last 15–20 years, the sharp increases in tuition fees in Canada do not appear to have had much of an impact on enrolment or participation rates.

Student debt levels are affected by much more than tuition fee levels or changes in those levels. Other factors include living expenses (food, shelter, clothing, and so on), income from employment (either in the summer or part time in the school year), and students' willingness to incur debt.

While the general profile of the student population, enrolment levels, and participation rates appear to be relatively insensitive to changes in the tuition fee levels, it is nonetheless true that there are a number of students for whom financial barriers are comparatively more significant. If there is going to be partial or complete deregulation of tuition fee levels, there needs also to be a careful examination of, and changes in, the student financial assistance programs to ensure that they more effectively target the needs of those for whom financial barriers are a significant impediment to attendance at university.

The data on student assistance programs across the country do indicate that Nova Scotia lags significantly behind most of the other provinces in the extent to which student assistance is provided at adequate levels to help those most in financial need. If the level of tuition fees is going to be allowed to increase to any significant degree over the medium-term, there is a compelling argument that the level of student assistance—both loan and grant—also has to increase. In the absence of such increases, student debt will rise. Part of that increase may in fact come, in one form or another, from the increased revenue going to universities from higher tuition fees. This subject is discussed below in the report.

It is also important to look at the kind of impact that changes in student assistance have on enrolment and participation rates, particularly for under-represented groups. It is notable that across the country, and in Nova Scotia particularly, the percentage of students who apply for student loans is no more than 50 per cent, and that even among those coming from lower-income strata, the student loan application proportions are still not much higher than 55 or 60 per cent. This is not unique to Nova Scotia, but is a common observation across the university system.

One can speculate on the barriers or impediments to using the student assistance programs, particularly the student loan programs. These may include aversion to debt, lack of information on programs, complications in the application forms, and so on. However, as part of the consideration of what should be the amount of funding and what should be the degree of targeting of student assistance programs—student loans and bursaries, in particular—it would be worth examining why it is that more students, particularly among groups who might be regarded as the most logical candidates for student assistance, are not taking up those opportunities more aggressively.

The estimation of the gains to individuals of university education gives rise to the more fundamental issue of what share of university operating costs ought to be borne by students and what by society (i.e., taxpayers). Society gains from the higher income received by and the higher income taxes paid by those holding a university degree. Society also gains from having greater social stability and from having the wide range of contributions that are made by a more highly educated population. Finally, society benefits from the research that is done at universities that would not normally be funded privately. The broader social gains of having a university system provide a legitimate reason for public sector contributions to the ongoing operation of that system. The key question is, what is the appropriate share of the total burden of operating the university system that ought to be borne by taxpayers?

A very simple—arguably simplistic—way to assess this is to determine what proportion of the total gains from the education and research and development outcomes generated by a university system accrue to individuals. The higher the share, the higher the percentage of the costs of university operation should be financed by students. The real challenge here is that, while it is possible to calculate the net gains to individuals, it is far more difficult to put a dollar figure on the social gains that accrue to all citizens from having a university system.

In Canada, we have tended to vary the share of the total operation of universities borne by taxpayers quite significantly over the last 40 or 50 years. In some periods, as much as 80 per cent of the total operating cost has

been funded from the public sector. In other periods, the public share has been as low as 40 per cent of the total cost of operating. Therefore, there is no simple answer, based upon historical patterns, of what constitutes the appropriate share of public money that ought to go to support the operation of individual universities or the university system. This topic is assessed at greater length in Section 4.2.

4.1.3 Tuition Policy Options

The discussion of accessibility, affordability, and the value of a university education to individuals and to society provides a backdrop to the discussion of what options for tuition fee policy ought to be considered by the government. There are four main policy options that the government may choose with respect to tuition fees. First, it can continue to lower tuition fees, either with the current bursary program or using some other mechanism, in order to drive fees below the national average. The second option is to maintain the freeze on tuition fees at their current level but to discontinue the bursary program that has been used to reduce them. It should be noted that, in order to hold tuition fees at 2010–11 levels, \$29 million would have to be added to base funding in 2011–12 before the operating grant is determined. The third option is to allow tuition fee levels to go up, but in a regulated fashion; that is, to allow them to increase but at a capped or maximum rate, which is the most typical way to regulate tuition fees. A fourth option is to completely deregulate tuition fees; that is, to allow tuition fees to be set, without any restrictions, by individual institutions. This would imply that different institutions could increase tuition fees (or decrease them) at whatever pace they chose over whatever time period they chose to do so. In what follows, we examine each of those broad options, looking at the pros and cons of each policy choice.

If the choice is to continue to lower tuition fees, effectively through the use of the bursary program, then it raises the immediate issue of whether there will continue to be a differential treatment between students from Nova Scotia and students from other jurisdictions in Canada. The concern should be that, if Nova Scotia were to continue to discriminate in its tuition policy among Canadian students from different parts of the country, it would invite other provinces in a similar fashion to discriminate against students from out-of-province, and in particular from Nova Scotia. It is not clear that this kind of “protectionism” would become widespread or would happen very quickly. But at a minimum it would raise the question of whether it makes more sense to continue to try to attract out-of-province students to fill the capacity available in the Nova Scotia university system or to effectively discourage out-of-province students by continuing to widen the gap between the tuition fees they are paying and the tuition fees paid by students from within the province. That discouragement may be relatively small if, in fact, tuition fee levels or changes in levels have this very modest impact on university enrolment that the evidence justifies. At the margin, some students likely would be discouraged from coming to Nova Scotia who might otherwise attend, here but it is likely that the numbers would not be significant. On the other hand, any discouragement of out-of-province students implies that the potential benefits of having some of them stay in the province after they have completed their studies here is somewhat diminished.

The second issue regarding lower tuition fees is that the real value of the subsidy to post-secondary education by taxpayers of Nova Scotia will be increasing. That is, as nominal tuition fee levels go down in an environment where overall prices are rising, even if only moderately, then the real cost to taxpayers or the real share of the taxpayer burden would be rising and the real share, as well as a nominal share, borne by students would be declining. Thirdly, the extent to which tuition policy constitutes an inequitable policy of taxing middle-class families to subsidize relatively higher-income attendees, that inequity would only be further exacerbated. Finally, there is the practical issue that if the province wanted to further lower tuition fees, it would necessarily limit its capacity to engage in a policy of spending restraint—combining spending restraint with lower fees would make it impossible for universities to function without a significant deficit.

The second option is to eliminate the bursary program, at least for its original purpose, which was to lower tuition fees, but to maintain the level at which the fees are currently set across the system. This too would imply increasing the real subsidy of post-secondary education by the taxpayers, as real tuition levels decline with constant nominal levels and rising prices in the overall economy. Secondly, if tuition fees do have any impact on accessibility, maintaining the current level in Nova Scotia while tuition fees are going up in other jurisdictions does imply relatively greater accessibility in the Nova Scotia system compared to other provinces. On the other hand, whether you see it from the point of view of sustained or unchanging nominal tuition fees, or lower real tuition fees, the question of the degree of inequity in the taxing of the middle-class to subsidize relatively more affluent university attendees is not in any way addressed. It would also be unreasonable to expect that the universities put more money into student assistance. That, however, would not be an unreasonable expectation in the context of rising tuition fees, a point discussed below. Similar to the option of lowering tuition fees, if the government decides to increase funding at a substantially slower pace, or even cuts the level of spending, it can't at the same time maintain a fixed level for tuition fees.

Note that this should not be taken to imply that the government should simply fund whatever projected cost increases there will be in the university system. However, if there are two major funding sources and one is being substantially moderated, it would be quite unreasonable to expect the individual institutions to continue to operate effectively with no option to increase the other source of income from which they fund their ongoing operations. The final point is that maintaining the current tuition level locks in place the relative tuition fees that existed before the recent policy was instituted. There may be institutions that increased tuition fees and others that were planning to increase tuition fees before the freeze went into place. The unintended difference in levels between or among different institutions would continue to remain in place even if it didn't reflect the underlying tuition policy intentions of each institution.

One of the positive outcomes of allowing tuition fees to be deregulated is that any unintended gaps in tuition fees among universities could potentially be eliminated. What would remain in inter-university differences would be what is intended by the policy of the institution and not by the accident of the timing of when a particular tuition policy was put into place. Of the two deregulation options, the one that is probably the most controversial is to allow tuition fees to be increased by each institution at whatever pace and to whatever level it might choose. This is not the current fashion with respect to tuition fee policy in most jurisdictions in Canada.

Many governments have in place various forms of regulated tuition fee increases. In Ontario, for example, the government sets a fixed rate of increase. In Alberta, there is both a regulated or prescribed maximum rate at which tuition fees can rise, along with an option for particular programs to apply for allowance to raise tuition at a rate substantially higher than the capped rate. Figure 4.1 shows the tuition fee changes that are planned for 2010–11 across the country.

FIGURE 4.1 Tuition Fees Changes, 2009-10 to 2010-11

Province	2009-10	2010-11	\$ Change	% Change
Newfoundland and Labrador	\$2,619	\$2,619	\$0	0.0%
Prince Edward Island	\$4,710	\$4,860	\$150	3.2%
Nova Scotia	\$5,696	\$5,435	-\$261	-4.6%
New Brunswick	\$5,479	\$5,479	\$0	0.0%
Quebec	\$2,272	\$2,388	\$116	5.1%
Ontario	\$5,951	\$6,249	\$298	5.0%
Manitoba	\$3,377	\$3,546	\$169	5.0%
Saskatchewan	\$5,238	\$5,500	\$262	5.0%
Alberta	\$5,520	\$5,603	\$83	1.5%
British Columbia	\$4,840	\$4,937	\$97	2.0%

Source: Based on tuition information from provincial budgets and contacts within provincial post-secondary education departments.

Completely unregulated tuition fees have several merits, but one significant drawback. The significant drawback, of course, is that to the extent that tuition fees and fee increases inhibit university attendance, especially among under-represented groups, a policy of unrestricted tuition fees can have a negative impact on accessibility and, more importantly, on affordability, on student debt levels, and therefore on attendance of those for whom financial barriers are relatively more significant.

One way around this problem, discussed further below, is that, as part of a deregulation of tuition fees, the government mandate some portion of the increased revenue to be added to overall student assistance levels. Arguably, one of the main benefits of a completely unregulated tuition fee environment is that it gives considerably more freedom to the institutions to set policy in line with what they feel is appropriate to the quality and range of programs they are offering. But it also provides considerably more freedom for the government to pursue whatever fiscal restraint measures it wishes to impose on the university system. That is, if universities are free to offset a reduction in the level of support from the government through an adjustment in their tuition fees, this gives greater latitude to the government in its fiscal restraint measures. Finally, if the argument about inequity in the taxing of the middle-class has any merit, freeing tuition fees to move to whatever level individual institutions choose to place them effectively reduces the argued inequity in the system. It's also worth noting that even if one were to observe increases in tuition fee levels of 5–6 per cent per annum over the next four years, the impact on tuition fees, as a share of total operating costs of university, would be to move them back to a level observed in the late '90s; and that level appears possible to sustain without any significant negative impact on overall enrolment levels.

If the government is unwilling to move to a completely unregulated tuition fee environment, a compromise between the current policy of freezing tuition fees and a completely open, deregulated tuition fee policy is to do what many jurisdictions already do, which is to regulate the rate of increase in tuition fees. The most common and perhaps most administratively simple way to do this is to cap the overall rate of increase in tuition fees that universities will be allowed to charge. The current level, for example, in Ontario is 5 per cent while the maximum rate allowable in Alberta is 1.5 per cent. The capped rate that ought to be set by the province is, to some extent, an arbitrary decision, at least if it's done independently of consideration of the fiscal restraint measures which might be imposed on the university system. In effect, what this means is that any decisions about regulating the rate of increase will have to be done in conjunction with decisions about the level of grants to the university system over the next three to four years.

A regulated increase creates for one major constituency—the students—some degree of certainty about what is likely to be the tuition fee profile they will have to deal with over the period of time that they are attending university in Nova Scotia. So while students may be quite understandably annoyed and concerned about the impact of higher tuition fees on the cost of attendance and on the student debt levels that they will have to incur, at least they will know with a fair degree of certainty what kind of tuition fee environment they are likely to face. This, of course, is different from a case in which the tuition fee levels are allowed to be set without any kind of restriction. In that case, students would face a higher degree of uncertainty about the kinds of tuition fees they would likely have to pay at whatever institution they might choose to attend.

A somewhat more complicated variation of the capped-rate approach is to combine an overall maximum rate of increase with full deregulation of tuition fees for certain programs of study. This has been done in Ontario where fees for professional programs—medicine, law, and business—are set at whatever level an individual institution chooses. A provision for student-assistance clawback of a portion of the (unregulated) increase is included in the policy.

RECOMMENDATION

Public discussion of tuition fees often focuses on the impact of tuition levels on accessibility to post-secondary education for low-income individuals, on affordability generally, and on the levels of debt that students carry after graduation. However, this focus on accessibility and affordability ignores four significant issues: the interests of universities and taxpayers; the long-term benefits to graduates of post-secondary education (which are many); the actual impacts of tuition fee levels on accessibility (which are modest); and equity within a system in which lower-income taxpayers now heavily subsidize university education for students from better-off families.

Recommendation 1:

Allow tuition fees to increase, both as partial offset to the impact of fiscal restraint and on equity grounds. In descending order of preference, consider the following three options:

- a. Completely deregulate tuition fees and earmark a percentage of tuition revenue increases for student assistance.
 - b. Cap the rate of increase in the short run and transition to complete deregulation in the long run.
 - c. Cap the rate of increase and allow full deregulation in certain programs.
-

4.1.4 Student Financial Assistance

Whatever tuition fee policy option is chosen by the government, there is ample justification for also examining the current state of financial assistance to Nova Scotians who are considering university attendance. A study done by the Educational Policy Institute identified Nova Scotia as the least affordable province in which to pursue a university degree. (Usher & Steele, 2006). Although the study was completed before the tuition fee reductions were enacted in the province, it is almost surely still the case that the province has one of the weakest student assistance programs in the country. If the government chooses to allow tuition fees to rise—a recommendation made in this report—it is strongly urged to significantly increase the capacity of the student assistance program to meet unmet need.

The data on relative affordability shown in Figure 4.2 indicate that Nova Scotia has the highest total education costs and net out-of-pocket cost as a share of median income. Although the figures are now about seven years old, the relative position of the province will not have changed significantly over that period. Although tuition fees have been lowered in recent years, the level will only fall to the national average in 2010–11.

FIGURE 4.2 Total Education, Net Education Costs, and Out-of-Pocket Expenses as a Function of Ability to Pay; by Province, 2002-03

Province	Median Household Income ¹	Total Education Costs/Income ²	Rank	Net Costs/Income ³	Rank	Net Out-of-Pocket Costs/Income ⁴	Rank
British Columbia	\$42,800	24.6%	4	18.3%	6	11.9%	4
Alberta	\$48,900	24.1%	3	14.6%	2	10.9%	2
Saskatchewan	\$41,700	28.6%	9	17.2%	4	12.8%	6
Manitoba	\$42,900	25.0%	5	17.3%	5	15.6%	9
Ontario	\$52,300	23.0%	2	15.8%	3	13.1%	7
Quebec	\$40,800	22.4%	1	14.0%	1	11.5%	3
New Brunswick	\$39,700	28.2%	8	20.0%	9	13.4%	8
Nova Scotia	\$39,900	31.0%	10	22.4%	10	17.9%	10
Prince Edward Island	\$39,400	28.0%	7	19.4%	8	11.9%	4
Newfoundland	\$37,700	26.1%	6	19.1%	7	10.2%	1

1. Median Household Income is pre-tax

2. Total Education Costs/Income = Total Education Costs - (Grants + Tax Expenditures)

3. Net Costs/Income = Total Costs - (Grants + Tax Expenditures) / Median Household Income

4. Net Out-of-Pocket Costs/Income = Net Costs - Student Loans / Median Household Income

Source: Usher & Steele, 2006. *Beyond the 49th Parallel II: The Affordability of University Education*, Education Policy Institute.

Through the provision of financial assistance, the Nova Scotia Student Assistance Office attempts to ensure that all academically qualified Nova Scotians have equity of access to quality post-secondary education and training. The requirement for student financial assistance is likely to be especially significant for low- and low-middle income individuals (and, where relevant, their families). As well, Nova Scotia is a have-not province with both lower average incomes and lower wage rates. As a result, the financial support from families will be relatively more limited for students from Nova Scotia compared to other jurisdictions. Lower wage rates imply that summer and part-time earnings by students will tend to contribute less to the resources required for completion of a degree. Finally, Nova Scotia still has above-average tuition fee levels, which will contribute somewhat more to the total cost of the degree.

Even if, as argued above, tuition fees have not proven to be a significant barrier to university access for most students, it can be to a portion of the potential student population from the financially disadvantaged groups. However, the appropriate approach to dealing with this impediment is not to lower tuition fees for everybody irrespective of ability to pay, but to reduce the total costs of a university degree by targeting financial assistance to those with the greatest financial need.

Student assistance provided by governments comes in two main forms: student loans that need to be repaid, and bursaries or grants that do not. In addition, income tax credits are available to students (or their parents who have supported them) to offset part of the cost of university education. The federal government also has a scholarship program and currently provides partially matching grants for those contributing to a registered education savings program. Finally, at the provincial level, provision is made for debt management programs in situations where borrowers are facing difficulty in repaying their loans.

In Nova Scotia, as in other provinces, eligible students can receive both a Canada Student Loan (federal) and a Nova Scotia Student Loan. In 2008, the number of Nova Scotia students receiving either or both CSL and NSSL and other types of assistance was 10,289. This represents 43 per cent of total headcount enrolment in that year. As can be seen from Figure 4.3, this represents a modest decline in the share of the number of students enrolled who were in receipt of some form of government assistance. The combined loan programs are, by far, the largest source

of government student assistance available to Nova Scotia students. The central issues that need to be addressed include

- adequacy of the loan program to cover financial needs of students
- portion of the loan that is forgiven (i.e., treated as a non-repayable grant)
- provisions for easing debt burdens of students after graduation

FIGURE 4.3 Percentage of NS Students Attending NS Universities and Receiving Assistance, 1990-91 to 2008-09

(a) Year	(b) Number of NS Students Attending NS Universities	(c) Number of NS Students Attending Universities Receiving Assistance	(d) Number of NS Students Attending NS Universities & Receiving Assistance ¹	(e) Percentage of NS Students Attending NS Universities & Receiving Assistance (%)	(f) Average Tuition (\$) ²	(g) Average Loan at Consolidation (\$) ²	(h) Average Loan at Consolidation (constant dollars) (\$) ²
1990-91	26,522	4,287	3,245	12.2%	\$2,093	\$7,660	\$7,660
1991-92	27,971	6,242	4,725	16.9%	\$2,345	\$7,208	\$6,824
1992-93	28,286	8,345	6,317	22.3%	\$2,550	\$8,730	\$8,144
1993-94	28,676	11,305	8,558	29.8%	\$2,807	\$11,517	\$10,547
1994-95	27,656	10,943	8,284	30.0%	\$3,092	\$13,503	\$12,345
1995-96	27,070	10,873	8,231	30.4%	\$3,311	\$15,149	\$13,559
1996-97	26,925	11,218	8,492	31.5%	\$3,658	\$17,191	\$15,148
1997-98	26,593	11,695	8,853	33.3%	\$3,902	\$18,376	\$15,934
1998-99	26,419	11,858	8,976	34.0%	\$4,134	\$20,571	\$17,661
1999-00	25,955	11,995	9,080	35.0%	\$4,354	\$20,576	\$17,365
2000-01	25,528	11,698	8,855	34.7%	\$4,725	\$21,158	\$17,383
2001-02	26,068	12,213	9,245	35.5%	\$4,962	\$20,730	\$16,612
2002-03	27,027	12,269	9,287	34.4%	\$5,291	\$21,069	\$16,511
2003-04	27,432	12,032	9,108	33.2%	\$5,666	\$20,843	\$15,895
2004-05	26,861	11,722	8,873	33.0%	\$6,034	\$21,689	\$16,239
2005-06	25,637	11,180	8,463	33.0%	\$6,299	\$23,973	\$17,560
2006-07	25,279	11,010	8,334	33.0%	\$6,046	\$24,672	\$17,717
2007-08	25,204	10,449	7,910	31.4%	\$5,945	\$24,894	\$17,502
2008-09	23,832	10,289	7,789	32.7%	\$5,749	\$24,387	\$16,749

1. Data in column (d) is estimated based on 2007-08 and 2008-09 average of 76% of students in column (c) attending a NS university

2. Data based on column (c)

Source: Higher Education Branch, NS Department of Education

Unmet need is the difference between the student's assessed financial need (education costs minus individual and parental resources) and the funding provided by government financial assistance. If the assistance falls short of financial need, it is referred to as unmet need. A recent study of student data in Canada concluded that Nova Scotia has the second highest incidence of unmet need after British Columbia (51 per cent and 63 per cent respectively), as well as the second highest average dollar amount of unmet need after New Brunswick (\$3,942 and \$5,214 respectively). The combination of high incidence and high level of unmet need implies potential problems for participation in university of students with limited resources.

The policy solution to the unmet need problem is either an adjustment downward in the estimation of resources required from student earnings and parental support, or the removal of the caps on the total amount of assistance available to fund the difference between financial requirements and available resources. So long as the assessment of requirements and resources is done in a straightforward and fair manner, eliminating the cap on assistance is the most effective way to eliminate unmet need, especially of the most economical disadvantaged students.

However, increasing the amount of assistance available has the potential to increase the debt burden of students upon graduation. To the extent that the prospective debt loads are an impediment to participation, raising the average level of the burden will be counter-productive for enrolment of some segment of the student population. There is some evidence that Nova Scotia graduates have higher average debt levels than students from other provinces. This is shown in Figure 4.4, where the average debt of students with a bachelor's degree was higher in Nova Scotia than the other seven provinces for which survey data were available. Students from Nova Scotia had a debt level in 2009 almost double that of students from Quebec and 5 per cent above the province with the next highest level, which is New Brunswick.

FIGURE 4.4 Average Amount of Student Debt Among Bachelor's Degree Graduates, by Province, 2000-09

	British Columbia	Alberta	Saskatchewan	Manitoba	Ontario	Quebec	New Brunswick	Nova Scotia
2000	\$23,522	\$22,927	\$21,066	\$21,005	\$24,869	\$14,953	\$25,834	\$26,572
2003	\$22,365	\$22,763	\$23,923	\$16,286	\$22,354	\$11,682	\$26,625	\$28,818
2006	\$26,351	\$24,619	\$27,389	\$15,595	\$23,136	\$13,656	\$33,825	\$29,926
2009	\$26,738	\$24,305	\$28,089	\$19,953	\$25,778	\$15,102	\$28,904	\$30,128

Source: Canadian University Survey Consortium (CUSC), *Graduating Students Survey*, 2000, 2003, 2006, 2009.

The estimates in Figure 4.5 approach the debt burden issue from another vantage point. Using a hypothetical example of a low-income student receiving the maximum student loan, four provinces are contrasted with respect to the total amount that would be repayable after graduation. Provinces reduce the total debt in one of two ways: either part of the loan is treated as a non-repayable grant or a portion of the total debt is remitted upon graduation. The table shows the consequences of variations in the use of grants and remissions. With the same level of assessed need and assistance, a Nova Scotia student would end up with a much higher repayable debt than would be the case in the other provinces. This because the non-repayable grant component is the second lowest of the four provinces and Nova Scotia has no debt remission as of August 2008.

FIGURE 4.5 Breakdown of Total Assistance Package, by Province, for Student from a Low-income Family Completing Four-Year Undergraduate Degree at a Nova Scotia University, 2009-10

Province	Assessed Need	Loans Issued	Grants Issued	Remission	Total Repayable	Rank
New Brunswick	\$55,600	\$47,600	\$8,000	\$21,600	\$26,000	1
Ontario	\$55,600	\$41,600	\$14,000	\$13,600	\$28,000	2
Newfoundland and Labrador	\$55,600	\$36,720	\$18,880	\$8,160	\$28,560	3
Manitoba ¹	\$55,600	\$47,600	\$8,000	\$19,040	\$28,560	3
Saskatchewan	\$55,600	\$47,600	\$8,000	\$19,040	\$28,560	3
Alberta	\$55,600	\$47,600	\$8,000	\$19,040	\$28,560	3
Quebec ²	\$55,600	\$33,760	\$21,840	\$0	\$33,760	7
Prince Edward Island	\$55,600	\$47,600	\$8,000	\$8,000	\$39,600	8
Nova Scotia	\$55,600	\$43,792	\$11,808	\$0	\$43,792	9

1. Based on estimate.

2. If the student studied at a Quebec University, total repayable would be \$9,760 and grants issued would be \$45,840.

Note: given that total assistance available varies by province, an assessed need of \$55,600 (\$13,900 per year) ensures that aid recipients in this example have no unmet need regardless of the provincial assistance program. However, a student receiving maximum available loan assistance in Nova Scotia can graduate with \$44,880 in debt.

Source: Higher Education Branch, NS Department of Education

A relatively simple way to reduce the more severe incidence of student debt while targeting the students most in need is to set an upper limit on the amount of assistance in a given year that will be in the form of a repayable loan. Those with relatively modest financial assistance requirements will receive most or all of it in the form of a loan. Grants, which are much more costly to the public purse than loans, will be targeted to those with higher costs or lower individual and family resources.

Even if the above changes were made, there would still be graduates who, for various reasons, face debt levels that cannot be serviced out of current earned income. In Nova Scotia, provision is made for individuals who find themselves in this situation to apply for debt management programs.

The Repayment Assistance Program (RAP) is a debt management tool designed to help borrowers manage repayment of their Nova Scotia Students Loans. The program is rooted in the principle that no borrower should be asked to make monthly payments that he or she cannot afford. Under the Program, borrowers' monthly affordable payments are based on their gross household income. As well, a borrower's monthly Nova Scotia Student Loan payments will not exceed 7 per cent of his or her monthly gross family income. The program is a version of an income-contingent repayable student loan structure, a policy initiative much discussed in Canada but not implemented until recently first by Nova Scotia and then by the federal government in its student loan program.

To sum up, whatever policy choice is made regarding future tuition levels, it is strongly recommended that the government revamp the current student assistance system to make it more generous. That is, it should consider raising or eliminating the limit on loan levels to ensure that students with the highest levels of financial need are not faced with a significant portion of it unmet by student assistance. As well, the government should also assess the viability of capping the amount of assistance that each year will be in a repayable loan form. The balance would be provided as a grant. Finally, the RAP should be maintained as an essential component of the overall student financial assistance program.

RECOMMENDATION

Nova Scotia has one of the weakest student assistance programs in the country. Students face the highest total education costs and net out-of-pocket costs as a share of median income. The province also has the second highest incidence of unmet need, which is the gap between assessed financial need and financial assistance provided. Finally, graduates from the province have higher average debt levels than students from other provinces. If the government chooses to allow tuition fees to rise—which this report recommends—it must also significantly upgrade the student assistance programs.

Recommendation 2:

Increase the capacity of student financial assistance programs in Nova Scotia and focus more on students with the greatest financial need. Specifically:

- a. Raise or eliminate the cap on student loans.
 - b. Increase substantially the non-repayable grant portion of student loans, thereby capping the level of debt that can be incurred.
 - c. Retain the Repayment Assistance Program.
-

4.2 Government Funding

4.2.1 Some General Principles

Section 2 briefly reviewed some patterns of government funding of the Nova Scotia university system. Since the early 1990s, there have been significant swings in the size of the operating grants, whether measured in current or constant dollar levels or in dollars per FTE and per capita or in terms of the share of government spending or provincial GDP. The patterns in Nova Scotia are mirrored in other Canadian provinces, although the degree of support in Nova Scotia has been lower relative to other jurisdictions by some measures and higher by others.

The issue addressed in this section of the report is whether it is possible to objectively determine an optimal level of government support for the Nova Scotia university system. Failing that, the quest would be to determine whether it is possible to establish an appropriate range within which public sector funding ought to vary.

In fact, there is no theoretical foundation for determining the optimal level or share of overall government spending, let alone what it might be for a particular category. However, there has been considerable analytical and empirical debate over the issue. Much of it hinges on the observer's (philosophical) predisposition towards the role of government in the economy and society. There is no obvious value in devoting space in this report to the voluminous literature on the subject. Instead, it will be restricted to several commonly discussed benchmarks for long-term growth in government spending.

One widely used principle is that government spending should increase in line with population growth and sufficiently to offset inflation. That is, nominal spending would increase at the pace of population growth plus expected inflation. This implies that, over time, real per capita government spending would be constant. If there is real growth in the economy in excess of population and labour force changes, then real per capita constant spending implies a decline in the government's share of aggregate economic activity.

An alternative argument is that public sector activity ought to expand in line with overall growth in the economy. That is, the role of government should not only reflect the increase in the number of people to be served, but also the rise in prosperity of the country's or the jurisdiction's citizens. From this perspective, nominal government spending would rise over time at the pace of population growth plus inflation plus productivity growth. With this principle, government share of total economic activity would remain constant over the long run.

In fact, the government share of total output tends to increase as a country experiences rising living standards, as was the case for most member countries of the Organisation for Economic Cooperation and Development (OECD) through the first half of the twentieth century. Although the shares differ significantly among countries, the ratio of government spending to GDP of the advanced economies has not drifted steadily upwards since the early 1950s, but has essentially plateaued, fluctuating somewhat with economic cycles and with episodes of fiscal belt tightening.

With respect to the distribution of government spending, a number of factors might be expected to influence the shares going to the activities that government either directly produces or for which it provides funding. For example, in those areas where the percentage of the population utilizing the services is declining, the share of spending would be inclined to fall as well. This occurs naturally for social welfare programs during economic upturns, as the number of people employed increases and the number drawing on welfare and employment insurance tends to shrink.

The general rules governing the share of government spending going to a particular publicly funded activity might include the following: (a) if the share of the population anticipated to use or need the support is steadily declining, the share of spending should fall; (b) if there is scope for increased efficiency in the use of public funds (stated differently, the activity is currently over-funded), the share of spending should decline; (c) if there is a capacity and a desire to improve the quality of the funded activity, the share of government spending it receives should increase; (d) if there is perceived to be a social benefit that had not adequately been captured (in other words, the activity was underfunded), there is a justification for increasing its share of government expenditures.

Typically, those seeking an increase in funding for a particular activity will ignore the first two benchmarks and only tangentially allude to one of the other two. It is more often the case that proponents of an increase in the level and share of spending will use an historical peak level as the benchmark or refer to the comparative degree of support (invariably higher) in other jurisdictions. Either benchmark implicitly assumes that the peak or the comparative jurisdiction level is appropriate or even ideal (optimal) without explicitly providing a fulsome justification for that argument.

In fairness, both proponents and opponents of proposals for government funding for specific activities can and do find statistical benchmarks that support their respective positions. As a result, the “battle of the benchmarks” tends to be of limited assistance to governments seeking guidance on how to proceed. There are, inevitably, competing philosophies on what the proper role of government ought to be that underpin the benchmark battle. However, the rules suggested above provide a more structured framework in which to discuss the merits of specific public sector funding proposals.

The most fundamental issue regarding government spending on any activity is that of the appropriate division of the activity’s cost between the public sector (i.e., taxpayers) and the private sector (individuals or organizations). There are some categories of government funding in which it is almost universally agreed that the public sector will bear the full cost. For example, national defence, the policing and court systems, and primary and secondary education (albeit with provisions for private schools) fit this rubric. In others, such as health care and post-secondary education, jurisdictions vary significantly in the public-private sharing of the burden. Within jurisdictions there are vigorous debates about the extent to which the proportional burdens have to be adjusted.

4.2.2. Government Funding of Nova Scotia’s Universities

There are a number of ways in which to examine provincial government spending on post-secondary education from an historical and comparative-jurisdiction perspective. The following is a list of the most commonly used ones: (1) funding level in current and constant dollars; (2) funding per FTE (current and constant dollars); (3) funding per capita (current and constant dollars); (4) funding as a share of total government expenditures; (5) funding as a share of GDP; and (6) ratio of government grant to tuition revenue.

Each of these can be calculated for the province alone or compared to other jurisdictions, including provinces and other countries. Each has its merits in displaying a part of the story about patterns of university funding. The data on funding levels, for example, indicate that, in the mid-1990s, the government of Nova Scotia, as part of a broader exercise in fiscal restraint, reduced the absolute funding to universities. This pattern, by the way, was evident in most other provinces across the country during that period. But the decline is more starkly clear if measured in constant dollars and begins much earlier.

The pattern was reversed in the late 1990s as funding levels increased modestly. However, in real terms, the substantial increases began only in the middle of this decade with the first MOU with the universities. The pace of increase is dramatic from that point on, averaging an 8.7 per cent increase per year since 2004–05.

If the story is told from the perspective of funding per student, government support (especially measured in real terms) declined more or less continuously from the early 1990s (with a plateau for several years) until 2004–05. At that point, there was a sharp and persistent increase in funding per student; but even by the end of the current university year, it is only moderately above the level of the early 1990s in constant dollar terms. As indicated in Section 2.2, when compared to other provinces, Nova Scotia's per-FTE funding is the lowest in the country. However, there is a challenge in interpreting what this means. For example, it might be inferred from the figures that the Nova Scotia universities do a better (i.e., more efficient) job of utilizing their capacity to deliver undergraduate and graduate university programs. This is reflected in the fact that they collectively rely more intensively than any other provincial system on enrolments from students outside Nova Scotia.

It may or may not be reasonable to argue that Nova Scotia universities are more efficient in their use of government and other revenues. It is reasonable to challenge the argument that interprovincial rankings of funding efforts on a per-student basis indicate anything meaningful about what is the most effective or appropriate target to set for public support of universities. As one among many measures of inputs to the university system, it provides no guidance on the measure of the outputs generated by that system. Nor does it take into account the capacity (let alone the willingness) of any jurisdiction's taxpayers to underwrite university education.

For that reason, it is useful to supplement the widely used funding-per-student measures with several others that have a more evident link to taxpayer capacity. This includes government grants for universities measured per capita, as a share of GDP, and as a share of total government expenditures. On all three indicators, the ranking of Nova Scotia's funding effort is at or above the national average.

Inter-provincial comparisons of per-capita funding were discussed briefly in Section 2.2. There it was noted that Nova Scotia is well above the national average for funding and is, in fact, third highest among the ten provinces, exceeded only by Prince Edward Island and Newfoundland and Labrador. This is indicated in Figure 2.6. This measure of relative support is relevant because it is one way of linking public sector efforts to underlying capacity. Nova Scotia is a small province with a larger number of students attending university than would normally be the case if it were primarily educating its own residents.

Support measured by funding as a share of GDP reflects a similar pattern. Not only is Nova Scotia one of the smaller provinces in Canada, which tends to reduce its GDP level, it is also one of the lower productivity (and poorer) jurisdictions, further constraining its economic capacity. As a result, government support for universities as a share of GDP is well above the national average, second only to Prince Edward Island.

However, the fact that the province ranks high on per-capita and share-of-GDP measures of funding is no more conclusive evidence that its contribution level is appropriate than its low per-student ranking proves that it is inadequate. The relatively heavy reliance on attracting students from other provinces is a key reason for the significant gap between the province's ranking on a funding per-FTE basis and its ranking on the basis of taxpayer capacity measured either on per capita or per dollar of GDP. If the "export" of education services to out-of-province students also brings additional revenue to the local and provincial economy from these students' expenditures, it might be argued that the taxpayers of Nova Scotia should be prepared to underwrite university operating costs associated with non-Nova-Scotia students. Alternatively, if the "importing" of students is seen as a mechanism for increasing the provincial population through the retention of these students after they graduate, that would also justify a higher level of provincial support.

One possible counter-argument to the suggestion that government funding be increased to better reflect the impact on operating costs of exporting university services would be that out-of-province students should pay a

higher tuition fee to reflect the fact that they are using provincial resources paid for by the taxpayers of Nova Scotia rather than those in their home province. The province, in effect, did this in 2008–09 and 2009–10 through the Nova Scotia University Student Bursary, which was used to reduce tuition fees paid by Nova Scotia students but not tuition fees paid by out-of-province students. In 2010–11, the bursary will apply to out-of-province students, but a fee differential (\$1,022) will persist. The precedent for discriminatory tuition pricing already exists for international students.

Differential treatment of students from other provinces is certainly not a recommendation of this report, if for no other reason than it creates the potential for retaliation from other provinces. The point is that the funding-per-student issue cannot be resolved simply through reference to the disproportionate number of out-of-province students enrolled in Nova Scotia institutions.

If government funding as a share of the total revenue going to universities is used as a benchmark, Nova Scotia is basically in the middle of the pack of provincial contribution efforts. In 2008–09, the Canadian average share of university expenses covered by the government grant was just under 35 per cent, and the Nova Scotia figure was just over 35 per cent. However, that has not typically been the case. In fact, the proportion covered by the province has persistently been below the national average. The corollary is that Nova Scotia universities have had to rely relatively more on tuition fees as a source of revenue than have counterparts in most other provinces. This is consistent with Nova Scotia's tuition fees being at or near the top of the levels observed across the country. It is also worth noting, however, that the national pattern has been one in which the share of university revenue from government operating grants has fallen steadily over the past 30 years. In that respect, at least, Nova Scotia is not an outlier.

The final benchmark to be examined is university funding as a share of total government expenditures. In Nova Scotia, the university sector received a steadily declining share of total spending from the early 1990s onward, going from approximately 5 per cent to 4.5 per cent by 2009. Nova Scotia ranks ninth among the provinces in terms of university and college expenditures as a percentage of total expenditures.

The upshot of this brief examination of comparative benchmarks is that they do not provide a compelling basis for judging whether the level of public sector support is adequate, appropriate, or optimal. Historical peaks or historical averages for a particular jurisdiction are irrelevant if divorced from an examination of the context within which those decisions were made in the past. In fact, peak-level data may be no more or less than an interesting but unhelpful historical artifact.

Inter-jurisdictional comparisons are somewhat more helpful, as they indicate what the current normal practice is. But normal practice is not necessarily best practice. As suggested above, the low funding per student in Nova Scotia might well be best practice if it indicates the province is getting more output or more quality from the dollars it is spending on its universities.

This points to two of the central challenges in assessing the adequacy of public sector spending in any area: determining what the government is expecting to get from its financial support; and assessing what it is actually receiving for the dollars expended. The latter issue is dealt with more extensively in Section 4.5 on performance indicators and quality assessment.

The problem regarding the first issue is that often governments do not have a clearly articulated set of expectations for many of its public-policy actions. This is especially the case for government support for services that are well established and have been receiving funding for a long period of time. The four rules outlined above get part way to providing some structure for articulating those expectations with respect to the share of government spending universities ought to receive.

The first rule that might guide future policy is that, if the absolute level or the share of the population anticipated to demand or require government support is declining or about to decline, then the share of government spending support for that service should be reduced. Given the decline already experienced in the 0–15 age group in Canada and in Nova Scotia, this would imply a reduction in the share of spending going to primary and secondary education. The projections of an impending decline in the primary cohort from which university enrolment is derived suggest that, going forward, the share of the public purse expended on post-secondary education should be lowered.

However, unlike the Primary to Grade 12 (P–12) cohort, whose school attendance is close to 100 per cent, it is possible for an increase in the participation rates of potential university attendees to offset or more than offset the cohort population decline. As well, increasing the participation rates of under-represented groups (aboriginals, African Canadians, persons with disabilities), of low-income individuals, and of mature students could also effectively increase the share of the population demanding a university education. The prospects for a large enough increase in such participation rates are assessed in Section 3 and are argued to be quite limited.

A second rule that might be used to frame policy action is whether, in the area of publicly funded services being considered, there is evident scope for improving efficiency in the delivery of the service. Said differently, the issue is whether the service is delivering its outputs or outcomes as effectively as possible given the dollars expended on it. If efficiency improvements are possible, the policy choices are between reducing funding until the level of support is commensurate with the outcomes generated, or maintaining the funding level but requiring more output per dollar provided (a combination of the two is also possible). It is often argued that Nova Scotia has too many universities which, restated, suggests that Nova Scotia has more capacity than is necessary. The conclusion typically drawn from this is that with restructuring the total costs of the system would be reduced without lowering the number of students served. This particular efficiency argument is addressed more fully in Section 4.6, which notes that there may be system savings available from several restructuring options, but for the most part they are likely not achievable in the short run nor is there certainty they can be achieved in the long run. However, one option that does offer the prospect of short-term and long-term savings is the integration of back-office processes. This is addressed in Section 4.4.

The more fundamental issue here is that, unlike population and participation rate projections, there are no widely accepted measures of performance in universities to which reference can be made to assess the efficiency of the Nova Scotia system. This topic and some suggestions for remediation are offered in the section on performance indicators.

The third rule is the one that has been used in recent years to rationalize increased spending on P–12 education when the population being served is actually declining. That is, there is both a capacity and a desire to increase the quality of primary and secondary education. It is well beyond the scope of this report to assess this rationale or the actual changes in quality that may have resulted from its implementation. In the context of university systems, the quality argument by proponents of increased funding is usually couched in terms of the need for improved facilities for teaching and research (i.e., funding for infrastructure) and for high(er) quality faculty to teach and conduct research. That such expenditures are actually required to deliver improved teaching and research outcomes is often taken to be self-evident. In the absence of quality measures, the follow-up assessment of the outcomes generated is never done.

The fourth rule for assessing whether the share of funding ought to increase is related to the social benefits—i.e., benefits to society at large—of some areas of government-funded activity that have not been adequately captured because the activity is underfunded. This is (often implicitly) one of the key foundations upon which public

funding of health care is usually based. Put simply, a healthier population makes for a better society and that improved health will result from ensuring that individual financial capacity is not a barrier to health services. In post-secondary education, the basic rationale for public support is that, beyond the gain to individuals of a university degree (measured as the increase in lifetime earnings), society enjoys additional benefits from having a better educated citizenry. These social benefits are challenging to specify in anything but general, often vague terms (e.g., better informed, more involved in political decisions, etc.) and impossible to quantify.

One external benefit that can be more precisely articulated is the potential productivity spillover that may occur from research done in universities. The precise quantification of this particular externality may be difficult to achieve. However, it is sufficiently tangible that there is widespread agreement that public support for research is both laudable and necessary. Hence, a decision to increase the support for university research could be justified under this social benefit rule.

The discussion of the application of this social benefit rule raises one of the most fundamental issues that a government must address in determining what level of support to provide to universities, and that is the appropriate division of responsibility in the funding of universities between the public and private sectors, between tax payers and students. As already discussed at greater length in Section 4.1 on tuition fees, the latter are the primary beneficiaries of a university education whether measured tangibly by the impact on lifetime earnings or intangibly by the improvement in quality of their life both during and after university attendance. However, society does benefit significantly from the dual functions performed by universities or, more precisely, by university faculty. The first, and most important one, is the education of the students who attend the university. In economic terms, university education adds to the “human capital” of society and, by so doing, is argued to increase its productivity growth and, thereby, its standard of living. The other function carried on in universities is research across the spectrum of disciplines found in these institutions. Not all of this research generates the tangible productivity improvements referred to above. This would clearly be true in the humanities and in the social sciences where the research is aimed at improved understanding and appreciation of “such matters as the nature of the society in which we want to live, our relationships with fellow citizens, the obligations we feel towards them and the ethical importance we attach to various features of societal arrangements.” (Laidler, 2002, p. 23). It would, however, be the case that research in the science and business disciplines does have more readily discernible productivity benefits.

4.2.3 Where to From Here?

In the short term, the level of funding for universities will be guided less by principles or rules and more by the degree and pace of overall fiscal restraint that the government chooses to implement. In that context, the university system will be one of many sectors that will face the prospect of either outright reductions or significant slowing in the pace of government transfers. In fact, given that there is no single rule of thumb to direct even long-term funding of the university system, there is no basis for recommending a specific level of grant in the short run. There are, however, several factors to be kept in mind that may help in the decision making.

First, the examination of potential cost savings from administrative integration suggests there is scope for the universities to cooperatively reduce their operational expenditures. Although it may not be possible to achieve the savings immediately, the financial pressures the universities will be facing should provide more than sufficient incentive to move quickly to adopt more purchasing and service delivery consolidation.

Second, there are contractual impediments to making adjustments in faculty and staff levels or in levels of compensation. However, the combination of declining enrolments and the slower pace of government funding than the universities have become used to in recent years will require the province’s universities to find ways to

restrain their spending. With over 70 per cent of that spending going to salaries, wages, and benefits of faculty and staff (including administrators), significant restraint will have to come to some extent out of compensation. It is worth noting that the student/full-time faculty ratio for Nova Scotia is well below the national average. This suggests some scope for faculty reductions in the system.

Third, the greater the degree of restraint that the government imposes on the university system, the more compelling will be the argument to remove the freeze on tuitions. This report argues the merits of partial if not complete deregulation of tuition fees. In the short run, the government should consider at a minimum allowing tuition fees to increase at the national average (assumed to be 4 per cent per year). That would leave the Nova Scotia tuition level at the national average, which was the target of policy in the current MOU.

Finally, assuming that whatever degree of restraint is chosen, it will be applied consistently across the system, some universities will be affected more severely than others. This will be the result not only of the restraint itself and the current financial state of the institutions, but also of the differential impact on institutions of the anticipated enrolment declines. For that reason, it may necessary for the government to consider pre-emptively initiating discussions with those universities assessed to be at greater risk of experiencing financial crisis over the next three to five years.

Turning to the long run, the government should be considering what framework for university funding will be used when the province's fiscal challenges are resolved. The report has suggested several possible principles for funding that were also used, in an illustrative way, in the revenue projections section. These principles or rules of thumb consist of the following: (a) increase (decrease) the grant at the pace of population growth (decline), which would yield a constant per capita grant and a declining share of public expenditures; (b) increase the grant at the rate of growth of government spending, thus maintaining a constant share of a public expenditure; (c) increase the grant at the rate GDP growth—if government spending grows at a rate faster (slower) than that of the economy, the grant will be a declining (increasing) share of public spending.

As already argued, there is no analytical or empirical basis for choosing any one of these rules of thumb. In fact, there are many who would argue that the grant should be grounded in historical or comparative levels of funding per student. However, the rationale for at least including these rules of thumb in deliberations of university funding is that they direct attention towards the capacity and willingness of taxpayers to underwrite some portion of the cost of the universities.

Some additional guidance can be provided by the rules that might govern the share of government spending that will go to a particular activity. If the projected decline in enrolments actually materializes, that would argue for a declining share of government spending albeit with an increasing level of funding. If there are unrealized efficiencies that could reduce operating costs, this too would imply a declining share of public spending. On the other hand, if a compelling argument could be made that there are material improvements in the quality of teaching and research activities of the university system that require funding, that might justify maintaining or even increasing the sector's share of public expenditures. That would particularly be the case if the quality improvement yielded social benefits that had not been captured because of inadequate funding of the system.

Unfortunately, only the first two of these rules is readily amenable to being quantified, namely enrolment levels and (some) cost savings. This is a compelling argument for developing measures of quality and performance, an issue discussed further in Section 4.5.

RECOMMENDATIONS

In Canada, government funding for universities has tended to be cost-based, enrolment-based, or some combination of the two. Nova Scotia has used a combination, with the total grant based on universities' cost projections and the allocation among institutions dictated by weighted enrolments. There are no analytical or empirical underpinnings that can be used to determine an optimal level for the operating grant provided to universities. However, there are several principles among which the government might choose to establish a framework for long-term funding decisions.

Recommendation 3:

In the short term, government funding for universities will be affected by the pace of fiscal restraint the government decides upon. This report recommends no specific benchmarks for setting the operating grant, but offers the following guidance:

- a. Look to cooperative administrative (back-office) integration to reduce system costs over the next three to five years.
- b. Share the burden of the restraint between students (through higher tuition fees) and universities (through a moderation in operating expenditures, particularly compensation).
- c. Deal with institutions identified as potentially facing significant financial risk before a crisis develops.

Recommendation 4:

In the long term, the government should choose one of three benchmarks when setting university funding:

- a. Increase funding at the rate of population growth.
 - b. Increase funding at the rate of overall government spending growth.
 - c. Increase funding at the rate of GDP (gross domestic product) growth.
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4.3 System Restructuring

4.3.1 Introduction

The Province of Nova Scotia has eleven degree-granting institutions. It's generally agreed that if the province were starting over from scratch, it would not create a system with that many institutions but probably would design one with considerable fewer, perhaps four or five, along the lines of other smaller provinces like New Brunswick, for example. There have been in the past, however, attempts to move in the direction of functionally having either less capacity or some consolidation within the existing system.

There have been, from commissions of inquiry and from observers, suggestions for opportunities in Nova Scotia to consolidate institutional administration. These suggestions or proposals have ranged from the creation of a single university in the province (a University of Nova Scotia) or a single university in Halifax, to integrating programs in a single institution, and to bilateral mergers of institutions. In the 1990s, two of these approaches

were instituted. Dalhousie University and the Technical University of Nova Scotia were joined together (bilateral merger). Education programs in Halifax were consolidated at Mount Saint Vincent University and permitted in only three other universities in the province (program integration). With respect to a University of Halifax, a far less ambitious attempt to consolidate common services (e.g., purchasing), was initiated among Halifax institutions, but now includes all the provincial institutions. There has not been a serious attempt to actually create a University of Halifax, let alone a University of Nova Scotia. Nor have there been formal attempts to create mergers of two or more institutions among the current eleven.

One rationale most typically put forward for consolidation (both in the past and for the future) is that it will reduce the costs of the university system in the province. Usually this cost reduction is taken to mean reduction of the costs to taxpayers of Nova Scotia. Unfortunately, the experience in this province and in other jurisdictions with mergers yields little or no clear evidence of cost reductions, short term or sustained, from institutional consolidation. Such cost savings may actually have occurred, but there has not been any systematic and compelling analysis of the financial outcomes of integration efforts, with the possible exception of the expenditure consolidation activities of ISI in Nova Scotia, discussed in Section 4.4.

What work has been done suggests that, with respect to mergers, almost inevitably costs increase in the short term as a result of the need to spend on transition (e.g., common information and technology communications platforms, salary and benefits adjustments, and professional fees such as legal and accounting). There are conceptual arguments for expecting longer-term cost reductions (e.g., economies of scale and/or scope in operating costs, and reduced administrative costs through the removal of senior administrative positions), but retrospective documentation of the financial outcomes of actual mergers are almost never available. Anecdotal evidence points to the difficulty of achieving savings on administrative costs as the actual number of senior administrators tends to remain almost constant (albeit re-titled) and the administrative staff cuts are limited, especially if the institutions are not physically contiguous. As well, in mergers, salaries tend to move up to the higher levels rather than down to the lower levels of the merging institutions.

Whatever may be the prospective cost implications of future forms of consolidation in the Nova Scotia university system, it is not the only basis upon which consideration of such integration should be based. The overarching consideration is the long-term viability and effectiveness of the province's universities. Economically speaking, it should be anticipated that the consolidation will improve the quality of education and the effectiveness of the university system's delivery of its two primary services of teaching and research. As discussed more extensively below, this is particularly the case if the focus is on short- to medium-term cost reductions in the context of a fiscal restraint initiative by government.

There is a framework upon which the analysis of and recommendations for a system restructuring might be based. What follows is a succinct description of what such a framework might be. The first element is that there must be a structural problem that requires solution and that the problem is best solved through some form of consolidation ranging from increased specialization of an institution to bilateral merger with another institution through to becoming part of a much larger multi-lateral consolidated institution. Whatever form the consolidation effort might take, it must satisfy one or more of the following conditions:

- a. It reduces the operating costs of at least one institution and thereby of the system. If it is a merger of two or more institutions, it must lower the costs below what the separate institutions would achieve on their own.

- b. It improves the quality of education (teaching and/or research) at one or more institutions without a reduction somewhere else in the system.
- c. It prevents a high-probability crisis from occurring at one or more institutions (e.g., deficit or rising debt leading to bankruptcy and closure).
- d. It mitigates a recurring problem at one or more institutions that ultimately may threaten their sustainability (e.g., revenue volatility, weak management).

Whatever the principles upon which an overall policy for consolidation or a specific proposal for consolidation ought to be based, one principle is inescapable in looking at dealing with financial difficulties at one or more institutions. It should be clear that extraordinary support for a financially troubled institution is not an option unless significant structural adjustments are negotiated and agreed upon. Such structural changes might include a merger or an affiliation, or a major restructuring of an institution, including such measures as downsizing the institution and/or increasing its degree of program focus.

It must also be a principle of consolidation, particularly where it includes a merger, that any such combination of institutions or consolidation of institutions cannot materially impair the system or the ongoing operations of other institutions. That is, if the rationale for consolidation is to improve quality it cannot be at the expense of a major structural cost increase for the system or of a significant decline in quality in other institutions directly attributable to the consolidation. This is not to say that changes in one or more institutions may not have competitive impacts on other institutions. Rather, it cannot be a directly linked consequence that efforts to rationalize at one or more institutions has a systemically negative impact on quality or on the cost structure of the system.

4.3.2 Types of Restructuring Possibilities

The creation of a University of Nova Scotia or of a University of Halifax tends to be the dramatic restructuring option typically discussed. However, there are alternatives that, in theory, might reduce system costs or increase overall quality, or both. One of those is the greater integration of back-office administrative activities (purchasing, information technology, accounting, admissions, etc.) among the institutions, which could reduce the costs of services both collectively and in individual institutions. Some of this has already been accomplished in the province (and in the Atlantic region), but more is possible, as is examined in Section 4.4.

There is already one example of program consolidation (education) among Nova Scotia universities and this study considers whether further efforts in this direction might be worth attempting. Although mentioned infrequently, yet another consolidation approach examined here is that of bilateral mergers of universities, a number of which may be worth examining. Finally, an alternative seldom referred to is the prospect of individual institutions becoming more specialized in their program offerings, either independently or in some arrangement with other universities (either in Nova Scotia or elsewhere).

Before examining the formal restructuring possibilities, ranging from the creation of a single provincial institution to administrative integration, it is worth first considering what precisely are the benefits that restructuring might be expected to deliver.

In the current fiscal context, the dominant interest of the government is likely to be in the extent to which various types of restructuring might lower the baseline costs of the university system without compromising quality. Conceptually, the cost savings or efficiencies come from what economists term the 'economies of scale.' That is, increasing the size of an institution (through merger/consolidation) would reduce the per-unit cost of operations. The empirical work on scale economies for universities suggests that these efficiencies in increased size could

come from administration, instruction, and the physical plant. (Patterson, 2000, pp. 259–263). To the extent that there are generalizable conclusions emanating from the attempts to quantify the impact of size on costs, the results indicate that there are, indeed, significant reductions in unit costs (usually measured per student) as institution enrolments climb to 2000 and above. These unit costs continue to decline (at a more modest pace) until institutions reach a size of approximately 10,000 students. However, the results do vary by type of institution and by the scope of institution programs. Notably, it appears that “institutions with narrowly focused curricula will usually cope better with small size than those with greater curriculum breadth—i.e., small institutions may survive because they are specialized.” (Patterson, 2000, p. 261).

These results, which come mainly from examination of mergers, are relevant to an assessment of the potential gains from institution consolidation in Nova Scotia. They indicate that some greater degree of integration within the Nova Scotia system could deliver cost savings. Notably, the research also suggests that the reductions are most likely to be found in administrative costs and least likely in instructional costs. As well, the cost savings from amalgamation tend to be somewhat higher with combinations of two medium-sized universities (4,500 to 7,000 students) and of medium with large ones (7,000 to 12,000). The average unit-cost reductions estimated are 10 per cent and 14 per cent respectively.

Several critical caveats are in order here before concluding that institutional mergers are likely to markedly lower the costs of the Nova Scotia university system. First, at least one study notes that a key source of the unit-cost reduction comes from the increase in the average class size post-merger. (Nelson & Hevert, 1992). Although there is little evidence of an inverse relationship between class size and quality of education received—an issue referred to in Section 4.5—the cost-reduction benefits may be at least partially offset by deterioration in the perceived or anticipated student experience. At a minimum, there are many students and parents with a strong preference for small classes.

Second, another study points to the range of (largely upfront) costs that occur with amalgamations of universities, including the levelling up of compensation, costs of relocation of faculty and staff, integration of information technology systems, legal and professional fees, modifications to physical plant, and so on. ((Fielden, 1991).

Finally, a major analysis of thirty mergers in the UK found that the key motivation for consolidation was not achievement of cost efficiencies but “academic compatibility/complimentarity, strategic direction . . . portfolio enhancement, entry to new markets.” (Rowley, 1997). Often, for the smaller institution, the key driver was survival. Clearly, the fact that the merger participants did not perceive scale economies as a motivation is not inconsistent with findings that mergers actually deliver those efficiencies. It does, however, suggest the possibility that the costs savings are more likely to occur where there are other strong academic and strategic reasons for amalgamating.

Even if costs savings were the primary focus of the government’s interest in various forms of consolidation, it would still need to be cognizant of the impact on the quality of the university system. As indicated above, there are instances in which the main rationale for university mergers is quality enhancement rather than cost reduction. What are some of the potential qualitative impacts of consolidation?

The consolidation of two or more institutions can make it possible for students to benefit from the complementarity of the program offerings among the institutions. That is, they may have access to a greater range of programs and courses than would be possible from any one of the universities alone. They may also gain access to alternative modes of delivery, such as distance learning, as well as to a greater array of teachers. This would be particularly the case if the individual institutions had unique programs or courses or if they had specific areas of strength or concentration that they brought to a merger.

The faculty and staff may be able to get access to more and better quality resources (equipment, facilities, research assistants, etc.) than would otherwise have been the case. There may also be readier collaboration on curriculum design, teaching methods, and joint program development than would be the result of cooperation among separate, independent institutions.

It is also possible for the joining of universities to lead to a raising of overall standards of teaching, research, management, and curriculum if there are discrete qualitative differences among the institutions in one or more of these areas.

Finally, as much of the foregoing discussion has been couched in terms like merger and amalgamation, it might be inferred that the only way to get consolidation benefits is through a complete merger of two or more universities in which all but one of them loses its separate identity. In fact, however, it may be possible to consolidate institutions without having them fully absorbed into a single entity. There are a number of examples of university agglomerations in which the individual institutions retain their distinct features including their names, boards of governors and senates, administrations, ownership of physical and financial assets and contractual arrangements with faculty and staff. There are, in fact, several consolidation options on the continuum from completely separate and independent to merger into a single entity.

For the purposes of this study, four types of association may be considered: limited specific cooperation; formal consortium; affiliation; and amalgamation. This does not exhaust the restructuring possibilities, which would also include mandated program consolidation and institution-specific specialization. Briefly, cooperation can involve formal or informal agreements among a number of institutions to act jointly on a subset of the range of activities in which they commonly engage. This can include common administrative functions (e.g., goods and services purchasing) and academic requirements (e.g., transfer of credits, joint program delivery, sharing of faculty, and research facilities). The key is that such cooperative efforts are voluntary, typically piece-meal (i.e., one-off arrangements) and do not need to include all the institutions in a particular university system.

A consortium involves a more formal, contractual arrangement among institutions to achieve administrative or academic goals, such as bulk purchasing, information technology support, human resource services, and out-sourced teaching or research. The key distinction with respect to cooperation is that the arrangement is more binding and often involves (as in the case of ISI Inc. in Atlantic Canada) the establishment of a common delivery entity.

Affiliation refers to a formal integration of two or more institutions that stops short of a full merger, in which situation the outcome is a single entity and the disappearance of all of the identifiable characteristics of the original universities that are absorbed. In an affiliation, the institutions names (brands) are retained along with a range of other elements of autonomy, which might include separate governance structures (board of governors, senate) and management/administration; control over program and curriculum design and oversight; maintenance of degree-granting status and separate faculties or departments. However, to involve some degree of integration, an affiliation would involve a loss of autonomy in one or more of the areas mentioned above. The more of those characteristics that are ceded to a central authority or agency, the closer the affiliation would come to a full amalgamation.

However, even if affiliating institutions retain autonomy over most of the responsibilities listed, there are other components of the formal agreement that could confer benefits to the new association. For example, courses could be cross-listed and faculty cross-appointed; some administrative responsibilities could be vested in one of the institutions; students would be free to take courses at any of the affiliating institutions without restriction; specific departments (especially smaller ones) could be merged. In short, an affiliation offers some but not all of the benefits or features of amalgamation. Obviously it also avoids some of the pitfalls of a full merger.

In what follows, the major types of restructuring possibilities are considered, highlighting the pros and cons of each. This is decidedly not meant to be a detailed or a comprehensive evaluation of all options, each of which could require separate studies on their own. Rather it is intended to provide sufficient analysis of each option to form the basis for recommendations to the government on which of them, if any, might be pursued further. The first of these to be considered is the maintenance of the status quo—i.e., no restructuring at all.

4.3.3 The Status Quo

It is reasonable to examine the pros and cons of the status quo given that the eleven degree-granting institutions in the province have survived more or less intact for a considerable period of time. The youngest of the institutions as a separate degree-granting institution is CBU, which is 36 years old. The institutions have survived significant fluctuations in the levels of government support over the years and have experienced volatility in enrolment levels. They have been probed and prodded by several commissions (including this one) in the past 40 years and have lived to tell about the experience.

The proponents of retaining the current structure, essentially as is point, to the benefits of the diversity of institution types that the Nova Scotia system allows. Universities range dramatically in size, scope and range of offerings, and locale, and therefore in student experience. It is also argued that there is a benefit to having the system dispersed across the province as it provides local access for students, particularly those who may not be able to afford to travel to an urban area or at least to another location to go to university. The universities in all of the locations, whether rural or urban, do provide local employment and income that support the economy of the areas in which they are situated. This is more starkly evident in the case of the universities that are located in rural regions.

The universities in the system all have well-established identities, sometimes referred to in marketing dialogue as “brand names.” They have large, loyal, and supportive alumnae who collectively, in at least some institutions, provide a significant level of donations to assist in the ongoing support of the university. The institutions have ownership of assets, both physical and financial, and each has unique characteristics that would cause one to pause before suggesting that the identity ought to be subsumed into a larger entity. Finally, the existence of a number of institutions in the province allows for considerable competition in the offering of undergraduate programs. Conceptually at least, the value of having considerable competition in the offering of broadly similar but differentiated educational services is that the potential consumers of those services (i.e., students) have an array of providers from which to choose.

Critical observers of the existing eleven-institution system would point to, among other things, the fact that diversity has a price and that price is borne by the taxpayers of Nova Scotia. If there were fewer institutions, it is argued, the cost to the taxpayers could be significantly reduced. As well, diversity and competition would remain even in a system with fewer institutions or one in which there is a greater degree of integration or consolidation among the institutions. Having local access or local availability of a university is only an issue for the five institutions that exist outside of the metro area of Halifax, of which two are within 100 kilometres of metro. It is arguable, in fact, that the issue of local availability is significantly relevant only in one instance. Cape Breton University is the only one of the non-urban institutions that relies heavily on its local area for enrolment. In any event, the prospect of greater integration does not imply the disappearance of any institution, but rather a change in its governance and administrative structure. That is, local availability is not incompatible with a greater degree of consolidation in the university system of Nova Scotia. Local economic impact is also not an issue unless the consolidation being contemplated would eliminate or significantly shrink the size of one or more of the institutions that are partners in the consolidation.

Brand identity is a potentially significant factor in determining the benefits of greater affiliation or greater consolidation. This is especially the case with respect to the ownership of assets and with respect to long-term fundraising opportunities. This would then suggest that if consolidation were to be considered, it ought to be done in the context of affiliation rather than in the context of a full amalgamation as the former would allow the partner institutions to maintain their separate and distinct identities. Finally, with respect to the issue of competition, two points are worth noting. First of all, if there is significant overlap in the range and type of courses and programs that are offered in the universities, it is not necessary to have eleven or even five or six separate institutions to generate significant competition in the market for educational services in Nova Scotia. Second, that competition is not only relevant in the context of student decisions about whether or not they will attend a specific university in Nova Scotia but applies to whether students will choose to study in Nova Scotia at all or, instead, go to another jurisdiction to consume the educational services they desire.

There are two other reasons for not simply accepting the existing university structure in Nova Scotia. First, past efforts at coordination and cooperation—which might have generated some of the benefits of greater integration—have been halting and incomplete. With some notable exceptions, efforts to increase the collective efficiency of the university system have failed. This points to the need to critically examine the prospects for structural change or restructuring of the university system in the province.

The second reason is that the university system is facing, for the first time, the prospect of two distinct negative financial pressures, namely a structural decline in enrolments and sustained fiscal restraint by the government. The former is coming not only from the demographic changes in Nova Scotia but from demographic changes in jurisdictions across the country. As well, the competition for international students is almost certain to intensify and, as noted in Section 3.1, greater reliance on such students necessitate additional extraordinary expenditures. The fiscal restraint, in any jurisdiction, may not be applied evenly across the array of activities and services provided by governments. Health care cost inflation has proven globally to be the publicly funded service most resistant to containment, let alone reduction. If this pattern continues, higher education, in virtually all jurisdictions, is likely to find itself with a shrinking share of total taxpayer support.

4.3.4 The University of Nova Scotia Option

The concept of creating a University of Nova Scotia is neither new nor novel in the province. The idea has waxed and waned for a number of decades and continues to be treated both by those who propose it and those who oppose it rather more glibly than the concept deserves. There are, globally, several examples of the joining together of disparate institutions in a large jurisdiction, like a province or a state, to form a single institution. An obvious example of that is the creation, in the early post-war period, of the State University of New York system. It did not begin from scratch, but was a cobbling together of a range of institutions in the state of New York that were publicly funded but were not delivering collectively the level or type of post-secondary education that was considered desirable. The point is that the notion of creating a University of Nova Scotia is not outlandish and deserves more considered treatment than it often gets.

There are obvious benefits to the creation of a fully integrated University of Nova Scotia that draws in all eleven degree-granting institutions, or at least most of them. Already noted in the generic discussion of merger benefits would be the potential for considerable scale economies or unit-cost reductions to be generated from the integration of eleven institutions into one large entity. There are, as noted, a number of other potential benefits besides the scale economies one. One of them could be unfettered mobility for students across a much broader array of programs and institutions than is currently possible. Students would be able to draw upon the full range

of teaching and research possibilities that the current system offers, and they could move rather seamlessly among the programs and courses of study that may be available in some institutions but not in others. Another potential benefit is that a single university in the province could establish consistent and higher standards than may currently exist while still retaining different campuses and colleges with distinct offerings, distinct programs of study and areas of specialization. In fact, it is possible that a University of Nova Scotia could enhance the comparative strengths of existing individual institutions as they are able to focus on areas of comparative advantage and complementarity that they would offer to the new integrated single entity.

It must be said, however, that whatever may be the potential benefits of the type described above, it is highly likely that the creation of a University of Nova Scotia from the existing institutions in the province is simply too massive a task to attempt to undertake. There are just too many institutions for a full consolidation to be reasonably contemplated even over an extended period of time. One of the reasons is that distance is a significant factor for those institutions outside of the metro area. It is evident from most of the examples of fully merged university systems that the separate entities, to be most effectively operated, have to be reasonably close together. Typically they are within a 25 to 50-kilometre radius of each other. To benefit from the administrative efficiencies that are the primary cost-reduction benefit of integration, the institutions have to be reasonably close together. Otherwise, it would be necessary to maintain administrative staff, plus faculty complements, in the more remote institutions that are similar in size to the existing complements of the independent institutions. As well, the mobility benefits for students would necessitate an even closer proximity of the second campus.

As already noted, there are typically significant upfront costs for any merger and that would be the case for an attempt to consolidate all eleven or nearly all eleven institutions in the province. If the costs of even one bilateral merger are reasonably significant (as appears to have been the case when the Technical University of Nova Scotia (TUNS) merged with Dalhousie), the prospect of transition costs is truly daunting for a multi-university merger. Another issue is whether the resultant size of a University of Nova Scotia might generate what has been found in the empirical literature to be diseconomies of scale. That is, rather than an overall reduction in unit costs, the size of the University of Nova Scotia would be larger than that at which the empirical work suggests unit-cost *increases* typically begin to occur from merged institutions.

It is reasonable to suppose that, if one were starting from scratch, it would be possible to create a University of Nova Scotia such as occurred in the US in California and Texas. However, Nova Scotia would not be working with a blank slate. There are a number of institutions, well established and long-standing, with a clear identity or brand, that are sufficiently strong to make a full integration in a merged entity virtually impossible. Some of the benefits of the type of integration implied by a University of Nova Scotia can be generated through a less fulsome consolidation. A University of Halifax or a greater degree of integration of back-office administrative activities are two examples. However, it is clear that the further away you move from a full merger of the institutions, the smaller are the prospective cost savings and gains from specialization that might otherwise occur.

Recommendation 5(a):

Eliminate the creation of a University of Nova Scotia from consideration.

4.3.5 The University of Halifax Option

The prospect of creating a University of Halifax would be far less daunting than attempting to establish a University of Nova Scotia in which eleven institutions are merged into a single entity. Among the arguments

in favour of creating a University of Halifax is that establishment of such an institution would require the amalgamation of a smaller number of universities and would be within a well-contained geographic area. Such a combined entity would be much less prone to either the diseconomies of scale referred to above or to the disadvantages of distance of a single provincial university. The amalgamation of a smaller number of institutions would be more readily manageable by a central administration than the merger of eleven institutions. As well, it would be less prone to the typical problems that an institution spread over a very large area would have to face. In cases where the distance among the institutions is significant, the more remote constituent elements tend to become more autonomous. Note, for example, that in the case of the University of Toronto, the two campuses that are quite far from the downtown core (Scarborough and Mississauga) are in the process of evolving to a more independent status than may have been envisioned when they were initially created. Students of a combined entity within the metro area of Halifax could more readily access the offerings of all or at least most of the member institutions.

The constituent institutions of a University of Halifax could more easily specialize in their offerings by, for example, eliminating low-demand courses or programs that may be offered in other institutions in the amalgamated institution. It would also allow the new entity to allocate resources more efficiently on the basis of areas of strength or comparative advantage. Cross-department program development and cross-appointments of faculty can be made much more readily where the constituent institutions are physically contiguous.

Finally, it might prove much easier to achieve the cooperation and coordination outcomes that have been sought for a number of years particularly among the metro Halifax institutions. Those efforts have, with some notable exceptions, not been overly successful. In a combined entity success might be achievable through the creation of a central authority.

With respect to the negative aspects of creating a University of Halifax, perhaps the overriding one is that there would remain the challenge of dealing with the brand name and legacy issues for several institutions. An attempt at amalgamation in Halifax would face resistance of alumnae and the negative impacts that could have on fundraising. The extent to which the attractiveness of an institution to students is linked to its well-established identity suggests that its elimination might be detrimental to overall enrolments, particularly if those enrolments are from out of province. Finally, there is the challenge of resolving what happens with the physical and financial assets that are owned by or under the control of the separate institutions to be amalgamated.

Another issue is whether all of the institutions in the metro area would be part of the merger. If it is assumed that Mount Saint Vincent University, Saint Mary's University, and Dalhousie would necessarily be part of any such integration, it does not follow that NSCAD, University of King's College, and AST would or should also have to be part of the merger. While it may be superficially obvious they should, there are potential complications to consider. First, there is the issue of whether the complementarity of the three smaller institutions with the three larger ones is as straightforward as it is with the three larger ones taken alone. Although it is clear that the University of King's College, through its existing affiliation with Dalhousie, should be easy to integrate, the question remains whether, in a much larger entity, UKC would be as natural a fit as it is with Dalhousie alone. It may paradoxically be harder to incorporate all three of the smaller institutions into a very large merger than it would be to integrate them through bilateral mergers with one of the larger institutions in Halifax.

Although the upfront costs of creating a University of Halifax would almost certainly be smaller than those for a University of Nova Scotia, they still would be considerable. Integrating even just the three larger institutions, the transition cost and system integration are likely to be substantial. It is possible that costs would increase exponentially as the number of institutions increases due to the complexity of integrating as many as six institutions compared to

bilateral mergers. In particular the costs of integrating each of the small institutions is likely not much lower than the costs for the larger ones as there are certain fixed elements to consolidating such things as information technology, support structures, procedures and processes and administrative units that cannot be avoided.

While the concept of a University of Halifax is both more logical and more appealing than that of a University of Nova Scotia, it is still almost certain to be too large a consolidation effort to contemplate at least in the current environment. For a government faced with having to impose fiscal restraint, the challenges of paying for the merger of six institutions are more than ought to be seriously contemplated. At some point in the future the revival of the University of Halifax concept could be worth considering. However, even in much better fiscal circumstances, it would be a huge task and arguably one that would prove not to be financially feasible unless the anticipated improvements of quality in the system were expected to be substantial. Such improvements in quality would have to be clearly demonstrated before the province should contemplate even studying the University of Halifax concept, let alone moving forward with it.

Recommendation 5(b):

Remove the creation of a University of Halifax from consideration, at least over the next five years.

4.3.6 Program Consolidation

In its simplest form, program consolidation involves reducing the number of institutions that may offer a particular program. That is, a program of studies, rather than being offered at all or most institutions is restricted to a subset of universities in the system. In the 1990s, this was discussed in two main program areas: education and business. There was actual consolidation of the B.Ed. and M.Ed. programs among the universities in the Halifax area. The education programs were consolidated at Mount Saint Vincent and the faculties of education at Dalhousie and Saint Mary's were eliminated. Most of the faculty who had been teaching at these two institutions moved, along with the students, to Mount Saint Vincent. Three other universities maintained their B.Ed. and M.Ed. programs namely St.FX, Acadia, and Université Sainte-Anne.

The proposed amalgamation of the business faculties in the Halifax universities did not come to pass. There are several explanations that have been offered as to why the plans to merge the three business faculties into one did not succeed. However, an ex-post examination of enrolment in business programs in Halifax universities and, in fact, regionally and nationally, provides a hint as to why the amalgamation did not occur. This program area has experienced the fastest growth in enrolment of the three major undergraduate program areas of art, science and business. As a result, the capacities of the business schools in the Halifax area have been forced to expand, implying that there were no space or faculty redundancies that an amalgamation would have helped resolve. Indeed one of the institutions in Halifax, Saint Mary's University, has one of the highest proportions of business enrolment to total of any enrolment (40 per cent) undergraduate institution in the country.

If the primary benefits of program consolidation are cost reductions (through eliminating redundancies in space utilization and faculty and staff requirements) and the potential for upgrading the overall quality of the combined programs (e.g., upgrading standards to those of best practice institution, better allocating resources across courses, improving curriculum) the key issue is whether there are any obvious candidates for another round of program consolidation.

In fact, because the programs in the business and education faculties were more like those of a department than

those of arts or sciences faculties—more homogeneous, easier to coordinate, and easier to integrate into thematic majors—it was more obvious to conceive of consolidating them across institutions. Additional candidates from the humanities, social sciences, languages, mathematics, and physical and biological sciences are far less obvious. In large part, this is because these sub-faculty program areas serve two distinct functions within the university. First, they provide the basis for specialization or concentration of field of study by some students. Second, they provide the foundation courses for students from across the spectrum of university programs. In any given university, it would be unworkable to have any one of the program areas mentioned above completely eliminated in a consolidation process. Note that this is quite different from suggesting that the range of offerings within a field of study is inviolate and can never be reduced.

Recommendation 5(c):

Remove program consolidation (reducing the number of institutions that can offer specific programs) as a restructuring option.

4.3.7 Bilateral Mergers

The general benefits of mergers are clearly applicable to instances when, instead of having a number of universities joining together, two institutions decide to consolidate. Although there will be potential economies of scale and therefore unit-cost reductions, since the merger involves only two institutions, the absolute size of those benefits is obviously going to be considerably smaller. On the other hand, it may be easier to actually attain the benefits, especially if the merger creates an institution that is in the size range where there are significant economies of scale. As previously noted, there is evidence that benefits tend to be significant in instances where the mergers are between two medium sized institutions or between a medium-sized and a large institution. It may also be more readily possible to ascertain and to take advantage of areas of a complementarity when dealing with only two institutions rather than a number of them. As well, identification and elimination of areas of unnecessary duplication in course or program offerings and delineation of administrative savings may be less challenging.

The ultimate benefit from being able to both exploit areas of complementarity and eliminate areas of overlap and duplication is that it allows the combined institutions to expand the range of courses, programs, and research activities available to students. By exploiting complementarity, it is possible for the merged institution to give students access to courses that were not available at one of the original institutions. Eliminating duplication saves resources, which may be redeployed to expand student choices in other areas.

With respect to the disadvantages or the constraints associated with bilateral mergers, it is clear that, even with only two institutions, there remain the branding and legacy challenges referred to in the discussion of multi-institution consolidation. There will also be upfront costs of transition, albeit on a much smaller scale than would tend to be the case in larger mergers. Depending upon the relative sizes of the two organizations being combined, the benefits may be proportionately lower than the transition costs, limiting the net gains.

Apart from a direct requirement of government that two institutions merge, what are the driving forces that might compel two universities to move toward consolidation or, at least, closer integration? The most obvious possibility is where an institution is in such serious difficulty it is unlikely to be able to resolve its problems independently. Merging with another institution might be one way, perhaps the only way, in which the institution can survive if a rescue by the government is not available or possible.

Another instance where a merger is potentially beneficial is where one or both institutions are significantly

constrained in their capacity to grow or in their ability to enhance the quality of the teaching and research activity in which they want to engage. The prospective merger has to be an obvious route to reducing or eliminating such constraints.

A third instance may be one in which both institutions perceive that there would be material benefits from integrating their institutions, quite apart from any financial challenges or capacity constraints. That is, two institutions foresee possible improvements in research capabilities, program development, cost savings in administration, and the like.

Of the three driving forces mentioned above, the one that is most likely to be the catalyst for two institutions merging would be an existing or impending crisis. The extent of the problem must be sufficient to overcome the normal resistance to joining together and to force one of the institutions to accept the loss of some or all of its independence.

Reference to a merger is usually to the amalgamation of two institutions into a new entity or the absorption of one institution by another. However, there are steps short of complete amalgamation in which some of the benefits of a full integration may be attached. These were referred to above as affiliation arrangements rather than amalgamation. The benefit of an affiliation is that it leaves some degree of independence, identity, and legacy intact for one or both of the institutions. Affiliation may be distinguished by the form of governance that is involved. That is, the affiliation may leave intact degree-granting responsibility and separate boards of governors and senates. Affiliation may be defined by the degree of management or academic integration that is being proposed by the changed status. The affiliation maintains an autonomous governance structure but there is considerable integration in programs of study, courses, and faculties.

There are several circumstances in which affiliation would be preferred to full amalgamation. An obvious instance is when the losses from eliminating distinct identity are significant and far outweigh any gains that may occur from a full merger. Another example would be one in which estimated cost savings or quality improvements are not much different between the affiliation and merger options. In that case, affiliation is an easier degree of integration to actually achieve.

In what follows, the discussion moves from a general discussion of bilateral mergers to consideration of several possible such consolidation efforts that ought to be contemplated in Nova Scotia. In each instance, the examination is of the candidate institutions for bilateral consolidation and includes the pros and cons of such a consolidation and a discussion of other options.

NOVA SCOTIA COLLEGE OF ART AND DESIGN

The first such candidate for bilateral merger is Nova Scotia College of Art and Design University, an institution facing significant financial problems in which there is no resolution short of a government rescue to its current cash-flow problem. However, even without its current deficit and debt problems, NSCAD has significant constraints on its capacity to expand offerings or even to continue to offer the range of courses and programs that are currently available. This is because a significant portion of its existing space is not adequate for many of its programs. Many of NSCAD's current courses are space-intensive and will ultimately require new infrastructure and new premises. It is in that context that it makes sense to consider integrating NSCAD with an existing institution in the Halifax area.

A number of arguments have been made opposing the prospect of a merger with another university. First, the reputation of NSCAD is argued to be significantly stronger as an independent entity and the reputation could be damaged by a merger with another institution. Second, the perceived value of a merger would be less obvious

in the absence of the current fiscal challenge, although the space constraint will persist even if the financial issue is resolved. The third argument made is that the merger would not reduce institutional costs for a merged institution, but might actually increase them. These higher costs are not just the short-term transition costs, which are a part of a typical merger, but the costs for the ongoing combined operation. The higher cost would, in part, result from having to increase the specialized physical space available for NSCAD's programs. If the prospective merger partner has no spare capacity, additional space would have to be built, increasing not only capital costs but also ongoing operating costs. Finally, the fact that NSCAD's programs tend to be much higher cost ones than those of typical undergraduate institutions reinforces the argument that cost increases, rather than savings, will be the more likely outcome of a NSCAD merger with another Halifax university.

With respect to the possible candidates for a merger, the most obvious one would be Dalhousie University, as there already exists some affiliation with the university and there is potential complementarity between the design programs at NSCAD and the architecture programs at Dalhousie. There may also be some synergies between the broader fine arts programs at the two institutions.

A merger with Mount Saint Vincent University has no obvious synergies except that Mount Saint Vincent may have additional space that could be used by NSCAD. That would have to be the subject of further investigation to ensure that such capacity existed and would be suitable for NSCAD.

A merger with Saint Mary's is, arguably, the one least likely to generate either significant changes in the overall quality of offerings because of complementary programs or cost savings because of overlap in the kinds of program areas that are covered. A second challenge with a NSCAD-Saint Mary's merger would be that currently there is no obvious excess capacity on Saint Mary's campus, although such might be created through an expansion.

A completely different option from a merger between NSCAD and one of the institutions in Halifax is that NSCAD remains an independent institution, but shrinks the range of programs it offers. This is what is referred to in Section 5.5.8 as the internal restructuring option. If the most significant structural problem that NSCAD is facing is one of adequacy of space to mount the range of programs that is currently being offered, it could reduce the scope of programs and courses offered. The total capacity currently available for use on a sustained basis would need to accommodate the reduced range of program and course offerings. Any attempt to evaluate that option is well beyond the scope of this paper, but certainly it is reasonable to contemplate a narrowing of scope for NSCAD, particularly given the labour-and space-intensive nature of many of its programs.

Recommendation 5(d):

Explore both merger and internal restructuring options to address future financial challenges at the Nova Scotia College of Art and Design.

ATLANTIC SCHOOL OF THEOLOGY

The Atlantic School of Theology is an extremely small institution by any standard and highly specialized in the types of programs and courses that it offers. It is also the only divinity school in Canada that maintains an existence as a fully independent institution. AST has a significant degree of affiliation with Saint Mary's University and is physically close to its main campus. With only 90 students and a relatively small staff, the savings from any closer integration with another institution—the most obvious candidate being Saint Mary's University—are likely to be similarly small. Closer integration could, perhaps, eliminate one or two senior administrative positions and one or two staff positions.

Because of the relatively small nature of the savings that might occur, it is unclear whether or not a closer integration with Saint Mary's University is really all that beneficial if the focus of such an integration is cost saving. In fact given the difference in the faculty salary levels at AST and Saint Mary's, a closer integration of the two institutions is likely to result in an escalation of faculty salaries at AST to match those at Saint Mary's. Because of the highly specialized nature of AST's course offerings, there is no obvious benefit in the form of quality improvement or complementarity for either institution that has not already been exploited. Perhaps the most significant concern about a merger between AST and Saint Mary's is that it is unclear what would happen to the financial support provided to AST from the endowment of the former divinity school. As well, there is uncertainty about the denominational support of the United Church of Canada, the Anglican Church, and the Roman Catholic Church if such a merger were sought. In other words, it may very well be that a closer integration with relatively modest, if any, savings might create many more problems than it would resolve.

Short of a merger, there may be benefits in further strengthening the Saint Mary's-AST affiliation and, in particular, integrating more closely the theological training activity at AST with the religious studies faculty at Saint Mary's University. That would essentially leave the current arrangement more or less intact for administration, but strengthen the academic affiliation between the two institutions.

Recommendation 5(e):

Remove a merger of Atlantic School of Theology with Saint Mary's University from consideration.

NOVA SCOTIA AGRICULTURAL COLLEGE

As the Nova Scotia Agricultural College is not currently an independent entity but is in transition from being a government department, it is reasonable to examine the possibility of it becoming much more closely aligned with Dalhousie University. Dalhousie is already approving the degrees from Nova Scotia Agricultural College and jointly providing those degrees. There is considerable potential complementarity with respect to the research and teaching activities of these two institutions that is not currently being exploited in an effective way. As a consequence, an integration of the two institutions could yield an improvement in the overall quality and range of research activities that are carried out, as well as in their course offerings.

A merger between Nova Scotia Agricultural College and Dalhousie is not without its potential problems. Nova Scotia Agricultural College has an international reputation, and a merger that eliminated its brand name might be harmful to that overall reputation. Second, there are no evident cost savings from the merger as the two campuses are not close to each other and it is highly likely that most of the administrative structure, both senior administration and staff, would have to be retained at Nova Scotia Agricultural College. As well, to the extent that the faculty and staff salaries at Agricultural College are lower than those at Dalhousie, there would almost inevitably be an escalation in those faculty costs on a permanent basis at the Agricultural College.

While there is no imminent financial crisis looming at NSAC, it does have the highest per-FTE grant of the eleven universities in the province and its infrastructure is owned and maintained by the government. Whether it were to become a fully independent institution or more closely integrated into Dalhousie University, it is not obvious that it would continue to receive the level of government support it currently enjoys. During the transition from a government entity, the status of its operating grant and its facilities operating costs remain to be resolved. Depending on the outcome, NSAC could be faced with a structural financial challenge.

Short of a full merger with Dalhousie, NSAC could retain an independent identity and increase its affiliation with Dalhousie. No public policy decisions would have to be made in that case, because a significant degree of affiliation already exists. The argument for a full merger with Dalhousie would imply that the Agricultural College would become a new separate school or at least a faculty at Dalhousie comparable to, for example, the MacDonald College relationship with McGill University. It is not clear that creating a fully independent degree-granting institution at the Nova Scotia Agricultural College is the most beneficial way to proceed as it makes the transition from being effectively a government entity to some other status.

Recommendation 5(f):

Consider integrating Nova Scotia Agricultural College into Dalhousie University as the college ceases as a government entity.

MOUNT SAINT VINCENT UNIVERSITY

Mount Saint Vincent University is at significant risk of declining enrolment. In part this is because its traditional *raison d'être* of educating and empowering women no longer provides it with a comparative advantage in attracting students. The rates of female participation in university now exceed those of men in most universities and in most programs. Second, as is the case for all universities, MSVU has limited capacity to increase enrolments from non-traditional sources such as visible minorities and low-income individuals. Third, the Mount has significantly relied on students from Nova Scotia for its enrolment and has either by design or circumstance not attracted or recruited out-of-province students in significant numbers. This makes it relatively more vulnerable in a shrinking enrolment environment. As well, the Mount relies to a significant degree on part-time enrolment, which requires a higher level of recruitment to get full-time-equivalent enrolment levels. As indicated in the section on enrolment projections, the capacity to increase part-time enrolment is likely to be limited, although certainly it has a large population pool upon which to draw. This is not to suggest that Mount Saint Vincent University will be unable to maintain or even increase enrolments. However, it is more at risk from declining enrolments than either of the two larger universities in the metro Halifax area or than Acadia and St.FX, which have historically drawn heavily on out-of-province students for enrolments.

The fact that the Mount may be more at risk of declining enrolment than many other institutions in the province suggests that it may wish to consider affiliating more closely or even merging fully with one of the other institutions in the metro Halifax area. The two obvious choices would be Saint Mary's University and Dalhousie University. With either partner, the Mount offers two primary benefits to a potential partner. The first is that it has the available space to expand the physical infrastructure of the university. It also offers to either potential partner a significant undergraduate enrolment level that can support program expansion and program delivery in the metropolitan area. Finally, the existence of joint courses and programs with the other Halifax institutions, along with an established transportation system for moving students among the campuses, provides some foundation for an affiliation or merger.

There are also reasons to argue against such a merger. The most obvious is that the Mount has an established reputation and identity that its alumni, students, faculty, and administration would be loathe to give up. Second, if the Mount were able to sustain enrolment or even increase it, it would not have impending financial problems and hence would have limited incentive for a merger. In addition, as in the case of other bilateral mergers, consolidation with another university would not necessarily lead to a discernible reduction in administration costs. Finally, particularly if the merger were with Dalhousie University, the costs of faculty and staff at the Mount could very well escalate to the levels currently existing at Dalhousie hence actually increasing costs rather than decreasing them.

The options for Mount Saint Vincent include the following:

- a. Merge (or affiliate) with Dalhousie University, thereby increasing substantially the latter's undergraduate population, which would further subsidize its graduate programs.
- b. Merge (or affiliate) with Saint Mary's University, which would further enhance the latter's business programs and provide other program areas not currently offered.

In either case, there are benefits to the Mount's students, who would have access to a broader array of courses. The final option is

- c. Leave it as is. If the expected enrolment declines do not occur, the rationale for a merger will be less compelling. However, the fact that it has one of the lowest levels of operating expenditures per FTE indicates that it would still be more vulnerable than the other two major Halifax institutions or St.FX and Acadia.

Recommendation 5(g):

Explore the potential for merger or significant affiliation of Mount Saint Vincent University (MSVU) with either Dalhousie or Saint Mary's, to mitigate declining enrolment risks at MSVU.

4.3.8 Internal Restructuring

The restructuring options discussed to this point involve cooperative integration of administrative activities such as purchasing and internal delivery of administrative services and multilateral or bilateral mergers. In all cases, negotiations among a subset of the universities would be required to generate cost savings or quality improvements. There is an alternative for institutions facing serious structural financial problems that do not have an obvious or desirable partner. The alternative is to restructure their operations by narrowing the scope of the programs they offer and reallocating resources to their perceived areas of strength. That is, they would become more specialized institutions with fewer program areas or departments.

Since most universities have been expanding their array of programs, both undergraduate and graduate, the argument for moving in the opposite direction is not immediately obvious or compelling. It is true that adding courses, programs, and degrees diversifies the "portfolio" of students, and so arguably lowers the risk of a falloff in enrolments. On the other hand, adding to the array of offerings introduces additional operating costs that may never be covered if the enrolment expectations are not realized. It also carries the risk that the university will be perceived to be unfocused and lacking in any particular areas of strength or competitive advantage.

In contrast, narrowing the scope of programs allows the institution to concentrate its resources and its marketing in areas of strength. This offers the potential to make it more attractive to faculty and students, boosting its hiring and enrolment levels.

A decision to reduce its range of offerings would not be easy or straightforward for a university today. The impediments to reducing the number of faculty in a given program area have already been noted. As well, there would be legitimate concern over whether the students lost through elimination of some courses or programs would be offset by the attraction of more to the areas of identified advantage. The intensity of the internal debates about reducing or eliminating specific programs should not be underestimated.

However, if a university were anticipating serious and irresolvable financial difficulty, this might be the most attractive option for dealing with the problem. This would particularly be the case for an institution lacking alternatives such as a merger. There are two examples that appear to fit this depiction. They are Cape Breton University and Université Sainte-Anne.

CAPE BRETON UNIVERSITY

Cape Breton University is the smallest of the mid-size universities in Nova Scotia. It is at higher risk of a decline in student enrolments because of its heavy reliance on students from industrial Cape Breton, whose numbers are likely to decline faster than in most other areas of the province. The university has attracted international students, but it has not recruited significantly from other parts of Canada, unlike Acadia and St FX. As well, as the youngest of the four-year undergraduate institutions in the province, it does not have the well-established reputation (or brand identity) that many competing institutions have been able to develop over the years. It does not appear to have defined any particular areas of strength or specialization which it would use to market to student. Rather it has persistently over the last couple of decades added courses and programs, making it less clear where its competitive advantage lies.

Cape Breton University, because of its relatively remote location in Nova Scotia, lacks an obvious merger or affiliation partner, unlike the other institutions for whom merger prospects have been discussed. This makes it a much more likely candidate for increased specialization were it to be faced with irresolvable financial problems. It would be inappropriate in this report to attempt to identify with any specificity what might be the areas of competitive advantage on which it would be advised to focus. However, it clearly has developed a reputation in the area of community studies and in particular areas of cultural studies. It has also developed and is developing expertise in the area of environmental studies. An increased focus in those or other areas that the university might identify as relative strengths could make the university capable of not only surviving financial difficulties but actually becoming a more successful institution able to attract students from the rest of the province and from other provinces.

With respect to how it might shrink its offerings, one possibility to consider is eliminating whole programs. Another approach would be to reduce the number of four-year degrees offered in those areas where it may determine it has more limited capacity to compete. It could then provide the first two years worth of certain programs and arrange with other universities to accept the students who have completed two years into the balance of a four-year degree program.

This is not an ideal solution as it runs the risk of compelling some students to simply go to another university and do the four years of program or degree study at that institution. However, for at least some portion of its student body, the attraction of Cape Breton University is that the students can live at home while attending university and hence reduce the costs of a university degree. Hence, even if they were restricted to the first two years of a program, the university would remain an attractive institution to attend before moving on to complete a degree. It should be made clear that this is not a proposal that CBU turn back the clock to its former status as a two year institution or a junior college. However, it is a suggestion that the university may want to consider reducing the scope of some of its degree offerings in order to enhance its prospects for financial viability and hence avoid the need for any extraordinary rescue measures to be taken by the government.

Recommendation 5(h):

Consider the need for Cape Breton University to become more specialized in the range of four-year degree programs it offers, as it faces the prospect of a significant decline in enrolment.

UNIVERSITÉ SAINTE-ANNE

Université Sainte-Anne is one of the most heavily subsidized and therefore most costly institutions from the perspective of the government funding required to sustain the university. It has a small enrolment, which is clearly at risk at continuing to decline at least at the Church Point campus, and it has a limited and declining college population. The university lacks any obvious merger candidate in Nova Scotia, although it has been suggested by some that it merge in some form with the University of Moncton, another francophone institution. The primary impediment to this is that the University of Moncton is in another province and some considerable distance from the Université Sainte-Anne. It is not clear, as well, whether University of Moncton would have any interest in having Université Sainte-Anne survive. Finally, if it were to consider seriously a merger with the University of Moncton by, for example, offering the first two years of a four-year program, the final two years of which would be taken by a student at the University of Moncton, it's not clear if that would actually continue to attract students to the Church Point campus. They might instead choose to spend the full four years at the University of Moncton, rather than engaging in a two-year plus two-year arrangement.

As a consequence, the most attractive alternative for the Université Sainte-Anne to consider may be a restructuring of its offerings. In this case the restructuring would not necessarily involve any shrinkage or reduction of its offerings at the primary campus. Rather, its continued financial viability may be better enhanced by expanding its offerings in the Halifax Region, where its programs are primarily part-time and mainly to older adults. As the Université Sainte-Anne is the only institution that is serving francophone students in Nova Scotia, there would be a significant desire to maintain the university rather than allowing it to close. The government may well choose to maintain the current degree of significant subsidization of the institution, but a restructuring of the sort described might be an attractive way to enhance the financial viability of the university.

Recommendation 5(i):

Consider expanding the programs Université Sainte-Anne offers in the Halifax region to mitigate the small and declining student base at its main Church Point campus.

4.4 Administrative Integration and Cost Savings

4.4.1 Introduction

In lieu of multilateral mergers such as the University of Nova Scotia or the University of Halifax, some of the cost savings may be achievable through another form of consolidation that maintains the independence of the individual institutions. This is the integration of the purchase and delivery of standard goods and services. It could include purchases of office supplies and equipment, software, insurance and health benefits for employees and students, accounting, legal and investment management services, information technology, and the like. On the joint delivery side, common applications processing, joint programs and courses, student services, and distance education are examples.

In Nova Scotia, the universities already collaborate on the purchasing of a range of goods and services through Interuniversity Services Inc. and on delivery of library services through Novanet. In fact, these initiatives are carried out on an Atlantic-provinces-wide basis. This section explores the prospect for further integration of such services. It does not provide a detailed assessment of potential initiatives, nor of their estimated impact on costs. It does attempt to indicate where such initiatives might be undertaken and provides an order of magnitude estimate of the potential cost savings.

4.4.2 Key Categories of Potential Cost Savings

In an effort to minimize costs and free up resources, many universities and colleges have formed groups, often called consortia, whereby member institutions collaboratively spend on goods and services. The magnitude and success of these efforts varies across jurisdictions; but aside from factors owing to specific contexts, leadership and collective will are often critical determinants of success. In the case of Nova Scotia's universities, savings have been achieved over the past 25 years by Interuniversity Services Inc. (ISI), which is a collaborative organization in which all of Nova Scotia's universities have membership. It generated an estimated \$1.5 million in savings, while Novanet Inc., which serves the libraries of all of Nova Scotia's universities, generated \$1.9 million in savings in 2009–10. Relative to spending, this \$3.4 million in savings amounts to a reduction of 11.6 per cent on the \$29 million collaborative spend.

By comparison, the Massachusetts Higher Education Consortium achieved an annual savings of 27 per cent on total expenditures in 2009. Thus, while the efforts on Nova Scotia's universities have been fruitful, it would appear there are additional opportunities for them to save more on their total spending. In the mid-1990s, Coopers Lybrand estimated an \$8 million saving from consolidated administrative and support units among the metro Halifax universities alone. The rest of this section provides an overview of collaborative cost savings employed in various jurisdictions. Appendices 1 and 2 provide a more detailed discussion of these measures.

On the purchasing of goods and services, the following is an illustrative list of the commonly used and relatively standardized commodities, supplies, and professional services that could be included in a joint purchasing approach:

- Supplies – fuel, office supplies, office equipment, furniture, furnishings
- Benefits (faculty and staff) – supplementary health plans (including dental and drug), group life insurance, disability insurance, employee assistance programs
- Benefits (students and alumnae) – supplementary health plans (including dental and drug, group life insurance, counselling, language training (especially ESL), career planning
- Financial services – financial advisory services (faculty, staff, and students), auditing, accounting, investment management, risk management, student loan administration, real estate planning, real estate insurance
- Other services – facilities planning, legal, government relations (generic), fundraising (generic), technical services, information technology (IT) training
- Environment/energy – fuel cost management, sustainability, energy efficiency audits
- Assessment management – accountability benchmarking, performance benchmarking, learning assessments

The key to taking advantage of the common purchasing prospects is that the institutions—whether in Nova Scotia or, more broadly, in Atlantic Canada—can collectively do what would not be possible individually; that is, use their combined spending power to reduce prices charged by suppliers. This is especially the case where the purchase levels for some individual items might be too low when being done by a smaller institution to ever warrant an attempt at bargaining down the price. Done jointly, institutions of all sizes can benefit.

There are several potential impediments to adoption of a more extensive common purchasing practice. First, there may be specialized or customized elements to the services purchased that preclude joint spending. An example typically cited is information technology for which individual institutions have purchased software that is customized to the requirements of the operations of the university. However, specialized software tends to be designed for universities generally, rather than for individual institutions. While an institution may then choose to use it in ways that others do not, the day-to-day operations of small to mid-sized (primarily) undergraduate institutions at least are unlikely to be materially different from each other. Hence, the argument that institutional needs are different from one university to another is unlikely to be a sufficient argument against common purchasing of software or other services.

The more critical challenge, especially with IT systems, is that an institution may have a preference for features of the software (or benefit packages, such as health and drug plans) that are available in one offering but not in another. If the preferences are linked to a genuine difference in institutional requirements, the objection to common purchasing has validity. Even then, it may be possible to negotiate with the supplier an enhancement of the product or service being considered that meets different preferences. On the other hand, if the preferences are based primarily on familiarity with the product or service and the resistance is more to change than to significant functional differences in the purchased item, there is no sound basis for refusing a common purchase opportunity.

Yet another concern is that, again typically with IT systems, institutions have spent considerable sums on the current one and are understandably loathe to abandon it if the installation is recent. The way around that problem is to have institutions with recently purchased systems migrate to the common one when the time for a comprehensive upgrade approaches.

In summary, it is possible to increase the savings available through common purchases of goods and services using an already established organization like ISI. It is highly unlikely that the benefits of consolidated purchasing have been completely exhausted. However, ISI requires information from each institution on current purchasing activities to be able to assess both the potential size of future savings and impediments to achieving them. ISI's ability to acquire such information from the universities appears to be more difficult than it should be. Assuming that the cost of providing the information does not outweigh the potential savings from its ultimate use, universities in Nova Scotia should be required to provide it.

DELIVERY OF SERVICES

Where services both administrative and academic are being provided from within the institution, it is worth considering whether such services might, in effect, be contracted out to a service provider who would deliver them to all the institutions. The services provided by an institution's staff that could become a component of shared-service delivery might include the following:

- Financial Administration — student loan administration, accounting/bookkeeping, internal auditing, debt management, investment portfolio management, risk assessment, payments processing
- Human Resource Management — training, payroll processing, actuarial services, wage and salary data collection

- Registration Services – transcript communication, common application systems
- Academic – program approval, joint programs, shared access to services, distance education

Where resistance to expanding common purchasing activity may be modest, the reluctance to move extensively to shared services would be substantial. This has certainly been the case with respect to the development of a common application process, as well as to other suggestions from the Coopers Lybrand study in the mid-90s. There are perceived to be a number of impediments, any one of which would be sufficient to prevent the development of particular plans for shared-service delivery. Each one is taken in turn, below.

- a. The most common argument against shared-service delivery is that individual institutions have unique facets to their particular services that could preclude an integrated approach. While there may be genuine exceptions, it is hard to imagine that, in the range of day-to-day financial and human resource management operations, any one university's requirements are so different that they could not be accommodated by competent, well-managed external providers to whom service delivery had been outsourced. There are plenty of examples of shared-service models, including several in Atlantic Canada and nationally—health care, school boards, and banking are three.

A more credible fear may be that, when problems arise in the service delivery for a particular institution, it may be difficult to find a troubleshooter who can pinpoint and resolve the issue at an institution that has unique elements in its service requirements. Hence, it is argued, the university needs its “own people” to offer the service so that they will be familiar enough to quickly identify problem sources and solutions. Despite such fears, it cannot be the case that a reliable service provider with experienced staff would be less able than onsite staff to deal with problems. This is what happens regularly in many parts of the service sector when companies have a range of customers with much more diverse needs and potential problems than would be the case with eleven universities.

- b. A particular variant of the concern about problem resolution is that smaller institutions fear that their system problems will take a back seat to those of larger institutions if there is a single out-sourced service firm. Assuming that the sharing of the costs among the institutions is pro-rated more or less to relative size, it may be understandable that smaller universities would surmise that they would be at the end of the queue for “repairs.” On the other hand, with a properly designed performance assessment and complaint resolution mechanism, it should be relatively easy to ensure that each of a small number of clients will get equitable treatment.
- c. While it is highly unlikely that any university has a competitive advantage arising out of the running of its own financial operations or other of its internally provided services, it is not perceived to be the case when it comes to the handling of applications. Proposals for instituting a single application mechanism similar to that in Ontario have surfaced intermittently in the province and in the region. The response from the universities is that it wouldn't be feasible in Nova Scotia given the significant start-up costs, limited efficiencies, and minimal staff cost savings. That does not appear to have been the experience in Ontario—although, admittedly, the number of universities participating in Ontario (28) is more than twice the number in Nova Scotia. Expanding it to all universities in the Atlantic region could well enhance the scale economies and cost reduction prospects.

However, it has been suggested that the resistance really comes from the concern about the potentially negative effects a common application process might have on the system. This could be especially an issue for universities that draw relatively more heavily on out-of-province students for enrolment. Curtailment of marketing efforts would be a legitimate impediment to a common applications system. There is, however, no obvious reason why that would happen. Universities can both advertise and directly recruit students anywhere in

the world they choose. A common administration for collecting and sorting applications should not inhibit such activities. The identities are not hidden in the applications process, as the process is only one of the wide variety of ways in which individual institutions can make themselves visible to potential enrollees.

- d. The consolidation of service provision would not be undertaken or even contemplated if there were not anticipated to be significant staff cost savings that would result from it. That gives rise to concern, rarely expressed explicitly, that jobs will be lost in the local economy. This is especially the case in rural-based institutions where employment opportunities may be limited (five of the eleven universities fit this description).

There are two points to be made about this issue. First, it is perfectly understandable that the unions representing staff who might be affected by service consolidation would make every effort to protect the jobs of their members. However, it is not the primary responsibility of the university to maintain every job currently performed by its faculty, staff, and administrators. Its mandate is to provide quality teaching and research as effectively (and efficiently) as possible. If that can be enhanced (or, at a minimum, not compromised) by outsourcing some internal activities, then it should do so without reservation.

The second point is that the cost savings generated by outsourcing could well be reallocated in such a way that new jobs would be created at the university and, hence, in the local economy. They simply won't be the same jobs that the consolidation process has estimated.

Regarding the broader issue of the role of the universities on the local economy, their impact is incidental to the mandate and purpose of the university system and its individual institutions. The teaching and research activity carried out has an effect on the broader economy's growth through productivity enhancement, but that would happen wherever the university was located.

RECOMMENDATION

Over the next several years, significant cost savings may be achievable through greater administrative integration. Nova Scotia universities already collaborate on purchasing many goods and services through Interuniversity Services Inc. (ISI), and on delivery of library services through Novanet. There are additional opportunities for efficiency gains and cost savings at the system level.

Recommendation 6:

Seek to maximize administrative integration, under the following guidelines:

- a. Require universities to provide Interuniversity Services Inc. with the data necessary to assess opportunities to achieve additional savings from integrated purchasing.
 - b. Conduct a detailed assessment of the internally provided services that could be outsourced to a common provider to generate cost savings, and establish a timeline and process for implementing advantageous outsourcing.
-

Appendix 1: Detailed Information on Key Cost Saving Areas

PROCUREMENT

CONSOLIDATED SPENDING

Consolidated spending is arguably the most common savings measure among university consortiums, wherein members collectively spend in order to find better process on common items of procurement. Interuniversity Services Inc. serves this function for all of Nova Scotia's universities.

CONSOLIDATED SPENDING INFORMATION

The first step in identifying potential areas for savings through consolidated spending is the gathering of data on spending. Ontario's 'e-procurement' and Notre Dame's 'buyND' are examples of programs that have been implemented, although mixed results have been observed. Ontario's e-procurement program did not achieve the critical mass of buy-in needed among its universities to provide the kind of data necessary for the program to achieve its desired effect, whereas Notre Dame's 'buyND' has been a success. No such program exists in Nova Scotia at the current time.

BENEFITS

HEALTH PLANS

Consolidation of spending on benefits offers competitive price structures that lower overall shared cost while adding overall value. In Nova Scotia, ISI administers employee benefit contracts on behalf of the universities and the NSCC that address extended health benefits, group life insurance, long-term disability, accidental death and dismemberment, travel benefits, and employee and family assistance programs.

DRUGS PLANS

The universities of Atlantic Canada spend \$18 million annually on drugs collaboratively through Medavie Blue Cross. ISI is working collaboratively with Blue Cross to implement process improvements and additional competitive initiatives to create downward pressure on the rising costs of drugs, and thus lower the actual costs of drugs purchased under Blue Cross.

DENTAL PLANS

No collaborative dental plan currently exists among the universities of Nova Scotia, although this has been achieved elsewhere. The Boston Consortium for Higher Education promotes and organizes 'communities of practice' that work together in an effort to find collaborative solutions to shared problems. The Benefits Group of this consortium has worked on a dental insurance plan.

ENVIRONMENT AND ENERGY EFFICIENCY

FUEL COST MANAGEMENT

ISI has managed a group purchasing contract for fuel oil (Bunker A & C) for a number of years. Currently ISI has put together a task force to explore improvements to the management of this \$16 million (Atlantic-wide) annual fuel spend. A number of the post-secondary institutions in Nova Scotia have or are in the process of implementing natural gas as a primary fuel source. ISI is working with these members to implement a collaboration strategy to manage the risk and costs of natural gas procurement.

SUSTAINABILITY

It is likely that opportunities will arise in the near future for the universities to adopt new energy-efficient technologies for their operations and to develop on-campus green spaces. Group purchasing may reduce the cost of implementation. In that vein, ISI is currently planning to facilitate the monitoring, measurement, and reporting of greenhouse gas consumption and reduction.

ENERGY EFFICIENCY AUDITS

The cost of contracting out energy efficiency audits can be reduced if it is shared among many institutions. In the sense of long-term strategic planning, such audits can be instrumental in guiding decisions about infrastructure and energy costs. The Associated Colleges of the South (ACS), a consortium of 16 colleges and universities in the United States, achieved positive results from a pilot program at one of the member colleges. They are now working toward implementing changes that will result in long-term energy cost savings at all member campuses. No such effort has been made by Nova Scotia's universities.

REGISTRATION SERVICES

TRANSCRIPT COMMUNICATION

Electronic submission of high school transcripts and the electronic transmission of transcripts from institution to institution offer a considerable decrease in personnel demand. Currently in Nova Scotia, transcript documents are handled manually. ISI plans to explore the potential to work with the various Atlantic provincial education departments and school boards to develop an electronic submission system that will benefit all parties.

COMMON APPLICATION SYSTEM

The application process puts a considerable demand on the resources of post-secondary institutions. Some argue that common application systems save time and resources for applicants and the universities. In addition, such systems facilitate the warehousing of valuable enrolment data. The Ontario Universities' Application Centre is an example of a successful common application system servicing a large number (28) of universities. No such system is currently in place in Nova Scotia. After a meeting with George Granger, Executive Director of the Ontario Universities' Application Centre, on December 12, 2006, to discuss the merits of a common application system such as the one in Ontario, CONSUP informed the Minister of Education (Hon. Karen Casey) that they did not consider such a system feasible for Nova Scotia, citing considerable start-up costs, unlikely efficiencies in the short term, and minimal-to-zero reduction in staff at the individual universities.

STUDENT SERVICES/BENEFITS/PROGRAMS

A comprehensive package of services and benefits for students allows post-secondary institutions to offer an enhanced study environment in today's increasingly competitive enrolment market. Through collaborative spending, institutions can offer a greater range of services at a lower cost to students and themselves. There are currently no collaborative initiatives among Nova Scotia's universities in this regard. In other jurisdictions, various university consortia have been able to provide joint offerings of the following:

- Drug plan
- Health plan
- Counselling
- Language services
- Diversity initiatives

- Career services
- Extracurricular activities
- Athletic facilities

ACADEMIC

PROGRAM APPROVAL

The program approval process places considerable strain on university resources. A centralized service, such as the one used by the University of Texas may result in efficiencies for Nova Scotia's universities.

JOINT PROGRAMS

Joint programs allow institutions to maximize their utilization of existing in-house talent and increase student spaces, thereby achieving economies of scale and scope. The model employed at the Claremont Colleges may benefit Nova Scotia's metro campuses. Many such programs exist among the various higher-education consortia of the United States. While Nova Scotia has some joint programs, there is room for further growth and cooperation among its universities.

DISTANCE EDUCATION

By means of technology currently available, programs reaching across broad geographical distances are possible. The centralized service for distance education at the University of Texas has resulted in a cost-effective and value added service.

SHARED ACCESS TO COURSES

Shared course access provides added value to students while offering the potential for increased specialization and decreased redundancy among institutions. Programs of this nature exist in number of higher education consortiums in the United States. While this occurs to a degree in Nova Scotia, greater cooperation could benefit the students if it were to yield a more seamless process in term of credit transfer.

FINANCIAL SERVICES

Centralized financial services offer the same efficiencies for universities as they would for any large and diversified organization. Both the Claremont Colleges and the University of Texas employ centralized systems offering services such as the following:

- Audit Services (not in NS)
- Investment portfolio accounting (not in NS)
- Student loan administration (not in NS)
- Risk management (ISI in NS)

INFORMATION TECHNOLOGY

TRAINING

The information technology employed by post-secondary institutions is continually evolving. The ability of an organization to exploit the opportunities that new technologies offer may have a direct effect on that organization's competitiveness. Unfortunately, this constant process of evolution imposes considerable costs to institutions in terms of training. These costs can be minimized by collaborative training programs, such as those organized by the Information Training Group of the Boston Consortium for Higher Education.

USER GROUPS AND SOFTWARE LICENSING

The cost of software licensing is considerable for universities in their effort to provide the cutting edge technology necessary to enable teaching and research practices to stay relevant. Various consortia have been working together to share the cost of these licenses.

INFORMATION MANAGEMENT AND SHARED DATA CENTRES

Shared data centres allow institutions to pool their resources to update data warehousing infrastructure in a manner that reduces the prohibitive costs incurred by small individual institutions. The Committee on Institutional Cooperation in the United States is currently running a pilot project on shared data storage. The relatively small geographical size of Halifax metro poses an ideal setting for such an enterprise.

OTHER

The opportunities for consolidated cost-sharing endeavours undertaken by various consortia are limited only by imagination, collective will, and strength of leadership. Here is a list of other efforts and the organizations that have made them work:

- Legal services – University of Texas
- Intellectual property education and consultancy – University of Texas
- Professional medical liability benefit plan – University of Texas
- Telecommunications – Boston Consortium for Higher Education
- Government relations – University of Texas
- Fundraising support – University of Texas
- Technical services – Interuniversity Services Incorporated
- Libraries – Novanet; Committee on Institutional Cooperation (CIC, a consortium of universities in the USA Midwest); The Claremont Colleges
- Professional development – CIC
- Scholarship management – The Ohio Foundation of independent Colleges
- Public safety – Boston Consortium for Higher Education

Appendix 2:

Collaborative Cost Saving Measures – Actual and Prospective

Known Consolidated Measures/ Services/Programs	In Place	Planning	Potential
Procurement			
Consolidated Spending	Yes		Yes
Consolidated Spending Information			Yes
Benefits			
Health Plans	Yes		
Employee Group Life Insurance	Yes		
Dental Plan	Yes		
Drug Plan	Yes	Yes	Yes
Environment/Energy			
Fuel Cost Management	Yes	Yes	Yes
Sustainability		Yes	Yes
Energy Efficiency Audits			Yes
Registration Services			
Transcript Communication		Yes	Yes
Common Application System			Yes
Assessment Management			
Accountability Bench-marking			Yes
Performance Bench-marking			Yes
Learning Assessments			Yes
Student Services/Benefits			
Drug Plan			Yes
Health Plan			Yes
Counselling			Yes
Language Services			Yes
Diversity Initiatives			Yes
Career Services			Yes
Extra Curricular Activities			Yes
Athletic Facilities			Yes

Known Consolidated Measures/ Services/Programs	In Place	Planning	Potential
Academic			
Program Approval	Yes		Yes
Joint Programs	Yes		Yes
Shared Access to Courses	Yes		Yes
Distance Education	No		
Infrastructure			
Facilities Planning/Construction			Yes
Real Estate Services			Yes
Real-Estate Insurance	Yes		Yes
Learning Assessments			Yes
Financial Services			
Audit services			Yes
Investment Portfolio Accounting			Yes
Risk Management	Yes		Yes
Student Loan Administration			Yes
Information Technology			
Training			Yes
User Groups & Software Licensing			Yes
Shared Data Centres	Yes		Yes
Information Management	No		Yes
Other			
Legal Services			Yes
Intellectual Property Education and Consultancy			Yes
Professional Medical Liability Benefit Plan			Yes
Telecommunications			Yes
Government Relations	Yes		Yes
Fund Raising Support			Yes
Technical Services	Yes		Yes
Libraries	Yes		Yes

4.5 Key Performance Indicators (KPIs) for Quality Assessment and Accountability

4.5.1 Introduction

The discussion of what constitutes quality in post-secondary education and how it ought to be measured goes back to the 1960s and the explosion of both demand for and capacity to deliver university education. However, it is only in the last 20 years or so that the focus has shifted away from (almost exclusively) measuring inputs—notably financial resources—to the inclusion of outputs or outcomes in the assessment of quality. For example, in the early 1990s, the Ontario government started to demand a range of quality and outcomes-related measurements that would assist it in funding decisions. Currently a handful of performance indicators are used to determine a (small) portion of funding to universities and colleges in Ontario, and more recently in Alberta.

The literature on quality and performance in higher education has examined conceptually and empirically two broad sets of indicators. Measures of input include financial resources, quality of faculty, quality of (incoming) students, educational processes, and features of facilities such as libraries. Measures of outputs or outcomes include learning (and research) outcomes, student experiences while engaged in higher education, and student achievements after graduation.

In both the literature on the subject of performance indicators and the public discussion of whether and how to implement them, there have been three main areas of debate:

- the availability and credibility of data on outcomes
- the interpretation of what the data imply about quality or performance
- ways in which the indicators could be used by governments, students and parents, and university boards and administrators to improve post-secondary education quality

Whatever may be the reservations about current or prospective measurements of quality, it is clear in a period of fiscal restraint and (likely) rising tuition levels that the demand for information on what public and private dollars are “buying” in post-secondary education is almost surely to intensify. This section of the report discusses both the reservations about these measures and how they might be overcome to increase transparency on the performance of the province’s university system.

4.5.2 Measuring Educational Quality

The terms *accountability*, *quality assessment*, and *key performance indicators* are used, if not interchangeably, at least interactively in discussions of how well universities produce their two primary outputs: teaching and research. For clarity, the distinction among the three is explained below:

- **Accountability** refers to the principle of holding the university responsible for the manner in which it discharges its dual mandates of teaching and research. The central elements are *for what*, *to whom*, and *in what form* universities are accountable.
- **Quality assessment** refers to the evaluation of the activities in which universities engage, especially those related to their pre-eminent mandates of teaching and research. Such evaluations may be done with or without concrete measurements of the activities.
- **Key performance indicators** refer to the quantitative measures used to attempt an assessment of quality, either potential or actual.

ACCOUNTABILITY

For the purposes of the report, it is asserted that the universities are accountable to three primary groups: taxpayers by way of the institution's links to government; students and, where relevant, their parents; and the boards of governors and senates responsible for oversight of the universities' operations. The first two groups are the ones who provide the bulk of the financial resources upon which universities must rely to be able to function. The third group includes internal bodies that are ultimately charged with ensuring that the ongoing functioning of the institution is being carried out in line with its fundamental mandates and with the specific strategic directions of the institution.

All three groups have a legitimate reason for wanting to know how well the institution they are funding or guiding is performing its responsibilities. This would, of course, have always been the case. Arguably, it is becoming more critical that these three groups have a clearer picture of the system's performance. Governments in most jurisdictions are currently faced with limited resources, a need to engage in fiscal restraint, and growing demands (and costs) in key publicly funded services like health care. The pressure to account for how taxpayers' funds are used is giving rise to greater demand for transparency of the outcomes generated by those various uses. In an environment where, as already noted, the gains (absolute and relative) to individuals from a university degree are high and rising, students (and parents) will want better information on where and how to make the investment in higher education. In the face of a range of competing pressures from governments, students, administrators, faculty, and staff, university boards and senates will need more and better information on which to base the guidance they provide for the future direction of their institutions.

QUALITY ASSESSMENT

Despite the concern that “conceptions of quality within higher education are elusive and informed by personal values and beliefs” (Shanahan, 2009, p. 10) the need for better and more usable information on the universities' core activities is, in the view of this report, inescapable. There have been, and will be, legitimate debates about what should be measured and how it should be measured and used. The Higher Education Quality Council of Ontario provides a starting point for an examination of specific measures. It defines “a quality education system as one offering effective teaching and learning, offering program options that are responsive to social and economic needs and ensuring that the great majority of students graduate within a reasonable amount of time.” (2010, p. 7). The appropriate caution to an excessive focus on quality is offered by the authors of *Academic Transformation*, who argue that “the process for assessing quality [must be] sufficiently transparent and [must] reflect the inherent subjectivity in judging quality and the differences among stakeholders regarding what constitutes quality.” (Clark, Moran, Skolnik, & Trick, 2009). In short, while it is possible to delineate potential measures of educational quality and related institutional performance, there will be no single set of indicators upon which all will agree. Not only are there limitations on what can be measured, but there are significant disagreements about what should be measured, how the data gathered should be interpreted, and ultimately how they ought to be used.

PERFORMANCE INDICATORS

Performance indicators are the actual data that purport to measure quality of higher education. In the literature on the subject, one can distinguish two broad sets of quality measures of teaching that are typically cited. Input data include financial resources, quality of faculty, quality of incoming students, educational processes, and facilities/materials used. Outputs include learning and research outcomes, student achievements after graduation, and student experiences while enrolled.

Finnie and Usher posit a conceptual framework for measuring quality that “capture[s] the PSE experience as a story of inputs and outputs whose narrative flows” from initial student characteristics and learning inputs to

learning outputs (skill sets attained) on to final outcomes. The final item includes “everything from employment, income and job satisfaction, to civic participation in continued education.” What they lay out is a framework for measuring, “value added of the educational experience.” (Finnie & Usher, 2005, p. iii).

For practical reasons of availability, the most widely used or at least best known indicators to measure educational quality have been measures of input. For example, in the *Maclean's* magazine rankings of Canadian university, most of the data used in the rankings relate to what Finnie and Usher would call “learning inputs” that are meant to serve as a proxy for quality. In a comprehensive quality measurement approach (e.g., of the value-added sort) input indicators provide useful information on what was used to generate educational outcomes. However, while some of them may be correlated with outputs they need not be causally linked to outputs. For example, quality of faculty as measured by research output is often used as a proxy for likely quality of teaching. However, empirical research does not bear out a causal link from research excellence to effective undergraduate teaching. It does suggest in fact that “research and teaching are either independent of one another or... they are competitive rather than complementary functions” (note that this is a quite a different issue from measuring research excellence as an outcome on its own).

More generally, there is little empirical evidence that the level or quality of resources available to an institution can be directly linked causally to measures of output or outcomes. That would include two other input measures widely regarded as essential to a high-quality education at a university (and used as proxies for quality). They are: average class size, typically measured by student-faculty ratios; and selectivity in initial student admissions, measured by either percentage of applications admitted or by average high school GPA of admitted students.

Clearly students (and their parents) may have a preference for small class sizes at the institution they are considering attending. Being able to satisfy that preference does not ensure, however, that the education received will be of a higher quality than that attained at an institution with larger class sizes. Stated differently, average class size is an education attribute that some, even many, students would consider important but does not appear to be a useful proxy for educational quality.

In a value-added assessment framework, entering student academic characteristics would be very useful information for assessing what the institution or system added to the typical students' skill set and ultimate career and life outcomes. It would not be a proxy, however, for the quality of education that generated those outcomes.

4.5.3 Education Quality – Performance Indicators

Probably the best known of the education quality KPIs is that produced annually since 1991 by *Maclean's* magazine. The performance rankings have become more sophisticated and nuanced over time and have included in recent years several indicators that would be regarded as oriented towards measuring learning outcomes. Those particular measures include student awards, faculty awards (some of which are for teaching excellence), and a reputational survey. However, input or resource measures still dominate the data used to derive the rankings. They include (with their weights in the rankings): class size (10 per cent); research grants to faculty (12 per cent); financial resources (12 per cent); student support (13 per cent); and library resources (15 per cent). In total, 62 per cent of the rankings' weights are strictly input measures.

The balance of the rankings indicators are arguably measures of outcomes. Student awards (mainly scholarships received) constitute 10 per cent of the total; faculty awards (for research and teaching) make up 6 per cent; and the balance comes from a reputational survey (22 per cent). The survey respondents include university officials, high school administrators and counsellors, heads of national and provincial organizations, and CEOs and

recruiters at various sized corporations. There is nothing inherently wrong with what people perceive or think they know about a range of institutions. However, it is debatable to what extent those perceptions correlate with actual learning and the career/life outcomes generated by these institutions, especially as the subset of universities about which an individual respondent is reasonably well informed is likely to be small.

This is not meant as a criticism of the *Maclean's* annual rankings as a useful tool for students and parents contemplating where to apply for university. It provides useful information on the attributes of the institutions being considered. However, it does not provide much information that can be interpreted as indicating the quality of the education that a prospective student is likely to get. Hence, it would not be recommended as a source of KPIs for assessing Nova Scotia's universities.

Finnie and Usher provide a useful summary of the KPIs gathered by several governments in Canada and the US. The results are summarized in Figure 4.6. These are intended to be measures of educational outcomes, although only a handful would truly qualify as such. They use data that are readily available and hence are limited in the breadth of performance that is measured. They include post-graduation indicators like employment rates (or employment plus post-graduate enrolment) and graduate satisfaction; institutional success in attracting, retaining and graduating students (enrolment levels and diversity, persistence/retention rates and graduation rates); graduate satisfaction; and graduate test scores (for individuals going on for graduate studies). Several of the indicators used in some jurisdictions are input or research measures, including class size, faculty workload, diversity of faculty, and research indicators. The balance are borderline indicators measuring cost efficiency (administration costs, instruction costs, and net costs), success in fundraising, and student debt burdens created during undergraduate studies.

FIGURE 4.6 Key Performance Indicator (KPI) Variables in Selected Jurisdictions

	Ontario	Alberta	Illinois	Washington ¹	Massachusetts	Maryland
Employment Rates	X	X				
Employment Rate Plus Enrolled in School			X		X	
Graduation Rates	X	X	X	X	X	X
Persistence/Retention Rates				X	X	X
Maintained/Increased Enrolment		X			X	X
Increased Diversity of Enrolments			X		X	X ²
Diversity of Faculty						X
Student Loan Defaults	X					
Net Cost			X			
Graduate Satisfaction		X	X		X	
Low Administration Costs		X	X	X	X	X ³
Cost of Instruction			X		X	
Number of Teachers Produced			X		X ⁴	
Average GMAT/LSAT/GRE Scores				X		
Class Size				X		
Faculty Workload				X		
Fundraising					X	
Collaboration with K-12 System					X	
Quality Data Reporting					X	
Research Indicators		X	X			X

1. In addition to having six state-wide indicators, each public campus is permitted to set and monitor two of its own performance indicators.

2. Maryland's indicators actually focus more on graduation rates of minority students – effectively, diversity of graduates rather than diversity of enrolments.

3. In addition to having general targets on certain issues, the Maryland Higher Education Commission also sets campus-specific targets in very specific sub-fields (e.g., African-American graduation rate in Computer Science).

4. Pass rate at teaching licensures.

Source: Finnie & Usher, April 2005, p. iii

It is worth noting that the two provinces in Canada that collect KPIs for their universities—Ontario and Alberta—both use them to determine a small portion of institutional funding.

Yet another source of data, oriented to what actually occurs while students are attending university, is the National Survey of Student Engagement (NSSE) used in the US and Canada. The survey measures features of the learning context in which students surveyed are operating. Data include frequency and duration of homework, contact with faculty, reading requirements for courses, and the like. As Finnie and Usher note, “NSSE does not, strictly speaking, measure learning outcomes; instead, it measures the correlation of good learning outcomes and assumes learning is taking place on the basis of it.” (Finnie & Usher, 2005, p. 13). This suggests that, by itself, the NSSE cannot be relied upon to provide an adequate picture of the quality of education being delivered at individual universities. It does, however, provide better insight into learning outcomes than are available from input indicators.

A key issue regarding the potential use of NSSE is that while institutions have access to their own results and those of their peers, the data from NSSE are not publicly available. It is, to date, useful information for internal management that is not available for external evaluation.

To summarize to this point, extensive information is available on inputs used in the university system. They have been used historically as proxy measures for quality, in part because of ease of collection but mainly because it was assumed that resources such as finances, faculty quality and faculty/student ratios correlated with quality outcomes. The empirical literature, however, does not indicate that a causal link exists between university resources and educational quality. That has led to the use of two other data types: measures of outcomes; and indicators of the learning process. The former group includes information on post-graduation success of students, enrolment levels, retention and graduation rates, student and faculty awards, and reputational surveys. To date, the learning process assessments have come from the NSSE survey of undergraduate students and the survey of graduate students from the National Graduate Survey (NGS).

4.5.4 Where to From Here?

Even though using all of the data referred to above would not provide a comprehensive picture of each university in Nova Scotia, it would allow a much greater degree of disclosure and transparency than currently exists.

University administrators and faculty might correctly argue that because the picture presented by a summary use of available data is incomplete, it has the potential to be misleading. However, that is not a legitimate reason to resist the development of a publicly available quality assessment report on each institution and, possibly, for the university system. It is, however, a quite reasonable basis for suggesting that such a report be structured to provide as complete a picture as current data allow and to press for the collection of new data to attempt to round out the picture presented.

The indicators that Finnie and Usher suggest might be used, shown in Figure 4.7, distinguish among four types of data: beginning characteristics of students; inputs; learning outputs; and (potential) final outcomes. Some of the indicators are currently used, some are available but not widely utilized, and some would have to be developed either through new surveys or a reworking of existing survey information.

FIGURE 4.7 Data Elements and Potential Sources of Aggregate Data for Institutions

Beginning Characteristics	Aggregate Data for Institutions*
Age	Admin data, CUSC, CCSC
Gender	Admin data, CUSC, CCSC
Ethnicity/Aboriginal Status	CUSC, CCSC
Immigration Status	New Survey Required
Mother Tongue/Ethnicity	New Survey Required
Primary Language	Admin data
Family Type	New Survey Required
Family Size	Admin data, CUSC, CCSC
Location of High School (Urban/Rural)	CUSC, CCSC
Disability Indicator	CUSC, CCSC
Aboriginal Indicator	CUSC, CCSC
Presence of Children	CUSC, CCSC
Financial Savings	CUSC, CCSC
Student Income	CUSC, CCSC
Secondary School Marks	Admin data
Secondary School Literacy Scores	New Survey Required
Skill Test Scores at University Entrance	New Survey Required (e.g. CLA)
Emotional Quotient Scores at Entrance	New Survey Required
Purpose for Attending Post-secondary Education	New Survey Required
Inputs	Aggregate Data for Institutions
\$ per Student	SFIUC + Admin
\$ per Student in Salaries	SFIUC + Admin
\$ per Student in Libraries	SFIUC + Admin
\$ per Student in IT	SFIUC + Admin
\$ per Student in Student Services	SFIUC + Admin data
\$ per Student in Student Aid	SFIUC, OSAP + Admin data
Governance Indicators	New Metric Required
Physical Infrastructure Indicators	New Metric Required
"Learning Environment" Indicators	New Metric Required, possibly NSSE
Student-Staff Ratio	SFIUC + Admin data
Learning Outputs	Aggregate Data for Institutions
Degree/Diploma	Admin data
Time-to-Completion	CUSC
Generic Work Skills	New Metric Required, possibly NSSE or CLA
Quantitative Literacy	New Metric Required, possibly NSSE or CLA
Prose Literacy	New Metric Required, possibly NSSE or CLA
Problem Solving	New Metric Required, possibly NSSE or CLA
Writing/Communication Skills	New Metric Required, possibly NSSE or CLA
Works in a Team	New Metric Required, possibly NSSE
Appreciation for Art/Creativity?	New Metric Required, possibly NSSE
Potential Final Outcomes	Aggregate Data for Institutions
Employment	Institutional Surveys/NGS
Earnings	Institutional Surveys/NGS
Satisfaction with Education	Institutional Surveys/NGS
Civic Engagement Indicators	New Metric Required
"Happiness"/Life Satisfaction Indicators	New Metric Required
Lifelong Learning	New Metric Required

*Admin = Institutional administrative data; CUSC = Canadian Undergraduate Survey Consortium; CCSC = Canadian College Survey Consortium; SFIUC = Survey of Financial Information of Universities and Colleges; OSAP = Ontario Student Assistance Program; NGS = National Graduates Survey; CLA = Collegiate Learning Assessment

Source: Finnie & Usher, April 2005

The “beginning characteristics” data would be particularly valuable if it were desirable to trace the educational impact of institutions by contrasting the relevant attributes of entering students with the learning outputs and final outcomes achieved. Except perhaps for the data on ethnicity and aboriginal status and family type—which indicate the degree of success at improving accessibility—the entering student information would not be a measure of university performance per se.

The “inputs” data include measures that are widely used (such as dollars per student and student-staff ratios), measures that could provide a more nuanced picture of inputs (such as dollars per student assistance and dollars

per student in salaries), and measures that would have to be newly created (such as governance and physical infrastructure indicators). As the *Maclean's* survey attests, there are other input measures that might also be used. Whatever ones are considered, most of them have to be weighted to properly reflect the diversity among universities in programs offered.

What Finnie and Usher refer to as “learning outputs” and “final outcomes” are the crux of the performance indicators that would be most valuable. As they note, the existing NSSE data might be further developed to provide useful information on such outputs. Alternatively, new surveys might be developed. The key point is that there already are some indicators available that could be used. These include (on outputs): enrolment, retention, and graduation rates; time to completion; and NSSE results on student-faculty contact. With respect to final outcomes, there is a wealth of data on employment and earnings experience of graduates from the National Graduate Survey that can also be disaggregated by a major field of study. Surveys of graduate satisfaction provide more qualitative information in a quantitative form. There might also be ways to expand or improve the *Maclean's* reputational survey to provide a picture of third-party assessment/satisfaction with institutions.

In short, with both data that is already available and data that could be gleaned from existing sources, it would be possible to design a performance indicator report on the individual universities in Nova Scotia and on the system. Three issues remain to be addressed: the specific elements of the report; the ways in which it might be used; and possible impediments to its development. Each will be briefly addressed.

It would be inappropriate to attempt in this report to provide a detailed sketch of a possible KPI report. First, it would merit a study on its own and there are a number of individuals with significant expertise in the design of quality assessment tools in higher education. Second, the details of a report card will need to be negotiated with the institutions whose performance is to be measured. However, the main elements can be suggested. There should be much more emphasis on learning outputs and final outcomes than is the case with a scorecard like that produced by *Maclean's*. That means that results from the National Survey of Student Engagement (NSSE) and National Graduates Survey (NGS) should figure prominently. As well, administrative data already collected should be components. Data on the characteristics of entering students will be relevant on their own and as an element of a comparative analysis of entering and graduating attributes of students. If counterparts across Canada are interested in joint funding of either new surveys or further development of existing ones from organizations like Statistics Canada, that should be pursued.

The terms “report” and “report card” are used deliberately instead of “scorecard” or “rankings.” Attempts to rank institutions across a range of indicators implies a need to assign weights to each in order to derive a final “score.” As the weights are necessarily arbitrary, the process of creating a KPI report would get bogged down unnecessarily in debates over the weights to be assigned.

More importantly, if the report is to be used as a vehicle for increasing transparency about institutional performance, a scorecard or ranking approach is more likely to obscure than illuminate. Each of the groups for whom more extensive and uniformly generated information is valuable—internal university governance bodies, governments, and students—will emphasize, for their purposes, different elements of a performance report. They each can do their own ranking if they so choose.

The main impediment almost certainly will be the institutions themselves. Administrators, faculty and staff, even boards of governors, will resist the creation of a publicly available report on their performance. They will be concerned about the potential for it to misrepresent the strengths of their institutions because it is missing qualitative information that would reveal those strengths. As well, if there is any expectation that the report will be used for government funding decisions that would be detrimental to them, they will resist it all the more fiercely.

On the first point about such a report being misleading, it is worth remembering that universities in Canada were very critical of the *Maclean's* survey when it was first published and a number of them refused to participate by withholding institutional data. Today, many of these universities use the ranking data in their marketing to potential students. On the matter of government funding, it is a strong recommendation of this study that any KPI report that is ultimately negotiated not be used for funding decisions. In jurisdictions where they are used, such as Ontario and Alberta, the number of indicators is small and the differences among institutions are similarly small. Therefore, the functional impact on funding decisions is minimal. More importantly, it would be far too soon to design a funding formula that incorporated not only the components now used (basically projected costs and weighted enrolments), but also a compilation of performance indicators whose reliability is open to question or debate.

RECOMMENDATION

Universities are accountable to three primary groups: taxpayers; students (and their parents); and the boards of governors and senates responsible for overseeing university operations. Faced with a range of often competing requirements, both those who fund the universities (governments and students) and those responsible for the institutions' continuing development (administrators, faculty and staff, boards and senates) need more and better information to guide their decisions.

Recommendation 7:

Create key performance indicators for quality assessment and accountability, under the following guidelines:

- a. Engage experts in the design of quality assessment tools for higher education to assist in the development of a prototype report card for Nova Scotia universities.
 - b. Negotiate the elements of a regular report on the performance of the province's universities.
-

4.6 Infrastructure

Funding reductions to universities in the 1990s, not just in Nova Scotia but across the country, forced university administrations to make very difficult choices regarding the allocation of funds within their universities. One area of funding that was hardest hit during this period of fiscal restraint was infrastructure renewal. According to industry standards, annual spending on infrastructure renewal should amount to approximately 2 per cent of the current replacement value of that infrastructure. The current replacement value of Nova Scotia's university infrastructure is estimated to be \$2.4 billion (see Figure 2.20 for details). However, the funding restraint forced universities to direct their limited resources to the core functions of teaching and research, and to postpone investment in facilities renewal and modernization. Nova Scotia was particularly hard hit by this strategy, having some of the oldest university infrastructure in the country.

In 1999, a joint working group of CONSUP and the Nova Scotia Council on Higher Education submitted to the Minister of Education an analysis and set of recommendations to deal with deferred maintenance and facilities renewal. These are the main elements of the report:

- Accumulated facilities renewal was estimated at \$302 million and rising.
- Annual expenditures on facilities renewal and adaptation maintenance were \$7.6 million, compared to a target of \$29.2 million.

- To address accumulated facilities renewal, an escalating funding schedule should be established, stabilizing at Year 5 with institutional contributions of \$5 million and \$30 million in federal/provincial funds. Maintaining this level of support to Year 10 would almost eliminate the \$300 million backlog.
- To deal with ongoing facilities renewal requirements, an escalating funding schedule should be established, stabilizing at Year 5 with contributions of \$6 million from the institutions and \$15 million from government. When combined with the existing annual contribution, this would almost equal the annual target of \$29.2 million.

Neither the province nor the federal government provided the proposed funding.

In 2004, the governments of the four Atlantic provinces produced a report that documented the seriousness of the infrastructure renewal issue for the region's universities. The estimated requirements for Atlantic universities was \$442 million, and the Nova Scotia component was \$302 million. There was little federal interest in this proposal. Prospects for special funding for the Atlantic region ended when the federal government established the \$2 billion Federal Infrastructure Trust Fund in 2006. Nova Scotia received almost \$29 million from this fund. Anticipating receipt of this funding, legislation was passed which directed funds from this program towards tuition reduction, student financial assistance, and apprenticeship programs. None of the funds went towards infrastructure renewal.

In 2006, the Atlantic Association of Universities updated the deferred maintenance data and reported that the accumulated deferred maintenance among universities in the Atlantic region totalled \$863 million, with Nova Scotia's share being \$422 million.

In 2008, the Council of Atlantic Ministers of Education and Training attempted to persuade the federal government to make a significant investment in post-secondary education infrastructure renewal in the Atlantic region. A document entitled *Business Case for Infrastructure Investment in Colleges and Universities in Atlantic Canada* identified the total Atlantic university need at \$830 million, with Nova Scotia's share at \$543 million. While Nova Scotia's infrastructure renewal requirement relative to the 2006 had increased by \$121 million, the requirements of the other three provinces had declined.

Later in 2008, the government created the Nova Scotia Crown Share University Infrastructure Trust Fund to provide capital funding to Nova Scotia universities. The Trust provided almost \$24 million and the funds were distributed to the universities based on an established allocation schedule for Alterations and Renovations funding. It fell just short of the \$25 million commitment in the 2008 memorandum of understanding on funding and tuition fees. However, the province contribution \$18.5 million in matching funds under the 2009 Knowledge Infrastructure Program.

In the spring of 2009, Industry Canada formally announced that Nova Scotia would be receiving \$56.7 million in federal funding for university and community college infrastructure projects under the Knowledge Infrastructure Program (KIP). Through the cost-sharing agreement of the program, the province and its partners will contribute \$73.8 million in funding. The total value of projects approved for Nova Scotia was \$130.5 million, with \$108 million (\$48.2 million in federal funding) going to the university sector and \$22.5 million (\$8.5 million in federal funding) to NSCC. Provincial matching funds for the university projects (\$59.9 million) will be a combination of government grant (\$18.5 million), university own-source funding (\$5.1 million), and loans from the Strategic Opportunities Fund Inc. (SOFI, \$36.3 million).

Despite the significant level of infrastructure funding provided in recent years, there remain the unresolved problems of accumulated deferred maintenance (estimated to still be over \$400 million) and the lack of an

ongoing infrastructure renewal fund. Using the industry standard of 2 per cent of current replacement value, such a fund would amount to \$48 million annually. Approximately \$4.7 million is currently being provided by the province through the Alterations and Renovations Grant component of its total funding, and universities are reporting additional spending of about \$17 million out of their operating grants. If those spending patterns were to continue, about \$26 million in new money would be required.

Although there are sound reasons to propose that governments increase their financial support for university infrastructure, several issues need to be considered. First, most of the estimates of the value of deferred maintenance have been made by the universities themselves. While this report could not undertake such a task, it would be helpful to have some independent verification of those estimates, even if they were order-of-magnitude measurements. At a minimum, if the estimates are based on broad industry standards, it would be important to determine whether such standards are applicable to the infrastructure particular to universities—residences, office and classroom spaces, laboratories, and recreational facilities. It could be that the industry standard yields too high (or too low) an annual replacement requirement.

Second, in an environment of fiscal restraint, not only will the government be deciding the total level of funding for universities, but universities will likely have to recalibrate their spending priorities. The balance between keeping the lights on and refurbishing the lighting system will have to be negotiated by both parties, at least for the short term.

Third, the report discusses restructuring options that include various forms of consolidation and downsizing, which could render some facilities redundant. It would make little sense to make full financial provision for refurbishing facilities that might be shuttered or sold.

Finally, private donors typically are prepared to fund the construction, but not the operation and renovation, of bricks and mortar. However, private companies may be interested in owning and managing some of the universities' facilities in an application of the public-private partnership models that have been used for other types of publicly owned infrastructure. Residences built and operated by real estate firms are an obvious possibility, but office buildings and recreational facilities could be attractive as well. There would be opposition to such a move for a number of reasons, but if public funds (even if enhanced) are inadequate to maintain all of an institution's infrastructure, this is an option worth considering.

Notwithstanding these qualifying comments, it will be important for the government to consider increasing its funding for university infrastructure to ensure that the individual institutions remain attractive places for students to attend and for faculty and staff to work. The level and timing of such enhanced financing cannot be specified without further examination of requirements and the assessment of institutional priorities and alternatives to public funding.

RECOMMENDATION

Funding reductions across the country in the 1990s forced universities to direct their limited resources to the core functions of teaching and research, and postponed investment in facilities renewal and modernization. The current projected annual financial requirement for infrastructure renewal in Nova Scotia's university system is \$48 million. Despite significant infrastructure funding provided in recent years, unresolved problems of accumulated deferred maintenance are estimated to be over \$400 million.

Recommendation 8:

Address infrastructure needs, under the following guidelines:

- a. Seek an independent assessment of both deferred maintenance and ongoing facilities renewal costs.
 - b. Encourage universities to explore private ownership and management opportunities for some of their facilities.
 - c. Consider increases in funding for university infrastructure.
-

SECTION 5:

Research, Technology Transfer, and Commercialization

5.1 Introduction

Research that advances knowledge is one of the two main responsibilities of the university system. While providing higher education to those who desire it is its most important “service,” it is generally agreed that research carried out in the various disciplines housed in a university is also a critical contribution to society. As argued elsewhere, the gains to society, at least those that can be quantified, from teaching accrue in large measure to those who receive it and only a portion of the benefits may be argued to be spillovers to society at large. However, in the case of university research, in the physical and biological sciences, engineering, social sciences, humanities, and business, the gains accrue to society rather than to individuals, especially for pure or discovery research. When it comes to applied research, especially the closer it gets to commercialization, the more blurred may be the dividing line between individual and social benefits.

Applied research is not typically ascribed to work done in the humanities or in the social sciences. However, since the latter’s primary focus is ultimately on the analysis of human behaviour, there can not only be applications of the research findings but the research itself can be overtly applied—e.g., focusing on a specific current policy issue.

However, references to applied research are usually directed at the physical and biological (“hard”) sciences and engineering, for such research has moved beyond basic discovery to examine applications that may be turned into products or services (the development part of R&D) that, in turn, have the potential to be commercialized.

While often left out of the discussion of applied research, a great deal of business research is of the applied variety. It often examines a real-world business problem or issue and offers one or more resolutions that might be attempted. Therefore, in the assessment of the potential role for commercialization of applied research, some of the research done by business faculty should be included in that category.

5.2 Research Funding for Nova Scotia Universities

In the most recent year for which complete data are available, total research income from all sources in Nova Scotia accruing to the province’s university system reached \$170 million (see Figure 5.1). Of that total, just over 55 per cent came from government sources, with federal support the overwhelming pool drawn upon (52 per cent of total funds, 93 per cent of government sources). Almost 45 per cent of the sponsored financial support was provided by non-government, private sources, including (university) endowments, non-profit organizations, and individual businesses. Provincial government support for research tends to be from specific departments, such as Agriculture (funding research at NSAC) or the province’s share of a federal program such as the Canadian Foundation for Innovation (CFI).

FIGURE 5.1 **Sponsored Research, by University (\$000), 2007-08**

	Federal Government Income								All Govt. Income	Non-Govt. Income	
Institution	SSHRC ¹	Health Canada	NSERC ²	CIHR ³	CFI ⁴	CRC ⁵	Other Federal Govt. Depts	Other Levels of Govt.	All Govt. Depts/ Agencies	Individuals/ Businesses	Total Research Income
Acadia	\$332	\$0	\$1,374	\$96	\$29	\$775	\$1,124	\$102	\$3,832	\$2,946	\$6,778
AST	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Cape Breton	\$118	\$0	\$244	\$0	\$403	\$500	\$2,129	\$373	\$3,767	\$777	\$4,544
Dalhousie	\$3,763	\$345	\$16,985	\$16,260	\$4,584	\$6,825	\$11,556	\$2,887	\$63,205	\$60,614	\$123,819
Mount Saint Vincent	\$830	\$82	\$263	\$16	\$23	\$450	\$400	\$526	\$2,590	\$211	\$2,801
NS Agricultural College	\$90	\$0	\$1,052	\$0	\$420	\$350	\$2,399	\$3,027	\$7,338	\$1,630	\$8,968
NSCAD	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
St. Mary's	\$1,407	\$0	\$1,875	\$60	\$1,782	\$775	\$2,431	\$221	\$8,551	\$1,946	\$10,497
St. FX	\$937	\$0	\$2,664	\$0	\$653	\$1,029	\$860	\$25	\$6,168	\$6,511	\$12,679
U King's	\$131	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$131	\$0	\$131
U Sainte-Anne	\$5	\$0	\$0	\$0	\$1	\$190	\$8	\$23	\$227	\$0	\$227
Total	\$7,613	\$427	\$24,457	\$16,432	\$7,895	\$10,894	\$20,907	\$7,184	\$95,809	\$74,635	\$170,444

1. SSHRC: Social Sciences and Humanities Research Council

2. NSERC: Natural Sciences and Engineering Research Council

3. CIHR: Canadian Institute of Health Research

4. CFI: Canadian Foundation for Innovation

5. CRC: Canada Research Chairs

Source: Canadian Association of University Business Officers (CAUBO), Income by Fund Table, Report 3.1

Broken down by recipient institution, Dalhousie garnered the lion's share of both total government support (66 per cent) and non-government income (81 per cent)—almost 75 per cent of overall funds for sponsored research. This is hardly surprising given that Dalhousie is the largest of the province's universities and has the most comprehensive array of graduate and professional programs, not only in Nova Scotia, but in the Atlantic region. It is the only university from the Atlantic provinces included in the group of 13 (G-13) a consortium of the top research intensive universities in Canada.

The university with the second highest level of research funding is St.FX, with just under \$13 million or 7 per cent of the total. Interestingly, more than half of that support comes from non-government sources. With respect to support from government programs and agencies, Saint Mary's is second to Dalhousie, and NSAC, a much smaller institution, has the third-highest level of public funding for research. The fact that over half of this support is in the "other" category and, except for funding from the Natural Sciences and Engineering Research Council of Canada (NSERC), not from the long-standing programs of support, reflects the specialized nature of NSAC and its focus on agriculture-related teaching and research activity.

Given the different sizes of the institutions and the variation in disciplinary focus, it is worth looking at the sponsored research support measured by dollars attracted per faculty number. This provides a crude but useful measure of research intensity at the institutions. The results are displayed in Figure 5.2 for federal research funds only as they represent more than 90 per cent of all government funding. As well, it is possible to get a breakdown for federal sources of research support, but not for non-government sources. The results demonstrate that, even correcting for relative size, Dalhousie receives more funding per faculty member than any other institution in five of the six major funding programs and more than the average of all the institutions in every category. This is a reflection of the research intensity of the university, with the broadest array of graduate disciplinary and professional programs.

FIGURE 5.2 Total Federally Sponsored Research, by University, per Faculty Member (\$), 2007-08

Granting Council	Acadia	AST	CBU	DAL	MSVU	NSAC	NSCAD	SMU	St.FX	UKing's	USainte-A	Total
Social Sciences & Humanities (SSHRC)	1,581	0	1,035	3,722	5,533	1,364	0	5,790	3,763	3,359	111	3,495
Health Canada	0	0	0	341	547	0	0	0	0	0	0	196
Natural Sciences & Engineering (NSERC)	6,543	0	2,140	16,800	1,753	15,939	0	7,716	10,699	0	0	11,229
Canadian Institutes of Health Research	457	0	0	16,083	107	0	0	247	0	0	0	7,545
Canadian Foundation for Innovation	138	0	3,535	4,534	153	6,364	0	7,333	2,622	0	22	3,625
Canada Research Chairs	3,690	0	4,386	6,751	3,000	5,303	0	3,189	4,133	0	4,222	5,002
Other	5,352	0	18,675	11,430	2,667	36,348	0	10,004	3,454	0	178	9,599
Total	17,762	0	29,772	59,662	13,760	65,318	0	34,280	24,671	3,359	4,533	40,691
Rank	6	N/A	4	2	7	1	N/A	3	5	9	8	N/A

Source: Sponsored research data from Canadian Association of University Business Officers. Faculty data from Statistics Canada.

Note, however, that the highest-ranking university by funding per faculty member is NSAC. It is an institution specializing in a particular area of research and, therefore, eligible for certain funding to which other institutions in Nova Scotia do not have access. However, it did rank second in dollars per faculty member in both the NSERC (after Dalhousie) and CFI (after SMU) funding programs. The point is that NSAC has developed into a significantly research-intensive institution relative to its size. As most of its research is applied rather than discovery, it is quite relevant to the discussion in the next section on knowledge/technology transfer and the commercialization of research.

Switching the focus from the success of individual institutions in Nova Scotia, Figures 5.3 and 5.4 indicate how the provincial university system fares in attracting support relative to other provinces' systems. Given differences in the provincial systems, funding is compared on a dollar-per-faculty basis. In that regard, Nova Scotia currently ranks ninth, exceeding only New Brunswick in funding per faculty member. At under \$41,000 per faculty member in 2007–08, the province's research support was only 55 per cent of the national average. A decade before it was two-thirds of the national average. Its decline in the rankings over that period (from seventh to ninth) is further reflected in its exceeding only Alberta in the cumulative increase in per faculty funding over the last ten years.

FIGURE 5.3 Total Federally Sponsored Research, by Province, per Faculty Member, 1997-98 to 2007-08

Year	Newfound-land and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
1997-98	19,124	6,389	15,833	10,010	24,584	24,921	18,576	13,500	30,409	27,335	23,536
1998-99	21,095	8,243	15,552	11,280	32,271	27,830	21,471	16,229	32,010	31,741	27,337
1999-00	28,869	5,677	22,245	14,481	43,426	34,684	27,210	30,470	41,384	36,615	35,363
2000-01	28,117	14,443	22,661	13,933	52,009	43,968	31,794	37,824	43,930	40,530	41,928
2001-02	24,814	13,870	26,499	15,540	58,218	49,320	29,292	44,302	58,226	50,012	48,026
2002-03	35,088	22,623	27,175	18,110	68,132	53,368	39,665	39,042	55,935	65,010	53,808
2003-04	41,479	31,845	31,016	25,224	82,907	62,770	40,042	44,231	71,522	66,841	63,263
2004-05	46,171	36,181	36,534	29,063	74,012	64,966	47,769	46,878	66,395	75,627	63,550
2005-06	54,809	48,523	38,306	32,105	77,748	69,748	42,633	44,348	74,792	80,209	69,689
2006-07	54,002	41,883	38,718	32,899	73,818	70,553	43,489	57,323	74,079	70,579	68,738
2007-08	51,529	62,271	40,691	38,672	84,551	73,682	47,700	86,294	67,121	76,908	74,121
% Increase 1997 to 2008	169%	875%	157%	286%	244%	196%	157%	539%	121%	181%	215%

Source: Sponsored research data from Canadian Association of Business Officers. Faculty data from Statistics Canada.

FIGURE 5.4 Funding per Faculty, Ranked, 1990-91 to 2007-08

Year	Newfound- land and Labrador	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia
1990-91	7	10	3	9	2	5	6	8	4	1
1994-95	6	10	7	9	3	4	8	5	2	1
1997-98	5	10	7	9	4	3	6	8	1	2
1998-99	6	10	8	9	1	4	5	7	2	3
1999-00	6	10	8	9	1	4	7	5	2	3
2000-01	7	9	8	10	1	2	6	5	3	4
2001-02	8	10	7	9	2	4	6	5	1	3
2002-03	7	9	8	10	1	4	5	6	3	2
2003-04	6	8	9	10	1	4	7	5	2	3
2004-05	7	9	8	10	2	4	5	6	3	1
2005-06	5	6	9	10	2	4	8	7	3	1
2006-07	6	8	9	10	2	4	7	5	1	3
2007-08	7	6	9	10	2	4	8	1	5	3

Source: Ranking of data from Figure 5.2 (Total Federally Sponsored Research, by University, per Faculty Member)

It is well beyond the scope of this report to attempt to analyze the range of explanations for the relatively poor (and becoming poorer) performance of the province's universities, in their capability to attract federal research funds. Even if the two institutions—AST and NSCAD—that do not apply for or receive research support from any source are excluded (i.e., their faculty numbers are eliminated in the calculation) the provincial system rankings remains unchanged.

How does the most research intensive university—and the one most successful in attracting sponsored research funds—fare on a comparative basis? As noted earlier, Dalhousie is a member of the group of 13, a consortium of the top 13 research-intensive universities in Canada. The group formed as the G-10 in 1991 and became the G-13 in April 2006 with the admission of the University of Calgary, the University of Ottawa, and Dalhousie University. G-13 members hold 66 per cent of all Canada research chairs, and receive approximately two-thirds of all federal research funding in Canada. If Dalhousie is compared to the other institutions in the G-13, it is clear (see Figures 5.5 and 5.6) that it has not attracted federal research funds as well as its peers. In 2007–08, it ranked twelfth (slightly ahead of the University of Calgary), and it experienced the slowest growth in funding per faculty member since the late 1990s.

FIGURE 5.5 Total Federally Sponsored Research per Faculty Member, by University, 1997-98 to 2007-08

Year	Dalhousie	Laval	McGill	Montreal	Ottawa	Queens	Toronto	McMaster	Waterloo	Western	Calgary	Alberta	UBC
1997-98	25,696	25,245	42,020	30,609	26,762	28,323	40,105	37,807	26,612	18,448	23,309	43,571	32,352
1998-99	25,996	30,871	54,422	41,565	31,559	37,408	45,000	37,522	30,866	26,484	27,218	44,684	38,965
1999-00	37,954	45,575	56,208	60,946	33,845	43,831	57,805	54,234	37,106	28,761	38,493	55,797	42,150
2000-01	38,004	46,350	81,126	74,279	63,261	52,879	77,360	66,901	41,828	37,639	39,050	67,988	46,546
2001-02	46,924	52,612	94,274	89,702	71,917	79,685	79,902	79,277	63,650	43,486	55,808	99,613	56,855
2002-03	46,175	83,017	122,247	112,487	91,396	87,272	96,881	81,983	73,751	48,936	61,623	89,860	83,316
2003-04	52,847	79,962	175,040	136,909	91,634	114,487	117,662	81,430	91,051	69,303	79,204	113,760	90,423
2004-05	62,084	64,599	160,300	140,814	114,995	101,280	129,864	86,392	90,502	65,763	68,232	109,454	111,239
2005-06	63,205	84,401	155,057	146,484	120,592	109,134	141,622	106,222	82,644	86,211	75,122	121,705	120,320
2006-07*	61,821	94,692	147,305	122,444	114,282	122,068	152,710	107,801	86,386	87,806	70,370	121,881	103,332
2007-08*	64,442	92,379	175,154	138,522	117,734	131,504	161,210	108,273	100,143	82,596	64,330	112,315	101,851
% Change	151%	266%	317%	353%	340%	364%	302%	186%	276%	348%	176%	158%	215%

*Quebec universities did not report faculty numbers in 2007-08 or 2008-09, so 2006-07 number were used for each of those years.

Source: Sponsored research data from Canadian Association of University Business Officers. Faculty data from Statistics Canada.

FIGURE 5.6 Funding per Faculty by University, Ranked, 1990-91 to 2007-08

Year	Dalhousie	Laval	McGill	Montreal	Ottawa	Queens	Toronto	McMaster	Waterloo	Western	Calgary	Alberta	UBC
1990-91	4	11	1	3	10	5	6	7	8	13	12	9	2
1994-95	10	8	1	4	11	5	3	12	7	13	9	6	2
1997-98	10	11	2	6	8	7	3	4	9	13	12	1	5
1998-99	13	9	1	4	8	7	2	6	10	12	11	3	5
1999-00	10	6	3	1	12	7	2	5	11	13	9	4	8
2000-01	12	9	1	3	6	7	2	5	10	13	11	4	8
2001-02	12	11	2	3	7	5	4	6	8	13	10	1	9
2002-03	13	8	1	2	4	6	3	9	10	12	11	5	7
2003-04	13	10	1	2	6	4	3	9	7	12	11	5	8
2004-05	13	12	1	2	4	7	3	9	8	11	10	6	5
2005-06	13	10	1	2	5	7	3	8	11	9	12	4	6
2006-07	13	9	2	3	6	4	1	7	11	10	12	5	8
2007-08	12	10	1	3	5	4	2	7	9	11	13	6	8

Source: Ranking of data from Figure 5.5 (Total Federally Sponsored Research per Faculty Member, by University)

Although Nova Scotia institutions may fall on the lower end of federal grant contributions, there are other factors to consider when determining the relative worth of research in the university setting. A measure that is commonly employed to indicate research quality is the number of times a particular piece of research is cited by other academics. Higher quality research naturally tends to be cited much more often than research of lower quality. In a recent ranking of universities produced by US News and World Report, Dalhousie tied with the University of Waterloo for fourth highest number of citations per faculty publication in a list of the top 20 institutions in Canada, ahead of a number of its peers in the G-13. These results are summarized in Figure 5.7. This is an indication that Dalhousie, at least, is engaged in innovative, high-quality research as measured by its value and relevance to fellow academics.

FIGURE 5.7 Citations-per-Faculty Score Among Top 20 Canadian Universities, from US News & World Report

University	Citations per Faculty
University of Calgary	100
McMaster University	98
University of Western Ontario	91
University of Waterloo	78
Dalhousie University	78
University of British Columbia	77
University of Victoria	77
University of Toronto	74
Université Laval	73
Université de Montréal	71
University of Ottawa	68
McGill University	61
University of Manitoba	56
Queen's University	55
Simon Fraser University	53
University of Alberta	52
York University	35
Carleton University	35
Université du Québec	31
Concordia University	29

Source: World's Best Universities, US News & World Report, February 25, 2010

Even with the caveat about the relative quality of Dalhousie's research, the conclusion that may be fairly be drawn from the data on research funding is that the province's university faculty are not attracting financial support at the same pace as their colleagues in the rest of the country (with the exception of those in New Brunswick). It is, of course, possible that there is relatively more research being done that does not require financial support. However, the more likely conclusion is that the universities in Nova Scotia are relatively less research intensive than their

counterparts in other provinces. This is not necessarily a problem if the institutions are focused more intensively on quality teaching. This, however, is a judgement that cannot be rendered as there is very limited information on which to base a conclusion. This is a topic dealt with at greater length in the Section 5.4 on quality assessment.

If it is considered desirable that for the purposes of commercial application, there be a transfer of research-based knowledge and technology from the university to the wider community, the level of research activity in the province's universities may be inadequate to that task. However, before discussing commercialization, it is important to look at the broader issue or principle of whether there ought to be direction given to university research for the purposes of ultimate application.

5.2.1 Serendipity versus Government Direction in University Research

The issue of the extent to which university research should be deliberately tilted more towards the applied end of the spectrum is a long-standing one. It tends to be focused on the so-called "hard" sciences although might, as noted above, be found in the context of business and social science research as well. At the risk of over simplifying the elements of the debate, universities and their faculty tend to assert that those engaged in research should be free to follow the paths towards which their curiosity and experience lead them. If that happens to be applied research, out of which commercial applications are more likely, the direct benefits to society and to the economy should be seen as incidental or serendipitous. It should not be the role of university-based research policy to deliberately direct faculty toward the research and development and commercialization end of the spectrum. From this perspective, academic freedom is the paramount principle guiding the allocation of faculty resources of time and funding.

The contrary position, usually associated with policy makers and advisors (although emanating from the business community as well on occasion), is that public funds support university teaching and research. In particular, without the government's explicit (research grants) and implicit (operating grants) financial support for research, the capacity of university faculty to engage in such activity would be severely curtailed. The taxpayer has a right, from this perspective, to expect more obvious benefits from this research than will occur by waiting for the satisfying of curiosity to bear fruit in some undefined way at some unspecified future time. In this context, academic freedom can be viewed as an excuse, protected by tenure, for academics to retreat to their ivory towers and ignore their accountability to those who pay their way in the world.

So long as these are not outrageous caricatures of opposing views on the appropriate basis for academic research but, rather, an outrageous simplification of a much more nuanced debate, it may be argued that both views have merit. On the one hand, history is replete with examples of discovery- or curiosity-driven research that yielded totally unanticipated insights into, and applications for, the resolution for a variety of society's major problems. Since such research is rarely, if ever, going to be carried out by private-sector firms with a view to ultimately profitable application, society has no choice but to rely on academic research (pure or discovery research) to provide a stream of fresh insights.

However, many researchers located in the universities will, by natural inclination (or in response to incentives), be oriented to the applied end of the research spectrum. Policy efforts can and should be directed towards harnessing the potential commercial benefits that may be embedded in such research. Those efforts can include funding directed towards applied research, dissemination of information on potentially applicable research to those who may be able to utilize it, and organizational structures whose purpose is to forge links between research producers and users to speed up the commercialization process. The next section of the report examines the current structures utilized in Nova Scotia for that purpose.

5.3 Knowledge/Technology Transfer, and the Commercialization of Research

5.3.1 Introduction

Since there is applied research being conducted in Nova Scotia universities that has potential value for commercialization, there is merit in examining the structures in place currently to take advantage of that and then to consider ways to improve it. The focus in this section is on the transfer of knowledge and technology from the university community to the business community. Knowledge/technology transfer is basically the dissemination of technological, scientific, and more general knowledge from higher education institutions to the wider community. Commercialization is the process of taking a new product or service or process from concept to the market. The knowledge/technology transfer may produce the product, service or process to be developed, or it may be the research basis for those outputs.

In this section, three primary issues are discussed: (1) the mechanisms currently in place to support knowledge/technology transfer and research commercialization from universities to industry; (2) the existing track record for knowledge/technology transfer and research commercialization in Nova Scotia and how it compares with other jurisdictions; (3) avenues for improvement in knowledge/technology transfer and research commercialization that might enhance economic development in Nova Scotia.

5.3.2 Mechanisms for Knowledge/Technology Transfer and Commercialization

There are two sets of mechanisms in Nova Scotia to be examined: internal university/college mechanisms; and external, primarily federal and provincial government-supported programs.

INTERNAL MECHANISMS

For universities (and NSCC) the primary internal mechanism for technology/knowledge transfer and research commercialization is the industrial liaison office (ILO). Establishment of formalized ILOs in the Atlantic University/College system was supported in 2003 by a \$1 million grant from the Atlantic Innovation Fund (AIF) of the Atlantic Canada Opportunities Agency (ACOA). In Nova Scotia, ILO operations were established at Dalhousie, Acadia, St.FX, SMU, MSVU (shared with SMU) and NSAC. Additional institutional ILO operations (NSCC, NSCAD, and CBU) were set up by the second round of AIF funding in 2008. AIF funding had also supported the creation, in the fall of 2004, of a regional coordinating not-for-profit organization, Springboard Atlantic, to underpin the network of Atlantic region ILOs. Further AIF funding was provided in 2008 to Springboard Atlantic and ILO operations for an additional three years. AIF funding represents approximately 30 per cent of total operational funding for the Dalhousie ILO (called Industry Liaison and Innovation), and approximately 80 per cent for other Nova Scotia universities.

The existence of technology-transfer offices within higher education institutions in Canada and internationally had been widespread going back to the late 1980's. In Atlantic Canada, prior to 2005, this function had largely been a responsibility of the VP/Dean of Research offices within the institutions.

The core function of the ILO is to be the institutional focal point for commercializing internal research activity and facilitating and supporting enhanced linkages between this research activity and business. Specific ILO functions include the following:

- *Technology transfer and commercialization of research.* This includes assessing new technologies; filing patents, copyrights, and intellectual property claims; and maintaining and managing licenses.
- *Industry liaison and development of commercial partnerships.* This includes facilitating private-sector-sponsored events and meetings, negotiating comprehensive agreements, and accessing small-business programs of industry support.
- *Development of spin-off companies and joint ventures with industry.* This includes recruiting experienced management personnel, business planning, and helping to find investors.
- *Administration of small and medium-size enterprise (SME) programs for sponsored research and development.* This involves working with government to design programs for SMEs, and overseeing management and fiscal responsibilities. (Springboard Atlantic, 2008).

With regards to commercialization of research, the ILO operates in an environment where research-related intellectual property (IP) initially resides with the researcher. Inventor-owned IP is a component of the collective institution-faculty agreements. The agreements also, in most cases, include a requirement for researchers to disclose their intention to move towards commercialization of their research activity. This is consistent with the approach employed nationally by approximately 70 per cent of Canadian universities. If a researcher chooses to attempt to commercialize (licensing, spin-off companies, industry collaborations) his/her research through the institution, IP is transferred to the institution and the ILO becomes the mechanism that manages and supports the process. A part of this management process is an agreement between the researcher and institution on a breakdown on the future income related to the IP.

The ILO intermediary role includes linking the university to businesses, as well as to external public programs, including the National Research Council's Industrial Research Assistance Program (IRAP) and provincial Productivity and Innovation Voucher and Early Stage Commercialization Fund programs, which work to improve academic research–business linkages. (See the detailed program descriptions provided below.) For smaller, rural institutions, the intermediary role is not limited to research: it also includes bringing varied operations within the institution together to address an opportunity identified by area business and/or non-profit groups.

It is important to note that there are specific university sub-operations outside of the ILOs that provide direct services to business. The Eco-Efficiency Centre and the Nova Scotia CAD/CAM Centre at Dalhousie are two examples. However, as is the case with both of these centres, the contracting authority is the Vice President of Research, not the individual centres involved.

EXTERNAL MECHANISMS

As indicated, the environment for supporting technology/knowledge transfer and commercialization of research from Nova Scotia's universities takes place in a system that includes both internal university/college and external (primarily federal and provincial government-supported) mechanisms and programs. Following are the key external mechanisms: [designer: see italics]

- *Early Stage Commercialization Fund (ESCF).* Managed by Innovacorp (Nova Scotia Crown corporation) and supported by Economic and Rural Development, ESCF is a competitive process that provides up to \$50,000 to selected academic researchers to help commercialize their research. The program has been in place since 2005 and has funded over 50 individual projects.
- *Productivity and Innovation (P&I) Voucher Program.* Developed and managed by Economic and Rural Development, the P&I Voucher Program provides vouchers to SMEs who apply them to the cost of specific

services provided by university program service providers. Two rounds of the program have been run and a total of 83 vouchers have been issued.

- *National Research Council (NRC)*. The NRC has two Nova Scotia–based research institutes, both located in Halifax: the Institute for Marine Biosciences (IMB) and the Institute for Biodiagnostics (Atlantic). The IMB facility has played an active role in helping firms, including Ocean Nutrition Canada and Acadian Seaplants, with initial and ongoing research support needs. The Institute for Biodiagnostics focuses on biomedical imaging and supporting the development of non-invasive medical devices. The institute has close ties with the growing biomedical, life sciences community in Halifax.
- *NRC's Industrial Research Assistance Program (IRAP)*. Often cited by Atlantic region SMEs as being one of the most practical government assistance programs available, IRAP provides direct technical and advisory services and financial assistance to SMEs. IRAP also manages the Science and Technology Assistance Program which funds short-term (three-day) engagements involving university researchers/faculty and businesses. In 2008–09, 60 Nova Scotian businesses took advantage of this program.
- *Springboard Atlantic*. Established in 2004 with funding from the universities and the ACOA-AIF program, Springboard provides coordinated support to enhance the efficiency and effectiveness of technology transfer at all universities in Atlantic Canada and to promote and accelerate the commercialization of technologies by Atlantic Canadian companies.
- *Natural Sciences and Engineering Research Council of Canada (NSERC)*. NSERC has invested over \$7 billion nationally over the past ten years in post-secondary research and academic-industry partnerships in the natural science and engineering fields. Over the past number of years, NSERC funding has maintained a consistent 75/25 per cent split between traditional academic research and academic-industry partnership-type project funding. NSERC has recently launched a Strategy for Partnership and Innovation that will focus on enhancing the take-up and effectiveness of their academic-industry partnership programs. Regional NSERC offices, including the Atlantic office, will now have a primary focus on facilitating these partnerships.
- *ACOA Atlantic Innovation Fund (AIF)*. Since its launch in 2001, the AIF has been ACOA's primary mechanism for supporting innovation and research commercialization. The AIF has awarded over seven rounds of program funding, a total of approximately \$640 million, to 247 individual projects across Atlantic Canada.
- *Life Science Research Institute (LSRI)*. Due to open in Spring 2011, the LSRI complex will consist of two interconnected buildings adjacent to the Dalhousie Medical School. One building will house key Dalhousie life-sciences-focused research assets, including the Brain Repair Centre. The second building will be the new location for the Innovacorp BioScience Enterprise Centre. The LSRI offers significant potential for interaction and partnerships between researchers and business, as well as a physical location for incubating ventures that result from this interaction. Establishment of the LSRI was supported by a \$15 million grant from the national Networks of Centres of Excellence (NCE) program.

5.3.3 Track Record for Technology Transfer and Commercialization in Nova Scotia

In relative terms, Atlantic Canadian institutions are only just beginning to develop formal capacity for facilitating increased commercialization of their research activities. As Figure 5.8 indicates, there is activity and some growth in certain areas. However, comparing an Atlantic region total of less than \$1 million for licensing and royalty income in 2007 with a UBC total of \$14 million, it is obvious that larger institutions in other parts of the country are more established.

There are, however, some interesting comparisons when you look at activity growth. Using data provided by Springboard, Figure 5.8 provides performance metric trends on licensing and royalty income, level of industry-sponsored research, and the number of new and expanded spin-off ventures for its 14 university member ILOs (total Atlantic and Nova Scotia universities only). A key piece of their analysis is a comparison of Springboard member performance with that of other institutions and groups of institutions at the national level. Growth in activity in 2008 over the benchmark year 2007 is compared for Springboard and the average growth by member institutions of the Association of University Technology Managers (AUTM) Canada. Preliminary numbers indicate that, while other institutions experienced a decline in activity over the 2007 baseline period, Springboard members collectively experienced growth. Licensing and royalty income for AUTM Canada member institutions collectively dropped 10 per cent over the 2007 period (UBC fell 50 per cent), while Springboard members experienced growth of 6 per cent. Industry-sponsored research growth was 18 per cent for Springboard, versus 3 per cent for AUTM. Both Springboard and AUTM members experienced a significant decline in new or expanded spin-off/joint ventures during 2008. Springboard is currently finalizing performance data for submission to ACOA. The data for 2009, although based on early projections, indicates continued growth of university commercialization activities across the Atlantic region.

FIGURE 5.8 Selected Indicators of Trends in Research Commercialization, 2005-09

Indicator		2005	2006	2007	2008 ¹	2009 Projections ¹
Licensing and Royalty Income	Atlantic	\$349,000	\$852,000	\$896,000	\$949,000	\$904,000
	Nova Scotia ²	\$237,000	\$579,000	\$609,000	\$645,000	\$723,000
Industry- Sponsored Research Contracts ³	Atlantic	\$23 million	\$22 million	\$18.3 million	\$21.6 million	\$24 million
	Nova Scotia ²	\$13.57 million	\$12.98 million	\$10.8 million	\$12.74 million	\$13.7 million
New or Expanded Spin-off Ventures	Atlantic	N/A	N/A	6 New 10 Expanded	4 New 6 Expanded	9 New 9 Expanded

1. The 2008 and 2009 data sets are incomplete and contain some projections.

2. Nova Scotia numbers are based on a percentage of total Atlantic for each area.

3. Industry-sponsored clinical research contract data do not include industry-sponsored clinical research, which is an additional significant source of industry research and development at institutions with affiliated hospitals.

Source: Adapted from Springboard Atlantic data

A breakdown of recent Dalhousie data from the ILI office (covering June 2008 to November 30, 2009) provides the following broader range of data related to commercialization/knowledge technology transfer activities:

- 49 disclosures made by researchers and assessed by the ILI
- 3 prototypes developed
- 27 patent applications filed
- 1 spin-off company formed
- 2 licenses and options executed with start-up companies
- 15 info sessions for faculty and students

The Dalhousie ILI also, over this period, supported 55 IRAP Science & Technology Assistance Program grants and 10 Economic and Rural Development Productivity and Innovation Voucher projects. This type of linkage activity between the institution and business (specifically SMEs) is often ignored in discussions related to ILO/ILI performance. More concrete and quantifiable measures, number of spin-offs, patents, etc., are more prevalent. It is, however, these “softer” relationship building/point of contact activities that are at the core of the commercialization, technology/knowledge transfer activities of our ILOs. This is especially the case with smaller Nova Scotia institutions.

Following are some examples of these activities:

- Acadia University has established a series of research clusters focusing on research areas such as tidal energy, environmental monitoring, e-learning, and grape growing and wineries. These clusters bring together Acadia faculty and researchers from multiple disciplines with representatives from business, public research facilities, and government departments and agencies. The objective of the cluster approach is to mobilize necessary and available resources to take advantage of specific opportunities. From a research perspective, Acadia researchers benefit from increased opportunities for undertaking applied sponsored research.
- The Nova Scotia Agricultural College (NSAC), through the work of the Atlantic BioVenture Centre and AgriTech Park, continues to successfully link Nova Scotian agri-based businesses with the research and commercialization capacity of the NSAC. The NSAC has recently announced plans to establish the Atlantic Centre for Agricultural Innovation, which will provide enhanced on-campus infrastructure to build on these activities.
- In response to an expressed Nova Scotia Department of Environment direction to expand community-based water quality testing, the ILO at Saint Mary's University has worked with the Nova Scotia College of Art and Design to develop a water-monitoring toolkit and related training program. The toolkit and training will enable community groups to actively take part in ongoing monitoring and reporting on their water quality.

5.3.4 Prospects for Improving Knowledge/Technology Transfer and Research Commercialization

As the preceding discussion has attempted to illustrate, supporting technology/knowledge transfer and the commercialization of university/college research takes place in a broader environment. Any analysis and recommendations aimed at improving performance in these areas needs to take into account both the internal academic and external academic perspectives as well as their interaction.

Some specific issues and related recommendations to consider are provided below:

- From an internal university policy perspective, there has been ongoing debate on whether the researcher-owned IP policy in place here in Nova Scotia and in a majority of Canadian post-secondary institutions is the right approach to encourage technology/knowledge transfer and increased commercialization activity and results. It could be argued that the current disclosure and transfer provisions contained in Nova Scotian university faculty agreements essentially have created a hybrid researcher-owned/institutionally owned IP environment. The establishment of ILO operations in Atlantic Canadian universities and the creation of Springboard Atlantic were an attempt to add the necessary facilitation and support to help the existing system work better. Comparatively speaking, and based on limited data available, the recent commercialization performance of Nova Scotia institutions appears to hold up well when compared to the performance of institutions in other Canadian jurisdictions.
- An opportunity for a more practical and complete assessment of the ILO/Springboard system and the related academic policy environment will be afforded as current ACOA, AIF funding runs out in 2011. The federal 2010–11 budget has limited ACOA AIF and other innovation programming funding to \$19 million per year, on a regional basis. This significant reduction in funding could predicate the need for thorough reviews of future funding allocations, including the possible extension of ILO/Springboard funding. The need/potential for provincial input, both from a review and possible project funding perspective, could be more substantive than it was when the funding was originally awarded in 2003.

- A number of public sector programs and initiatives are currently in place that aim specifically to enhance academic technology/knowledge transfer and research commercialization. There is a need to look at these programs collectively and assess gaps that exist and areas that could be addressed through program modification or introduction of new programs.
- It is debatable whether each university has to have an ILO on its campus. The level of ILO activity at most of the universities is low enough that it would make much more sense for the offices, other than at Dalhousie, to be consolidated. That would allow the merged ILO to expand and operate more efficiently and effectively.

The issue of improving the linkages between these programs is also important. There is often a logical transition from program to program that is not capitalized upon. For example, a Productivity and Innovation Voucher recipient firm could be encouraged to apply for a NSERC Post Secondary Graduate Student Fellowship to bring the necessary expertise in-house to take their concept to the next level towards commercialization. Along with benefiting the firm, the overall effectiveness of the two publicly funded programs would be enhanced. Simple sharing of program information among program providers and with their respective client groups could accomplish a great deal towards enhancing this coordination.

RECOMMENDATION

While teaching is a university's most important responsibility, research also makes a valuable contribution. The gains from university research in all academic fields accrue to society generally, especially for pure or discovery research that expands the foundations of knowledge. Applied research also advances knowledge, but is closer to being directly and immediately usable by businesses, government, and other organizations. The focus in the report is on applied research with potential for commercialization.

Recommendation 9:

Encourage more research, technology transfer, and commercialization, under the following guidelines:

- a. Create an effective mechanism for harnessing the potential of applied research currently being conducted by university faculty.
 - b. Before renewing major funding directed at encouraging research commercialization, carry out a comprehensive assessment of the effectiveness of such funding.
 - c. Consider maintaining the Industry Liaison and Innovation (ILI) office at Dalhousie, and amalgamating the industrial liaison offices (ILOs) of other universities into one.
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SECTION 6:

University Funding Formula

6.1 Background

The failure of the University of Halifax in 1881 marked the end of government grants to universities on a general basis for over half a century. However, the post World War II industrial expansion led to a need for a better educated labour force and an increased demand by Canadians for post-secondary education. In the early 1950's, the federal government started funding universities directly, based on provincial population. This continued until 1967 when they switched to funding provinces through a tied grant for up to half the operating expenditures of post-secondary institutions in each province. Federal direct funding for universities was limited to research grants and special projects, while provinces provided operating grants to universities. (Government of Nova Scotia, 1985, pp. 16–17). These funding arrangements were set out as part of Established Program Funding in 1977 and, although the specific features have changed over the years, the essence remains for post-secondary education as part of the Canada Social Transfer.

Substantive and broad-based provincial funding of Nova Scotia's universities began in the early 1960's. A Universities Grants Committee (UGC) was established to provide an unbiased funding intermediary between the universities and the government. The UGC used a formula based on weighted university enrolments to accomplish its task.

The Maritime Provinces Higher Education Commission (MPHEC), formed in 1974, was the product of the Maritime Union Study. (Government of Nova Scotia, 1985, p. 17). Among other duties, the MPHEC was given responsibility for making university funding recommendations to each of the governments of the three Maritime provinces. The commission was a response to the region's universities having experienced dramatic enrolment growth, uneven funding arrangements, infrastructure and faculty recruitment challenges, and a desire among governments to work more closely together while not unduly sacrificing their autonomy. The Finance Committee of the MPHEC would annually conduct hearings, considering such factors as the state of systems' enrolments and capital financing, student fees and participation, accessibility, research, and each province's fiscal capacity.

Once governments responded to the MPHEC's recommendation for global funding, three types of grants were provided: unrestricted operating; restricted operating; and capital grants. The restricted and unrestricted grants were allocated on a formula basis, taking into account each university's historical funding, using average enrolment levels over the latest three years for which data were available, weighted by individual program costs. Finally, there were supplementary grants (less than 5 per cent of the provincial grants) to address special circumstances faced by individual universities. To ensure that there were no dramatic funding shifts among institutions, 75 per cent of all government funding was based on historical patterns (flat grant) and the enrolment portion was determined by a three-year weighted FTE average, the latest year always being two years out of date. (Government of Nova Scotia, 1985, pp. 131–133). With respect to the unrestricted operating grant, the MPHEC distribution formula had many of the characteristics of the distribution formula currently used in Nova Scotia. The Nova Scotia Allocation Formula used in 2010–11 allocated 75 per cent of funding according to enrolment and 25 per cent in costs.

In 1989, the Council on Higher Education was established and its central role was to advise the Minister of Education and the Government of Nova Scotia on funding and policies related to Nova Scotia's universities.

From the time the Nova Scotia Council on Higher Education was established in 1989 until the introduction of a new funding formula in 1998–99, the method of allocating operating grants remained substantially unchanged from the MPHEC allocation process. However, in the intervening ten years, there were substantial changes in enrolment, new programs had been introduced, and funding decisions had become increasingly ad hoc and disjointed. In 1996, the Minister of Education asked the council to work with universities, students, and other stakeholders to establish a new formula for funding Nova Scotia's university system. (Nova Scotia Council on Higher Education, 1998, March, p. 1). Two-and-a-half years later, a new formula emerged.

6.2 Current Funding Approach

What follows is a relatively high-level overview of the Nova Scotia University funding process, including the funding allocation formula as it exists today up to the end of the current memorandum of understanding, which expires March 31, 2011. References are given for technical papers that provide intricate details, particularly regarding the allocation process.

The revised university funding formula was first used for the 1998–99 fiscal year. Since program costs (both absolute and relative) and enrolments were as up-to-date as they could be, and all consultations had been completed, the formula could both determine total system funding requirements and allocate the total funding. The Council on Higher Education identified a “real and pressing need” for additional funding of the university system, citing past cuts in government funding, “an alarming increase in tuition levels,” and rising student debt levels.

The council recommended an operating grant of \$198.8 million, an increase of \$23.8 million over the previous year. (Nova Scotia Council on Higher Education, 1998, May, p. 15). The actual increase was \$7 million and it was not until 2001–02 that system funding reached the level recommended in 1998–99. As previously noted, it was in the first year of the MOU in 2004–05 that substantial increases occurred. Consequently, the funding formula, almost from the beginning, became a funding allocation formula.

When the government decided in 2003 to proceed with the negotiation of a multi-year funding agreement, the key objective was to bring rationality, comprehensiveness, stability, and transparency to university funding. The Nova Scotia Auditor General's Report in that year had noted the ad hoc nature of university funding and recommended establishment of a longer-term funding commitment. There was also concern about tuition increases that universities had imposed in response to what they contended was inadequate funding. Nova Scotia had the highest tuitions in Canada, which had been trending up at over 8 per cent annually since 1989–90.

The approach taken to system funding was, with the universities, to develop what became known as a Chart of Accounts. This involved agreement on twelve budget drivers for the university system that were standardized for each university. That is, the individual elements—faculty salaries, benefits, utilities, debt servicing, technology, etc.—were accounted for in the same way. Projections for the drivers and for inflation, along with the fiscal position of the government, and tuition levels, were incorporated into the discussions.

Given general agreement on the Chart of Accounts, the government set a target for tuition increases of 3.9 per cent per

year for three years, and adjustment was made to the funding level to account for tuition revenue foregone by the capped rate. A similar adjustment was made when tuition was subsequently frozen and then reduced in amendments to the MOU.

It was agreed that the University Funding Distribution Formula would be used but enrolments would reflect the three-year period 1994–95, 1995–96, and 1996–97, rather than the most current enrolments available. The enrolment levels were fixed for the three-year period of the MOU to prevent radical changes in the funding shares going to each university. For the second MOU, enrolment levels for years 2003–04 to 2005–06 were used and then fixed for three years, rather than being updated annually.

With the total funding level determined, 90 per cent of the allocation to universities is enrolment-driven and 10 per cent addresses special circumstances and other items such as research.

The enrolment-driven component of the formula, called the *Weighted Enrolment Grant*, is built from data provided by the MPHEC through the Post-Secondary Student Information System (PSIS). (Maritime Provinces Higher Education Commission, 2009). Enrolments are arranged in 12 “bins” which reflect the relative cost of instruction/delivery determined in the original Nova Scotia Council on Higher Education Costing Project. The least expensive bin (Alpha) has a weight of 1. Alpha includes most of the courses taught in an undergraduate Bachelor of Arts program. Alpha’s value is set at an estimated course cost, and all courses in the other “bins” are set relative to Alpha. Dentistry, the most expensive program, has a bin weight of 10; therefore one full-course equivalent in Dentistry would have a cost of $1 \times 10 \times \$$ per full-cost equivalent (FCE).

When the global funding for the system is increased, the base value of the operating grant per FCE changes for each course in every bin. As long as the relative cost of the various courses remains the same, the share a university receives for its enrolments reflects the relative costs of the courses they are delivering and the total number of students in each course.

The other components of the Nova Scotia Funding Allocation Formula include a Research Grant, Size Grant, French Language Grant, Part-time Student Grant, Isolation Grant, Alterations and Renovations Grant, and Non-Space Grant. These components of the total operating grant are determined as follows:

- *Research Grant*: This is intended to cover the indirect costs associated with university research, and is based on the funding from the research-granting councils. In most cases, indirect costs are set at 40 per cent of the value of grants.
- *Size Grant*: This recognizes that smaller universities may have difficulties achieving economies of scale. Institutions with FTE enrolments below 100 receive an additional grant of 65 per cent of their weighted enrolment grant. Universities with enrolments between 100 and 899 receive an additional 10 per cent of their weighted enrolment grant. For each additional 100 FTE enrolments above 800, the size grant decreases by two percentage points.
- *French Language Grant*: This was established to help cover the increased costs associated with providing programs in French in a predominantly English-speaking province. Université Sainte-Anne received an additional 15 per cent of its enrolment grant.
- *Part-Time Student Grant*: This recognizes additional administrative costs associated with part-time student enrolments.
- *Isolation Grant*: This is meant to cover costs associated with operating outside of Halifax Regional Municipality. The amount, fixed at \$1.5 million, is provided to non-metro universities.

- *Alteration & Renovation Grant*: This grant is meant to be allocated to facilities maintenance. The value of the grant is increased at the same rate as the Unrestricted Operating Grant, which is all other components of the operating grant.
- *Non-space Grant*: This provides funds for plant, administrative and academic equipment, furnishings, and library acquisitions.

The Nova Scotia Funding Allocation Formula can be summarized as follows (Nova Scotia Council on Higher Education, 1998, May, p. 1):

$$\begin{aligned} \textit{Total Operating Grant} = & \textit{Weighted Enrolment Grant} + \textit{Research} \\ & \textit{Grant} + \textit{Size Grant} + \textit{French Language Grant} + \textit{Part-time Student} \\ & \textit{Grant} + \textit{Isolation Grant} + \textit{Restricted Alterations \& Renovations} \\ & \textit{Grant} + \textit{Non-Space Grant}. \end{aligned}$$

As noted earlier, the Weighted Enrolment Grant is 90 per cent of the total operating grant.

For the current MOU, use of the funding formula with updated enrolments would have meant that some universities would receive funding lower than their projected costs and some would receive more. Consequently, an adjustment was made so that all universities received a funding increase for each year of the MOU. The adjustments were made by allocating the unchanged total system funding among the universities. The “transition” Funding Allocation Formula consisted of 25 per cent from the updated Funding Allocation Formula and 75 per cent of costs for each university in 2008–09; 50/50 in 2009–10; and 75/25 in 2010–11.

The Nova Scotia university system is composed of very diverse institutions. A single formula, no matter how well designed, could not adequately account for the diversity. The Atlantic School of Theology, a graduate theology school with 100-plus students, and Université Sainte-Anne are obvious ‘outliers’ and hence adjustments are made both within and outside of the formula to make them viable from a funding standpoint. Figure 6.1 summarizes the results for the current MOU.

FIGURE 6.1 Memorandum of Understanding (MOU) Funding, 2007-08 to 2010-11

Institution	2007-08 Available Funding	2008-09 Available Funding			2009-10 Available Funding			2010-11 Available Funding		
		Transition Formula Funding	Increase over Previous Year	%	Transition Formula Funding	Increase over Previous Year	%	Transition Formula Funding	Increase over Previous Year	%
Acadia	27,183,188	27,862,919	679,731	2.50%	28,853,900	990,981	3.56%	29,682,989	829,088	2.87%
AST	957,109	995,445	38,336	4.01%	1,112,372	116,926	11.75%	1,216,847	104,476	9.39%
Cape Breton	17,759,449	18,738,390	978,941	5.51%	19,421,458	683,068	3.65%	20,175,294	753,836	3.88%
Dalhousie	125,564,960	139,436,253	13,871,293	11.05%	156,649,634	17,213,381	12.34%	175,762,052	19,112,418	12.20%
MSVU	16,277,279	18,440,998	2,163,719	13.29%	20,139,136	1,698,139	9.21%	21,870,749	1,731,612	8.60%
NSAC	5,315,353	6,195,404	880,051	16.56%	6,814,816	619,413	10.00%	7,099,244	284,428	4.17%
NSCAD	5,837,395	7,198,489	1,361,094	23.32%	8,210,814	1,012,325	14.06%	8,951,111	740,298	9.02%
St. Mary's	26,278,400	31,676,335	5,397,935	20.54%	34,551,511	2,875,176	9.08%	37,336,099	2,784,588	8.06%
St. FX	22,461,637	26,002,225	3,540,588	15.76%	28,818,209	2,815,984	10.83%	31,401,112	2,582,904	8.96%
U King's	3,912,149	4,806,784	894,635	22.87%	5,581,528	774,744	16.12%	6,325,762	744,234	13.33%
U Sainte-A	3,839,891	3,275,690	-564,201	-14.69%	3,610,999	335,309	10.24%	3,956,411	345,412	9.57%
Total	255,386,812	284,628,934	29,242,122	11.45%	313,764,379	29,135,445	10.24%	343,777,673	30,013,294	9.57%
College de l'Acadie ⁴	3,358,535	3,762,799	404,264	12.04%	4,165,589	402,790	10.70%	4,580,515	414,926	9.96%
A&R Top-Up ⁵		353,614	353,614	0.00%	815,379	461,765	130.58%	387,159	-428,220	-52.52%
Grand Total	258,745,347	288,745,347	30,000,000	11.59%	318,745,347	30,000,000	10.39%	348,745,347	30,000,000	9.41%

Notes:

1. The full annual increases as specified by the Chart of Accounts (university actual costs for 2008-09, 2009-10, & 2010-11) have been applied to the system for each of the three years covered by the proposed MOU: \$29.2, \$29.1 and \$30.0 million for 2008-09, 2009-10, and 2010-11, respectively.
2. Variance was calculated as updated formula funding (original formula updated with the most current available enrolments [three-year average of 2003-04, 2004-05, and 2005-06]) minus Chart of Accounts funding.
3. Any institution with a negative variance will have their funding adjusted as follows:
2008-09: 75% Chart of Accounts and 25% Updated formula
2009-10: 50% Chart of Accounts and 50% Updated formula
2010-11: 25% Chart of Accounts and 75% Updated formula
4. Université Sainte-Anne also receives a grant for its college operations. This funding was excluded from the general university allocation and is listed separately on the College de l'Acadia line.
5. A&R Top-Up is additional funding that was provided to the Alterations & Renovations (A&R) Grant.

Source: Higher Education Branch, NS Department of Education

6.3 Evaluation of the Approach

The approach employed by Nova Scotia to determine the level of the university system grant and its allocation is basically logical, consistent, and well-structured. It combines a focus on the projected costs of the operation of the system with an allocation linked to enrolment levels at each institution. If one measure of the performance of a university is an ability to attract students, public funding should reflect success in that endeavour. Any funding structure can be criticized for perceived or actual shortcomings, and hence could be improved. However, Nova Scotia's framework for funding its universities is, arguably, the best of its kind in Canada and should be retained in future.

With respect to the allocation formula, there are universities that feel they offer courses that warrant higher bin weights. Others have suggested that a total recalculation of absolute and relative course costs is needed. There is no obvious reason to believe that the relative cost of courses has changed radically in the past 15 years. As well, the process required to do such a recalculation would be long and expensive. Finally, so long as the overall system is linked to costs, recalibrating the allocation mechanism would be a zero sum game for universities collectively.

The two MOUs on university funding have served all stakeholders in Nova Scotia well over the past six years. They have provided stable and predictable funding for the universities and allowed them to do medium-range planning

rather than function on a year-to-year basis. The process allows (or forces) the government to engage in more strategic thinking about what its post-secondary system should look like. The Nova Scotia MOU model appears to be unique in Canada. It is certainly worth retaining irrespective of the particular circumstances universities and government find themselves in at any point in time.

Recommendation 10:

Retain the basic framework of the University Funding Distribution Formula and the multi-year funding agreement, under the following guidelines:

- a. Negotiate the enrolment baseline and the proportion of the formula driven by changes in enrolment levels.
 - b. Set the minimum length of the agreement at three years.
-

SECTION 7:

Detailed Summary of Conclusions and Recommendations

Section 7 has been prepared for the benefit of readers who want some context for understanding the main conclusions and recommendations of this report, without the weight of details contained in Sections 2 to 6.

7.1 Background

A concise statement of the mandate for this report would be “to provide an assessment of Nova Scotia’s university system and to offer recommendations that would maintain or improve its quality at a reasonable cost.” The report is the first of its kind in Canada to be conducted in the aftermath of the severe recession of 2008–09 and in the context of a multi-year program of provincial government fiscal restraint. As a consequence, there is more than a little interest in the extent to which cost savings from the universities may be affected without impairing the quality of the education provided by the institutions. However, the overarching consideration is not the short-term quality/cost trade-offs available, but the long-term viability and effectiveness of the province’s universities.

Along with the prospect of restraint-induced belt tightening, Nova Scotia’s universities are faced with the serious possibility that enrolments will continue the slide of the last several years. The population of 17–29 year-olds is the primary age group upon which universities rely for undergraduate enrolments, and this population cohort is already shrinking in Nova Scotia and will be declining nationally by 2015. A recent Statistics Canada study of future enrolment trends projects full-time university enrolments in Nova Scotia to fall (albeit gradually) from 2009–10 onward.

There is likely to be short-term fiscal restraint imposed by government, whether in the form of a slower pace of increase in or in an outright reduction of the operating grant to universities. In combination with an expected decline in enrolment, there will be financial strain on the universities with some institutions at greater risk than others. These two factors alone would be sufficient to justify an examination of the potential benefits from structural change in the system. However, the existence of eleven degree-granting institutions in a small province has caused periodic consideration of the potential for downsizing the sector. Almost everyone agrees that, starting from scratch, the province would not create a structure of eleven institutions. The pertinent issue now is what changes can or should be made in the system that has been inherited. The report addresses the issue by assessing a range of options for structural change.

The two primary sources of funding for the operations of universities are the operating grant from the government and tuition fees from students: together they constitute over 80 per cent of the operating revenue. The size of the annual transfer from the province is clearly a matter of public policy, but so typically is the level of tuition fees. In recent years government policy has been to lower the average level of tuition fees to the national level. That goal is expected to be accomplished in the academic year 2010–11. With the memorandum of understanding (MOU)

between the province and the universities entering its final year, it is timely to evaluate both the grant and tuition fee policies and to make recommendations about future policy directions. The report does this by considering both the conceptual and empirical underpinning for both policy areas and then making recommendations for future policy. In the case of the operating grant, a distinction is made between the short-term and long-term context for decision makers.

With both public and private dollars providing the financing of universities, there has been, nationally and internationally, an increasing interest in and focus on measuring the quality of the services provided by the institutions. The two main outputs or outcomes provided by universities are teaching and research. In the provision of these services, universities are ultimately accountable to three primary groups: taxpayers; students (and their parents); and boards of governors and senates. There is considerable debate about which indicators might be used to measure the quality of outcomes, although several Canadian and American jurisdictions have mandated several such measures and are using them for, among other things, funding decisions. The report examines the broad issues involved in the creation of a set of performance indicators and provides general guidelines for moving forward to establish quality measurement in the province's universities.

While the educating of undergraduate and graduate students is the main task of universities, the production of both basic and applied research is a fundamental element of the activities of most academics. Both types of research can make a significant contribution to society, although in recent years there has been an increasing (utilitarian) emphasis on the need for applied research that has the potential to add to economic growth through advancing technology and improving processes. The report examines the level of research activity in Nova Scotia universities and discusses the most effective ways to achieve gains from applied research.

7.2 Outlook for the Universities

The labour market in Canada is going to require a substantial increase in the number of university-educated individuals over the next 10 to 15 years to satisfy the demands of a growing economy and to replace the retiring baby boomers. The challenge for the economy and, no less, for the universities is that the primary age cohort (17–29 year-olds) upon which universities have depended for undergraduate enrolments is projected to decline over the next 20 years. This sets up the potential for a serious mismatch between the demand for university-educated individuals and the supply of people willing and able to engage in post-secondary educational opportunities. The supply pressure may be partially mitigated by increases in participation rates. It may also be alleviated by increased reliance on international students, on traditionally under-represented groups such as African Canadians and aboriginals, and on mature students.

The outlook for enrolment in Nova Scotia is not encouraging, even taking into account the potential offsets to the declining numbers of Nova Scotians in the prime age cohort. The outlook can be summarized as follows:

- Enrolment of Nova Scotia students, both in the province's universities and across Canada, peaked in 2003–04 along with their participation rates.
- Full-time enrolment in the province's universities is projected to decline even assuming a modest increase in participation rates over the next five years and an increase in enrolments from Ontario students.
- The number of international students in the Nova Scotia university system peaked in 2005–06 and has gradually declined since then. As other systems compete more aggressively for these students, the prospects for increasing international student enrolments in Nova Scotia are, at best, limited.

- As desirable as it would be to increase the participation of visible minorities in university education, the number of potential students is too small to mitigate declining enrolment.
- Mature students are a potentially large pool upon which to draw, but their participation rates have, for a number of possible reasons, been quite low. Materially increasing them could require significant changes in the mode of university operation.

There are three main drivers of the financial situation that will be faced by universities in Nova Scotia over the next five years: the operating grant provided by the government; the level of tuition and other fees that will be generated by students; and the operating costs incurred by the university. Government policy determines the size of the grant and may dictate tuition fee levels. Enrolments will affect total tuition revenue, and universities determine their operating expenditures.

Financial projections for the university system were made using a variety of assumptions about government policy with respect to grants and tuition fees, about enrolment projections, and about operating costs decisions made by the university. The time frame examined was the next five years. These were not predictions or forecasts about what would happen but a set of scenarios that the government and the universities could face in the medium term.

Four different assumptions were used regarding the possible pace of government funding for universities: the operating grant increases at the rate necessary to ensure fiscal balance in the system; it increases (decreases) at the rate of growth (decline) in the provincial population (constant per capita); it increases (decreases) at the same rate as overall government spending (constant share of expenditures); it changes at the same pace as the level of economic activity (constant share of GDP). With respect to tuition fees, the assumptions included: freezing tuition at current (2010–11) levels; allowing tuition levels to increase but at a regulated pace (e.g., a maximum percentage rate of increase); or completely deregulating and allowing each institution to set its own tuition levels.

Three different system enrolment assumptions were made: a decrease in Nova Scotia and out-of-province enrolment and constant international student numbers; no change in Nova Scotia, out-of-province, and international enrolments; and an increase in Nova Scotia, out-of-province, and international enrolments. Finally, university operating expenditures were anticipated to increase either at an annual rate of 5 per cent (the current pace); at a 2.5 per cent pace; or at the rate necessary to achieve fiscal balance in the university system.

Following is a summary of the results:

- The impact over the next five years of varying the basis for the operating grant ranged from a reduction of \$4 million during that period (using constant per capita) to an increase of \$51 million (constant percentage of GDP). Note that the pace of increase in the grant in the current MOU was \$30 million per year or \$90 million over three years.
- If tuition fees were allowed to increase annually at the (recent) national pace of 4 per cent, system revenue would rise by almost \$50 million over a five-year period.
- A continuation of the 5 per cent rate of increase in university operating expenditures would push them up by \$207 million by 2015–16. Even under the most optimistic set of assumptions used in the report, that pace of expense increase would imply a sizeable financial deficit in the sector as a whole and for most, if not all, institutions.
- In the worst-case scenario used (tuition levels frozen; a constant per capita operating grant, and enrolments falling by 1 per cent per year), the system's deficit by 2015–16 would be \$215 million.

- In general, if the government applies some degree of restraint in its operating grant relative to the most recent MOU, the burden of avoiding a persistent system deficit would have to be shared between students (through higher tuition fees) and the individual institutions (through a reduced pace of increase in operating costs).
- One of the challenges that the universities will face if they are forced to rein in the pace of expenditure increases is that about 70 per cent of those costs are in faculty and staff compensation. As reductions in faculty complement are very difficult to achieve, the bulk of the spending restraint will have to borne either by (non-faculty) staff reductions or by adjustments to rates of salary and benefits.

7.3 Tuition Fees and Student Financial Assistance

Public discussion of the appropriate level of tuition fees is often couched in terms of the impact of tuition levels on the accessibility to post-secondary education, particularly for low-income individuals, and on affordability for students more generally. The latter issue tends to be framed with reference to the levels of debt with which students are saddled after graduation. However, this focus on accessibility and affordability ignores four significant issues, the first of which is that students are not the only group with an interest or a financial stake in the level of fees. Universities rely on tuition fees as a major revenue source, and if the transfers to universities from the public purse are moderated, tuition is the only significant source of funding over which they can exercise any control. Taxpayers also have an interest in the size of the operating grant to the university system since, for a given level of system cost, the less revenue coming from student fees, the more that has to be provided by taxpayers.

Second, the focus on the costs of university attendance tends to ignore the benefits of post-secondary education in the form of more stable employment and higher lifetime income enjoyed by university graduates compared to high school graduates. Unemployment rates are substantially lower for both men and women who have a university degree compared to those with high school certificates or individuals with less than a high school education. The most significant financial benefit of post-secondary education is its impact on income. A significant premium is earned by those who hold an undergraduate degree. One estimate puts the differential in lifetime earnings (at a national level) between a university degree holder and someone with a high school diploma at three-quarters of a million dollars. The differential for Nova Scotia graduates is slightly higher than the national average.

The third issue is that of the actual impact of tuition fee levels on accessibility. There are a number of barriers to accessibility, which include, among others, financial costs, family background, and academic success in primary and secondary education. Empirical research indicates that financial barriers are not as significant an impediment to the participation rates of under-represented groups as the other factors. It therefore follows that the level of tuition fees, which are only a part of the financial burden borne by university attendees, is not likely, by itself, to be the major barrier to the participation of low-income individuals or visible minorities it is typically claimed to be. It is, therefore, possible to infer from the empirical work that a broad reduction in tuition fee levels as a measure to increase accessibility will be a far less effective policy tool than those directed specifically at financially disadvantaged individuals. Among those more effective tools is student financial assistance.

Finally, there are equity considerations associated with having society underwrite a significant portion of the costs of the post-secondary system. The fact that university students from relatively more affluent families are disproportionately represented raises the question of whether it is fair to have middle-class and lower-middle-class taxpayers effectively subsidizing the university education of students from better-off families. As well, if accessibility for under-represented groups is the central concern, the subsidy provided by middle-class taxpayers ought to be

targeted to those with more significant financial disadvantages. One way in which that targeting could be achieved is to have all students contribute a greater share of the universities' operating revenue through higher tuition fees and then reduce further the costs for financially disadvantaged students by enhancing the levels of student assistance available to them.

There are four main policy options that the government may choose with respect to tuition fees.

- a. Continue to lower tuition fees to drive them below the national average.
- b. Maintain the freeze on tuition fees at the current level.
- c. Completely deregulate tuition fees and allow them to be set, without restrictions, by individual institutions.
- d. Allow tuition fee levels to increase but at a capped or maximum rate.

Lowering tuition fees further is the least attractive option as it would significantly limit the government's capacity for spending restraint, while combining spending restraint with lower fees would make it impossible for universities to function without a significant deficit. As well, the real cost to taxpayers would be rising while the real and nominal share borne by students would be declining. If current tuition policy constitutes an inequitable policy of taxing middle-class families to subsidize relatively higher-income attendees, that inequity would be exacerbated by lowering tuition further.

Similar objections apply, albeit with somewhat less force, to the option of maintaining the current tuition levels. A tuition freeze would also maintain inter-university differences that existed when the current policy was enacted but which may not have been intended by some institutions. On the other hand, it may fairly be argued by proponents of lowering or freezing tuition fees that high levels (however "high" is defined) do discourage participation of financially disadvantaged students to at least some extent. However, the more effective way to deal with this facet of accessibility (and the associated affordability problem) is to target student assistance and increase its capacity.

Completely unregulated tuition fees have several merits but one significant drawback. The drawback is that increases in tuition fees, especially large ones, can have a negative impact on accessibility, on affordability, on student debt levels, and therefore on university attendance, for those for whom financial barriers are a relatively more significant impediment. One way around this problem is to have the government require, as part of a complete deregulation of tuition fees, that some portion of any tuition fee increases enacted by institutions be directed towards increasing student financial assistance. This could be done either directly by the institutions (e.g., increasing their need-based bursaries) or by the government (e.g., clawing back a portion of the institution's grant and allocating the savings to its financial assistance programs).

One of the main benefits of a completely unregulated tuition fee environment is that it gives more freedom to the universities to set tuition at levels they deem appropriate to the quality and range of programs that they are offering. As well, if universities are free to offset a reduction in the level of support from the government through an adjustment in their tuition fees, this provides the government with greater latitude to apply fiscal restraint measures to the sector. Freeing tuition fees, to allow them to move to whatever level individual institutions choose, effectively reduces the argued inequity in taxing the middle class (and lower middle class) to subsidize students who already are (or will be in the future) better off financially than those being taxed.

If the government is unwilling to move to a completely unregulated tuition fee environment, a compromise between the current policy of freezing tuition fees and a completely deregulated environment is to regulate the

rate of increase in tuition fees. The most common and the administratively most straightforward way to do this is to cap the overall rate of increase in tuition fees that universities will be allowed to charge. The capped rate that ought to be set by the province is an arbitrary one. However, it will have to be determined in conjunction with decisions about the level of operating grants that will be provided to the university system over the next three to four years. A regulated increase provides students with some degree of certainty, during that period, about the tuition fees they will paying.

A somewhat more complicated variation of the capped rate approach is to combine an overall maximum rate of increase with full deregulation of tuition fees for certain programs of study. This has been done in Ontario where fees for professional programs—medicine, law, and business—are set at whatever level an individual institution chooses. A provision for student assistance clawback of a portion of the (unregulated) increase is included in the policy.

Recommendation 1:

Allow tuition fees to increase, both as partial offset to the impact of fiscal restraint and on equity grounds. In descending order of preference, consider the following three options:

- a. Completely deregulate tuition fees and earmark a percentage of tuition revenue increases for student assistance.
 - b. Cap the rate of increase in the short run and transition to complete deregulation in the long run.
 - c. Cap the rate of increase and allow full deregulation in certain programs.
-

Whatever tuition fee policy option is chosen by the government, there is an urgent need to also examine the current state of student financial assistance in Nova Scotia. The province already has one of the weakest student assistance programs in the country. Students face the highest total education costs and net out-of-pocket costs as a share of median income. Nova Scotia has the second-highest incidence of unmet need (the gap between assessed financial need and financial assistance provided). Finally, graduates from the province have higher average debt levels than students from other provinces. If the government chooses to allow tuition fees to rise—a recommendation made in this report—it will need to significantly upgrade the capacity of the student assistance program.

The solution to unmet need is either an adjustment downward in the estimation of resources required from student earnings and parental support or removal of the upper limits on the total amount of financial assistance available. If the assessment of requirements and resources is done in a fair manner, eliminating the cap on financial assistance is the most effective way to eliminate unmet need, especially for the most economically disadvantaged students.

Increasing the amount of assistance available has the potential to increase the debt burden of students upon graduation. To reduce the incidence of student debt while targeting the students most in need, an upper limit could be set on the amount of assistance in a given year, which would be in the form of a repayable loan. Those with relatively modest financial assistance requirements would receive most or all of it as a loan. Grants, which are much more costly than loans, would be targeted to those with higher costs or lower individual and family resources. This approach would also have the effect of setting an upper limit on the total student debt of graduates.

Even with the proposed changes, there could still be graduates who face debt levels that they cannot service out

of their current income. In Nova Scotia, provision is made for such individuals to apply for debt management programs. Nova Scotia was the first province to institute the Repayment Assistance Program. This program is an income-contingent repayment program and it should be retained.

Recommendation 2:

Increase the capacity of student financial assistance programs in Nova Scotia and focus more on students with the greatest financial need. Specifically:

- a. Raise or eliminate the cap on student loans.
 - b. Increase substantially the non-repayable grant portion of student loans, thereby capping the level of debt that can be incurred.
 - c. Retain the Repayment Assistance Program.
-

7.4 Government Funding

In Canada, government funding for universities has tended to be cost-based, enrolment-based, or some combination of the two. In the MOU in Nova Scotia there has been a combination with the total grant based on universities' cost projections and the allocation among institutions dictated by (weighted) enrolments. However, there is no analytical or empirical underpinning for an optimal level of the operating grant provided to universities. In fact, no such foundation is available for determining the optimal level of overall government spending, let alone what it might be for a particular category, although there has been considerable debate over the issue.

There are several commonly discussed principles for long-term growth in government spending, which can be applied to a specific category of spending as well. These principles were used in the scenario financial projections in the report, and include the following:

- a. (Nominal) spending increases at the pace of population growth plus expected inflation (constant per capita spending).
- b. (Nominal) spending rises in line with overall economic growth; i.e., at the pace of population growth plus inflation plus productivity growth (constant share of GDP).
- c. (Nominal) spending in a particular category increases at the same pace as total government expenditures (constant share of government activity).

The rationale for a constant per capita funding approach might be that the province already has one of the highest levels in Canada of per capita spending on university education and that Nova Scotia taxpayers should not be expected to further increase their comparative contribution to the university system.

The rationale for a constant share of expenditures would be that, with a substantial increase in university funding in recent years, the appropriate proportional contribution of government funding has now been reached. With enrolments more likely to be moderating than rising in the foreseeable future, maintaining the share of government spending going to universities might actually be seen as generous.

The rationale for an allocation based on the province's level of GDP would be that, as the province's prosperity

increases, the ability to afford a range of publicly funded services also rises and funding for universities should be linked to the taxpayers' capacity to support them. However, changes in funding should be linked to changes in GDP growth trends, not to annual fluctuations.

These principles are not the benchmarks conventionally used in the discussions about the appropriate level of university funding. When examining government spending on post-secondary education from an historical and comparative-jurisdiction perspective, the more commonly used measures include: funding levels in current and constant dollars; funding per full-time equivalent (FTE) student (current and constant dollars); and the ratio of government grant to tuition revenue (or the share of total operating revenue provided by government).

All six measures can be calculated for the province alone or compared to other jurisdictions including provinces and other countries. Each has its merits in displaying part of the story about patterns of university funding. For example, both levels of funding and funding per student began to decline in Nova Scotia by the mid-1990s, and the pattern was not reversed until the middle of this decade. As well, funding per student in the province is the lowest in the country. On the other hand, funding per capita and as a share of GDP is near the top among the provinces.

Not only do the several measures appear to tell quite different stories but may be subject to conflicting interpretations. For instance, the low per student funding could imply a comparatively weak effort by the province in supporting university education. Alternatively, it may indicate that the universities in Nova Scotia are more efficient than their counterparts in other provinces at delivering undergraduate and graduate programs. Although it is the most widely used comparative indicator of post-secondary funding, spending per student is only one of several input measures. It provides no information on the sector's outputs nor does it account for taxpayer capacity or willingness to underwrite university education.

An examination of comparative benchmarks does not provide a compelling basis for judging whether the level of public sector support is adequate, appropriate, or optimal. Historical peaks or historical averages for a particular jurisdiction are irrelevant if divorced from an examination of the context within which those decisions were made in the past. Inter-jurisdictional comparisons are somewhat more helpful, as they indicate what the current normal practice is. But normal practice is not necessarily best practice.

In the short term, the level of funding for universities will be guided less by benchmarks than by the pace of overall fiscal restraint that the government chooses to implement. The university system will be one of many sectors facing the prospect of outright reductions or a significant slowing in the pace of government transfers. While there is no basis for recommending a specific level of grant in the short run, several factors need to be considered. They include the following:

- The examination of potential cost savings from administrative (back-office) integration suggests scope for cooperative reduction in universities' operational expenditures.
- Declining enrolments and a slower pace of government funding will require the province's universities to restrain spending. As over 70 per cent of operating costs are for compensation of faculty and staff (including administrators), any significant restraint will have to come, to a considerable extent, from that source.
- The greater the restraint imposed on the university system, the more compelling will be the argument to remove the freeze on tuitions. The merits of partial, if not complete, deregulation of tuition fees are argued for in this report.
- Some universities will be affected more severely than others, not only by the restraint but also by the differential impact on institutions of the anticipated enrolment declines. The government may wish to pre-

emptively initiate discussions with institutions assessed to be at greater risk of experiencing financial crisis over the next three to five years.

- The government will need to incorporate into its determination of the funding level for the university system the fact that, starting in 2011–12, there will be a \$29 million gap created by the termination of the Nova Scotia University Student Bursary Trust.

Turning to the long run, the government should be assessing the framework that will be used for university funding when the province's fiscal challenges are resolved. Several benchmarks for funding have been outlined in the report. They comprise: (a) maintaining a constant per capita grant; (b) maintaining the grant at a constant share of public expenditure; or (c) increasing the grant at the rate GDP growth. There is no conceptual basis for choosing any one of the benchmarks. In fact, there are many who would argue that the grant should be grounded in historical or comparative levels of funding per student. However, the rationale for at least including these benchmarks in deliberations of university funding is that they explicitly incorporate consideration of the capacity and willingness of taxpayers to underwrite a significant portion of the cost of the universities.

Recommendation 3:

In the short term, government funding for universities will be affected by the pace of fiscal restraint the government decides upon. This report recommends no specific benchmarks for setting the operating grant, but offers the following guidance:

- a. Look to cooperative administrative (back-office) integration to reduce system costs over the next three to five years.
- b. Share the burden of the restraint between students (through higher tuition fees) and universities (through a moderation in operating expenditures, particularly compensation).
- c. Deal with institutions identified as potentially facing significant financial risk before a crisis develops.

Recommendation 4:

In the long term, the government should choose one of three benchmarks when setting university funding:

- a. Increase funding at the rate of population growth.
 - b. Increase funding at the rate of overall government spending growth.
 - c. Increase funding at the rate of GDP (gross domestic product) growth.
-

The division in operating revenue between government funding and tuition has varied significantly over time. Although there is no conceptual foundation for a specific sharing rule, individual and social benefits, and taxpayer capacity and willingness, should be considerations in the determination of the split.

7.5 System Restructuring

It is widely argued that, if the province had a blank slate, it would not create a university system with eleven institutions, but would design one with no more than four or five. This has led periodically to suggestions for consolidation of institutional administration. The proposals have included the creation of a University of Nova Scotia, establishment of a single university in Halifax, integration of programs in a single institution, and bilateral mergers of institutions. Along with these four, two others considered in the report are internal restructuring in individual institutions and administrative (back-office) integration. The latter is less a restructuring than an extension of a structure already in place.

The rationale often proffered for institutional consolidation is that it will reduce the operating costs of the organizations or operating units being merged. In the current fiscal context, the dominant interest of the government is likely to be in the extent to which various types of restructuring might lower the baseline costs of the university system without compromising quality. Conceptually, the cost savings or efficiencies come from what economists term “economies of scale.” That is, increasing the size of an institution (through merger or some other form of consolidation) will reduce the per-unit cost of operations.

From empirical work on scale economies for universities, there are indications that significant reductions in unit costs (usually measured per student) occur as institution enrolments climb to 2000 and above. These unit costs continue to decline (at a more modest pace) until institutions reach a size of approximately 10,000 students. However, several critical caveats need highlighting before concluding that institutional mergers are likely to markedly lower the operating costs of the Nova Scotia university system.

First, it appears that unit-cost reductions come, to a considerable extent, from an increase in the average class size post-merger. Although there is little empirical evidence of an inverse relationship between class size and quality of education received, cost-reduction benefits from this source may be at least partially offset by a deterioration in the perceived or anticipated quality of the student experience.

Second, there tend to be significant short-term costs in the amalgamations of universities, including the levelling up of compensation, relocation of faculty and staff, integration of information technology (IT) and communications systems, legal and professional fees, and modifications to physical plant. Hence, whatever long-term cost reductions may be achievable, mergers raise costs in the short run.

Finally, it appears that the key motivation for consolidation in many mergers is not cost efficiencies but other objectives such as enhancement of academic offerings, improvement in strategic focus and entry into new markets. For smaller institutions in a merger, the main driver often is survival. These findings suggest costs savings from consolidation are more likely to occur where there are other strong academic and strategic reasons for amalgamating.

Even if cost savings were the primary focus of the government’s interest in various types of consolidation, there would need to be consideration of the potential impacts on the quality of the university system. Such qualitative impacts could include: access by students to a greater range of programs and courses; access to alternative modes of delivery, such as distance learning, and to a wider array of teachers; more and better-quality resources for faculty and staff; and more extensive collaboration on curriculum design, teaching methods, and joint program development. It is also possible for the merging of institutions to lead to a raising of the overall standards of teaching, research, management, and/or curriculum if discrete qualitative differences exist among the institutions.

There needs to be a framework upon which the analysis of and recommendations for system restructuring might be based. Whatever form the consolidation effort might take, it should satisfy one or more of the following conditions:

- a. It reduces the operating costs of at least one institution and thereby of the system. If it is a merger of two or more institutions, it must lower the costs below what the separate institutions would achieve on their own.
- b. It improves the quality of education (teaching and/or research) at one or more institutions without a reduction somewhere else in the system.
- c. It prevents a high-probability crisis from occurring at one or more institutions (e.g., deficit or rising debt leading to bankruptcy and closure).
- d. It mitigates a recurring problem at one or more institutions that ultimately may threaten their sustainability (e.g., revenue volatility, weak management).

Regardless of the framework or specific proposals for consolidation, one principle needs to be established when considering options for dealing with financial difficulties at one or more institutions: It should be made clear that extraordinary support for a financially troubled institution is not an option unless significant structural adjustments are negotiated and agreed upon. Such structural changes might include a merger (or some other form of affiliation) or a major restructuring of an institution, including such measures as downsizing of the institution and/or increasing its degree of program focus.

A number of restructuring possibilities are examined in the report, including the following:

- maintaining the existing system—i.e., the status quo
- creating the University of Nova Scotia
- creating the University of Halifax
- consolidating programs
- implementing bilateral mergers
- restructuring internally
- integrating administrative (back-office) operations

Proponents of retaining the current structure point to the benefits of the diversity of institution types that the Nova Scotia system allows as well as to the dispersion of universities across the province, which provides local access for students. They also point to their well-established identities (or brand names), to the ownership of physical and financial assets, to the unique characteristics of individual institutions, and to the advantages of considerable competition in the offering of undergraduate programs.

Critical observers of the existing system argue that diversity has a cost which is borne by the taxpayers of Nova Scotia. As well, there would still be significant diversity and competition in a system with fewer institutions or one in which there is a greater degree of integration or consolidation among the institutions. Local access is only relevant for the five institutions that exist outside of the Halifax area. Brand identity is a relevant issue with respect to the ownership of assets and to impacts on fundraising. This would argue for some form of affiliation rather than full amalgamation, as the former would allow the partner institutions to maintain their separate and distinct identities.

There are two additional reasons for not simply accepting the existing university structure in Nova Scotia. First, past efforts to increase the collective efficiency of the university system through cooperation and coordination have been, at best, halting and incomplete. This points to the need to critically examine the prospects for structural change in the province's university system. Second, the university system is facing, for the first time, the prospect of

two distinct negative financial pressures, namely a structural decline in enrolments and sustained fiscal restraint by the government. In the episode of fiscal restraint in the 1990s, the universities were experiencing increasing enrolments and an unregulated tuition fee environment.

The creation of a University of Nova Scotia is an idea that has waxed and waned for a number of decades but often has been treated both by proponents and opponents rather more glibly than the concept deserves. There are obvious potential benefits to the establishment of a provincial university that integrates all (or most) of the eleven degree-granting institutions. These include the prospect of scale economies or unit cost reductions from a single large entity and unfettered mobility for students across a much broader array of programs and institutions than is currently possible. A single university in the province could establish more consistent and higher standards than may currently exist while retaining separate campuses with distinct programs of study and areas of specialization. Finally, a University of Nova Scotia could enhance the strengths of existing institutions by enabling them to focus on areas of comparative advantage and complementarity.

On the other hand, the creation of a University of Nova Scotia from the existing institutions in the province is almost certainly too massive a task to attempt. There are just too many institutions for a full consolidation to be reasonably contemplated even over an extended period of time. One key reason is that distance is a significant factor for those institutions outside of the metro area. It is evident from most of the examples of fully merged university systems that the separate entities, to be most effectively operated, have to be reasonably close together. As well, there are typically significant upfront costs for even a bilateral merger, such as the one between Dalhousie and Technical University of Nova Scotia in the 1990s. The transition costs for the consolidation of eleven institutions would be truly daunting. In addition, the creation of such a large institution—there are currently over 35,000 full-time students in the system—would be more likely to generate diseconomies of scale or unit-cost increases rather than decreases.

Recommendation 5(a):

Eliminate the creation of a University of Nova Scotia from consideration.

Establishment of a University of Halifax would be a far less daunting challenge than an attempt to create a single provincial institution. It would require amalgamation of a smaller number of universities and it would operate within a well-contained geographic area. It would be much less prone to either diseconomies of scale or the disadvantages of distance. Consolidation of a smaller number of institutions would be more readily manageable by a central administration. The constituent institutions of a University of Halifax would likely find it easier to allocate resources more efficiently on the basis of areas of strength or comparative advantage. Cross-department program development and cross-appointments of faculty could be more readily carried out where the merging entities are physically contiguous.

A key issue to be addressed is whether all of the institutions in the metro area should be part of the merger. While Mount Saint Vincent, Saint Mary's, and Dalhousie would have to be part of any such integration, it is not as obvious that Nova Scotia College of Art and Design (NSCAD), University of King's College, and Atlantic School of Theology (AST) should logically be involved. Among the potential complications is whether the complementarity of the three smaller institutions with the three larger ones is as straightforward as is the case with the three larger ones taken alone. For example, the University of King's College may not be as natural a fit in a larger entity as it is with Dalhousie alone.

Although the upfront costs of creating a University of Halifax would almost certainly be lower than those for a provincial university, they still would be considerable even for the three larger institutions alone. As well, the costs

of integrating each of the small institutions would likely not be much lower than those for the larger ones. The basic costs of integrating information technology platforms, support structures, procedures and processes, and administrative units are likely to be the same irrespective of institution size.

While the concept of a University of Halifax is both more logical and more appealing than that of a University of Nova Scotia, it is too large a consolidation effort to contemplate, at least in the current environment. For a government faced with having to impose fiscal restraint, the transition costs for a merger of six institutions would be far too high to seriously contemplate. Even in much better fiscal circumstances, it would be a huge task and arguably one that would prove not to be financially feasible unless the anticipated improvement of quality in the system were expected to be substantial.

Recommendation 5(b):

Remove the creation of a University of Halifax from consideration, at least over the next five years.

Program consolidation involves reducing the number of institutions that may offer a particular program. In the 1990s the B.Ed. and M.Ed. programs in the Halifax universities were consolidated at Mount Saint Vincent, and the faculties of education at Dalhousie and Saint Mary's were eliminated. Three other universities maintained their B.Ed. and M.Ed. programs, namely St. Francis Xavier (St.FX), Acadia, and Université Sainte-Anne. The proposed amalgamation of the business faculties in the Halifax universities was not effected.

If the primary benefits of program consolidation are cost reductions and the potential for upgrading the overall quality of the combined programs, the issue is whether there are any obvious candidates for another attempt at program consolidation. Because the programs in the business and education faculties were more like those of a department than those of arts or sciences faculties—more homogeneous, easier to coordinate and to integrate into thematic majors—the rationale for consolidating them across institutions was more obvious. There are no obvious additional candidates from the humanities, social sciences, languages, mathematics, physical and biological sciences areas.

Recommendation 5(c):

Remove program consolidation (reducing the number of institutions that can offer specific programs) as a restructuring option.

It has been argued that the challenges of merging all or several of the province's universities are too daunting to consider either option, at least for the time being. However, bilateral mergers—consolidation of just two institutions—can deliver the same types of benefits as multilateral mergers, albeit on a much smaller scale. In fact, it may actually be easier to achieve the benefits because the process would be so much less complex. It could also be easier to take advantage of areas of complementarity and to eliminate unnecessary duplication when dealing with only two institutions.

Regarding the disadvantages of bilateral mergers, even with only two institutions, there remain the branding and legacy-asset challenges referred to in the case of multi-institution consolidation. There will also be upfront costs of transition, although they will be on a smaller scale than those associated with larger mergers. It could be the case that the benefits are proportionately lower than the transition costs, thus limiting the net gains.

Apart from a directive from government to merge, the driving forces that might compel two universities to consider consolidation, or at least closer integration, include the following:

- a. One of the institutions is in such serious difficulty that it cannot resolve the problem on its own and merging with another institution is one way—perhaps the only way—for the institution to survive. Either the “receiving” institution is prepared to deal with these problems or government assistance is required to make the merger viable.
- b. One or both institutions are significantly constrained in their capacity to grow or in their ability to enhance the quality of their teaching and research activity, and a merger is an obvious route to overcoming the constraints.
- c. Two institutions foresee possible improvements in areas such as research capabilities, program development, or cost savings in administration that would come from a merger.

Of the three driving forces, the one most likely to be the catalyst for two institutions merging would be an existing or impending crisis. The severity of the problem must be sufficient to overcome the normal resistance to the loss of some or all of the independence of one of the universities.

There are steps short of complete amalgamation in which some of the benefits of full integration may be attained. These are affiliation arrangements that leave intact some degree of independence, identity, and asset legacy for one or both of the institutions. Affiliation would be preferred to full amalgamation in cases where the losses from eliminating distinct institutional identity are significant and far outweigh any gains that may occur from a full merger. If the estimated cost savings or quality improvements are not much different between the affiliation and merger alternatives, the former is likely to be easier to achieve.

In the report, several institutions are identified as being at risk for serious financial challenges that could threaten their long-term viability. They included NSCAD, Nova Scotia Agricultural College (NSAC), AST, Mount Saint Vincent University (MSVU), Cape Breton University (CBU), and Sainte-Anne. The first four are potential candidates for mergers, and the pros and cons in each case have been assessed in a very preliminary way. It must be stressed that these are not recommendations for mergers of these institutions but explorations of the options available to them should the risks referred to become a reality.

Nova Scotia College of Art and Design (NSCAD) currently faces a significant cash flow problem in which there is no resolution short of a government intervention. However, even without its current deficit and debt problems, NSCAD has significant constraints on its capacity to expand its offerings or even to continue to offer the full range of current courses and programs. A significant portion of its existing space is not adequate for many of its programs, and it will ultimately require new infrastructure and new premises. Therefore, it makes sense to consider integrating NSCAD with an existing institution in the Halifax area as one way to circumscribe the infrastructure constraint.

The arguments that have been made against the prospect of a merger with another university include the following: (a) the reputation of NSCAD is significantly stronger as an independent entity; (b) the perceived value of a merger would be less obvious in the absence of the current fiscal challenge, albeit the space constraint problem will persist even if the financial issue is resolved; and (c) ongoing operating and capital costs (beyond any short-term transition costs) would increase for a merged institution due to the high unit costs of many of NSCAD'S programs and to the need to expand the specialized physical space required for those programs.

The most obvious merger partner would be Dalhousie University, as NSCAD already has some affiliation with the university and there is potential complementarity between the design programs at NSCAD and the architecture programs at Dalhousie, as well as between the broader fine arts programs at the two institutions. On the other hand, MSVU and Saint Mary's University (SMU) have the physical space for a NSCAD expansion, although the latter is more limited than the former in that regard. However, it is likely that any prospective partner would demand significant government support to overcome any significant cost consequences.

A completely different option to consider is that NSCAD remains an independent institution but shrinks the range of programs it is currently offering. This is the internal restructuring option discussed below. If the most significant structural problem NSCAD is facing is adequacy of space to mount its full range of programs, it could reduce the scope of programs and courses offered to fit the infrastructure now available.

Recommendation 5(d):

Explore both merger and internal restructuring options to address future financial challenges at the Nova Scotia College of Art and Design.

The Atlantic School of Theology (AST) is an extremely small institution and highly specialized in the types of programs and courses that it offers. It is also the only divinity school in Canada that is a fully independent institution. AST already has a significant degree of affiliation with Saint Mary's University. With only 90 students and a relatively small staff, the cost savings from any closer integration with Saint Mary's University are likely to be reasonably small. In fact, a closer integration would likely cause an escalation of faculty salaries at AST to match those at Saint Mary's. Because of the highly specialized nature of AST's course offerings, there is little complementarity that has not already been exploited. Perhaps the most significant concern about a merger between AST and Saint Mary's is that it is unclear what would happen to the financial support provided to AST from the endowment of the former divinity school. There may be some greater degree of academic affiliation to be pursued, but an institutional merger seems likely to create more problems than it resolves.

Recommendation 5(e):

Remove a merger of Atlantic School of Theology with Saint Mary's University from consideration.

As Nova Scotia Agricultural College (NSAC) makes the transition from being a government department, a much closer alignment with Dalhousie University is an option worth assessing. Dalhousie already approves and jointly provides NSAC's degrees. There is considerable potential complementarity in the research and teaching activities of the two institutions that could be more extensively exploited through their closer integration.

On the other hand, NSAC has an international reputation, which might be impaired by a merger that eliminated its brand name. As well, there are no evident cost savings available from merger, as the two campuses are not close to each other and most of the administrative structure at NSAC would have to be retained. With faculty and staff salaries at NSAC lower than those at Dalhousie, there would almost inevitably be an escalation in the former's compensation costs. Hence, if a merger or closer affiliation with Dalhousie makes sense for NSAC, it would not be based on expected cost savings.

While there is no imminent financial crisis looming at NSAC, it does have the highest per-FTE grant of the eleven

universities in the province, and its infrastructure is owned and maintained by the government. Whether it becomes a fully independent institution or is more closely integrated into Dalhousie University, it is not obvious that it would continue to receive the level of government support it currently enjoys. During the transition from being a government entity, the status of its operating grant and its facilities operating costs remain to be resolved. Depending on the outcome, NSAC could be faced with a structural financial challenge.

Recommendation 5(f):

Consider integrating Nova Scotia Agricultural College into Dalhousie University as the college ceases as a government entity.

Mount Saint Vincent University (MSVU) is more at risk from declining enrolments than either of the two larger universities in the Halifax area or than Acadia and St.FX. In part this is because its traditional *raison d'être* of educating and empowering women no longer provides it with a comparative advantage in attracting students. There is limited capacity to increase enrolments from non-traditional sources such as visible minorities and low income individuals. MSVU has relied primarily on students from Nova Scotia and has not attracted or recruited out-of-province students to the extent that Acadia and St.FX have. It relies on part-time enrolment, and the potential to materially increase part-time enrolment is likely to be quite small.

The substantial risk of declining enrolment at MSVU points to the value of its considering merging or, at least, affiliating more closely with either SMU or Dalhousie. The Mount offers two primary benefits to a potential partner. It has the available space to expand the physical infrastructure of the university. It also offers to a potential partner a significant undergraduate enrolment level, which could underpin program expansion and delivery in the Halifax area. In particular, the Education Program, comprising almost 25 per cent of the Mount's enrolment, would be a significant addition to either of the other Halifax universities. There are arguments against such a merger, the most obvious of which is that MSVU has an established reputation and identity, which its alumni, students, faculty, and administration would be loathe to give up. More critically, were the Mount able to sustain enrolment or even increase it, there would be a far less compelling rationale and limited incentive for a merger. Finally, if the merger were with Dalhousie University, the costs of faculty and staff at the Mount could very well escalate to the current levels at Dalhousie, hence increasing rather than decreasing ongoing costs.

Recommendation 5(g):

Explore the potential for merger or significant affiliation of Mount Saint Vincent University (MSVU) with either Dalhousie or Saint Mary's, to mitigate declining enrolment risks at MSVU.

The restructuring options considered to this point are multilateral and bilateral mergers. An alternative for an institution facing serious structural financial problems, but with no obvious or desirable partner, is an internal restructuring of its operations. It would reallocate resources to perceived areas of strength and become a more narrowly focused or specialized institution.

While adding courses, programs, and degrees does diversify the "portfolio" of students and, arguably, lowers the risk of enrolment decline, it also increases operating costs, which will not be covered if enrolment expectations are not realized. By contrast, narrowing the scope of programs offered allows the institution to concentrate its

resources and its marketing in areas of strength. This could make it more attractive to faculty and students, thus boosting its hiring and enrolment levels.

A decision to become more specialized would not be an easy one for a university. There are significant impediments to reducing the number of faculty in the given program area. As well, there would be legitimate concern about whether the students lost through program elimination would be offset by the attraction of more students to the areas of identified advantage. The intensity of the internal debates about which programs to reduce or eliminate should not be underestimated. However, if a university were anticipating serious and irresolvable financial difficulty, this might be the most effective option for dealing with the problem. Two at-risk universities should consider this route: Cape Breton and Saint-Anne.

Cape Breton University (CBU) is at high risk of a decline in student enrolments because of its heavy reliance on students from industrial Cape Breton, where the prime age cohort is projected to decline faster than in most other areas of the province. The university has attracted international students but has not recruited significantly from other parts of Canada. As the newest four-year undergraduate institution in the province, it does not have the well-established reputation or brand identity that many of its counterparts have developed over many years of existence. CBU's relatively remote location in Nova Scotia means there is no obvious merger or affiliation partner. This makes increased specialization a more viable option were it faced with irresolvable financial problems. No attempt is made to identify with any specificity possible areas of competitive advantage on which it could focus. However, it has established a reputation in community studies and in particular areas of cultural studies. It is also developing expertise in the area of environmental studies.

With respect to how to reduce its offerings, CBU could consider eliminating whole programs. An alternative approach would be to eliminate four-year degrees in those areas where it may determine it has more limited capacity to compete. Instead, the first two years of the programs would be offered and arrangements made with other universities to accept the students who have completed these two years into the balance of a four-year degree program. However, this is not a proposal that CBU turn back the clock to its former status as a two-year institution or a junior college. It would still offer degrees, but in a more limited number of areas.

Recommendation 5(h):

Consider the need for Cape Breton University to become more specialized in the range of four-year degree programs it offers, as it faces the prospect of a significant decline in enrolment.

Université Sainte-Anne is one of the most heavily subsidized and therefore most costly institutions from the perspective of the government funding required to sustain the university. It has a very small enrolment that is clearly at risk of continuing to decline, at least at the Church Point campus, and it has a limited and declining college population. The university lacks any obvious merger candidate in Nova Scotia, although it has been suggested that it merge in some form with Université de Moncton. There are too many impediments to render this option viable. The most attractive alternative for Sainte-Anne could be a restructuring of its offerings by expanding its programs in the Halifax Region to part-time students who are older adults.

As the Université Sainte-Anne is the only post-secondary institution serving francophone students in Nova Scotia, the government may well choose to maintain the significant subsidization of the main campus programs. However, an increased focus on the Halifax programs could prove an effective way to enhance the financial viability of the university.

Recommendation 5(i):

Consider expanding the programs Université Sainte-Anne offers in the Halifax region to mitigate the small and declining student base at its main Church Point campus.

7.6 Administrative Integration

In lieu of multilateral mergers such as the University of Nova Scotia or the University of Halifax, some of the costs savings may be achievable through a greater administrative integration. In Nova Scotia, the universities already collaborate on the purchasing of a range of goods and services through Interuniversity Services Inc. and on delivery of library services through Novanet. While these joint activities have generated cost savings, there are additional opportunities for reductions in their total spending.

There are several arguments made against a more extensive common purchasing program. First, there are customized elements to the services that preclude joint spending. An example often cited is information technology software. However, such software tends to be designed for universities in general, although an individual institution may choose to use it in ways that others do not. Most standard institutional needs are unlikely to be so different from one university to another as to provide a compelling argument against more extensive common purchasing of software or other services.

If, because of specific institutional requirements, there is a preference for features of some services or products that are available in one offering but not in another, resistance to common purchasing has validity. Even then, it may be possible to negotiate with the supplier an enhancement of the product or service being considered. However, if the resistance is more to change than to significant functional differences in the purchased item, there is no sound basis for refusing a common purchase opportunity.

In short, it is highly unlikely that the benefits of consolidated purchasing have been completely exhausted. However, Interuniversity Services Inc. requires information from each institution on current purchasing activities in order to assess both the potential size of future savings and impediments to achieving them. Assuming that the cost of providing the information does not outweigh the potential savings from its ultimate use, universities in Nova Scotia should be required to provide it.

Recommendation 6(a):

Require universities to provide Interuniversity Services Inc. with the data necessary to assess opportunities to achieve additional savings from integrated purchasing.

Some of the administrative and academic services that are provided from within the institution might be cost-effectively contracted out to a common service provider. Such services might include financial administration, registration services (notably a common application system), human resource management services such as payroll, and even academic services such as program approval and distance education.

Reluctance to move to shared services would likely be substantial, as has been the case with the development of a common application process and other suggestions from a comprehensive study of the issue in the mid-90s. A number of impediments have been cited, including the following:

- a. Individual institutions have unique facets to their particular services, which would preclude an integrated approach.
- b. It may be difficult, especially for the smaller institutions, to get service problems resolved by the common provider; therefore, the university needs its own people who are familiar with the service to provide solutions.
- c. Proposals for instituting a single application mechanism have been considered and rejected as unfeasible in Nova Scotia because of the anticipated start-up costs, limited efficiencies, and minimal savings in staff costs. Concern has also been expressed about the potentially negative effects a common application process might have on recruitment, especially of out-of-province students.
- d. Consolidation of service provision would be undertaken only if significant savings in staff costs would result from it, and that gives rise to a concern—rarely expressed explicitly—that jobs will be lost in the local economy.

Taking each of the objections in turn, these are the counter arguments:

- a. It is unlikely that, in the day-to-day financial and human resource management operations, any one university's requirements are so different that they could not be accommodated by competent, well-managed external providers. There are plenty of examples of shared-service models in Atlantic Canada and nationally, including health care, school boards, and banking.
- b. A reliable service provider with experienced staff should be at least as capable as onsite staff to deal with problems. This occurs routinely when companies have an array of customers with quite diverse needs and problems. A properly designed performance assessment and complaint resolution mechanism can ensure that smaller institutions will get equitable treatment in solving their problems.
- c. If the number of institutions in Nova Scotia is insufficient to generate adequate cost savings from a common applications process, expanding it to all universities in the Atlantic region could well deliver the desired cost reductions. Since universities can advertise and directly recruit students in any manner they choose, a common administration for collecting and sorting applications should not inhibit such activities.
- d. It is not the primary responsibility of a university to maintain every job currently performed by its faculty, staff, and administrators, but to provide quality teaching and research as effectively (and efficiently) as possible. In any event, cost savings generated by outsourcing could be reallocated to create new jobs at the university.

Recommendation 6(b):

Conduct a detailed assessment of the internally provided services that could be outsourced to a common provider to generate cost savings, and establish a timeline and process for implementing advantageous outsourcing.

7.7 Key Performance Indicators for Quality Assessment and Accountability

Universities are accountable to three primary groups: taxpayers; students (and their parents); and the boards of governors and senates responsible for oversight of the universities' operations. The pressure on governments to

account for how taxpayers' funds are used leads to a greater demand for transparency of the outcomes generated by those various uses. As the gains to individuals from a university degree are high and rising, students (and parents) will want better information on where and how to make the investment in higher education. Faced with a range of (often competing) requirements from governments, students, administrators, faculty, and staff, boards and senates need more and better information for their deliberations about the future direction of their institutions.

In the discussion of the assessment of universities, fundamentally the reference is to the effectiveness with which the institutions carry out their primary responsibility of teaching and learning. As well, the preferred measurements of performance are the outputs or outcomes of the institutions' teaching activities. However, while it is possible to delineate potential measures of educational quality and related institutional performance, there is no single set of indicators upon which all agree. Not only are there limitations on what can be measured, but there are significant disagreements about what should be measured, how data should be interpreted, and ultimately how they ought to be used.

Two broad categories of quality indicators are typically cited. Input data include financial resources, quality of faculty, quality of incoming students, educational processes, and facilities/materials used. Outputs include learning and research outcomes, student achievements post-graduation, and student experiences while enrolled. Extensive information is available on the inputs used in the university system. They have been used as proxies for quality both because of ease of collection and because it was assumed that resources such as finances, faculty quality, and faculty/student ratios generated quality outcomes.

There is little empirical evidence that the level or quality of resources available to an institution has an impact on educational outcomes. That has led to the use of two other data types: measures of outcomes; and indicators of the learning process. The former group includes information on post-graduation success of students, enrolment levels, retention and graduation rates, student and faculty awards, and reputational surveys. To date, the learning process assessments have come from the survey of undergraduate students called the National Survey of Student Engagement (NSSE) and the survey of graduate students from the National Graduate Survey (NGS).

Even though using all of the data referred to would not provide a comprehensive picture of each university in Nova Scotia, it would allow a much greater degree of disclosure and transparency than currently exists. With the data already available and that which could be gleaned from existing sources, it would be possible to design a performance indicator report on the individual universities in Nova Scotia and on the system.

The report does not provide a detailed sketch of a possible key performance indicator (KPI) report, as it would merit a comprehensive study on its own. As well, the specific components of a report card will, properly, need to be negotiated with the institutions whose performance is to be measured. However, the main elements can be suggested. There should be considerable emphasis on learning outputs and final outcomes, which implies that NSSE and NGS results should figure prominently. As well, administrative data already collected should be incorporated. Data on the characteristics of entering students will be relevant to a comparative analysis of entering and graduating attributes of students. If counterparts across Canada are interested in the joint funding of new surveys or further development of existing ones, that should be pursued.

University administrators, faculty, staff, and even boards of governors are likely to resist the creation of a publicly available report on their performance. They will be concerned about the potential for it to misrepresent the strengths of their institutions because it is missing qualitative information that would reveal those strengths. The opposition would be more fierce if there were expectations that the report would be used for government funding decisions that could be detrimental.

With respect to the report being misleading, it should be noted that many of the universities that were critical of the initial *Maclean's* surveys now use the ranking data in their marketing to potential students. On the matter of government funding, it is a strong recommendation of this study that any KPI report that is ultimately negotiated not be used for funding decisions. It is far too soon to design a funding formula that incorporates a compilation of performance indicators whose reliability is open to debate.

Recommendation 7:

Create key performance indicators for quality assessment and accountability, under the following guidelines:

- a. Engage experts in the design of quality assessment tools for higher education to assist in the development of a prototype report card for Nova Scotia universities.
 - b. Negotiate the elements of a regular report on the performance of the province's universities.
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7.8 Infrastructure

Funding reductions to universities in the 1990s, not just in Nova Scotia but across the country, forced university administrations to make very difficult choices regarding the allocation of funds within their universities. The funding restraint forced universities to direct their limited resources to the core functions of teaching and research and postpone investment in facilities renewal and modernization. Over the succeeding years there have been updated estimates of the accumulated costs of deferred maintenance. By 2008, the figure stood at almost \$550 million based on an industry standard of 2 per cent annual replacement of the total value of facilities. Using the same standard, the projected annual financial requirement for infrastructure renewal in Nova Scotia's university system is \$48 million.

Since the late 1990s, provincial groups such as the Council of Nova Scotia University Presidents (CONSUP) and regional organizations such as the Atlantic Association of Universities have pressed provincial and federal governments for one-time funding to deal with deferred maintenance and increased annual grants to cover ongoing facilities renewal. Their efforts have met with varying degrees of success. From the \$2 billion Federal Infrastructure Trust Fund established in 2006, Nova Scotia received almost \$29 million. However, the provincial government directed funds from this program towards tuition reduction, student financial assistance, and apprenticeship programs. None of the funds went towards infrastructure renewal.

In 2008, the government created the Nova Scotia Crown Share University Infrastructure Trust Fund to provide capital funding to Nova Scotia universities. The Trust provided almost \$24 million, and the funds were distributed to the universities based on an established allocation schedule for alterations and renovations funding. In 2009, Industry Canada formally announced that Nova Scotia would be receiving \$56.7 million in federal funding for university and community college infrastructure projects under the Knowledge Infrastructure Program (KIP).

Despite the significant level of infrastructure funding provided in recent years, there remain the unresolved problems of accumulated deferred maintenance (estimated to still be over \$400 million) and the lack of an ongoing infrastructure renewal fund sufficient to underwrite the estimated annual requirement of \$48 million.

Although there are sound reasons to propose that governments increase their financial support for university infrastructure, several issues need to be considered, including the following:

- a. Because the estimates of deferred maintenance costs have come from the universities, it would be helpful to have independent verification, especially of whether such standards are applicable to university facilities.
- b. In the context of fiscal restraint, universities will likely have to recalibrate their spending priorities.
- c. If restructuring options were chosen that rendered facilities redundant, it would make little sense to fund their refurbishing.
- d. Private companies may be interested in owning and managing certain university facilities in a public–private partnership model used for other types of publicly owned infrastructure.

However, it will be important for the government to consider increasing its funding for university infrastructure to ensure that the individual institutions remain attractive places for students to attend and for faculty and staff to work.

Recommendation 8:

Address infrastructure needs, under the following guidelines:

- a. Seek an independent assessment of both deferred maintenance and ongoing facilities renewal costs.
 - b. Encourage universities to explore private ownership and management opportunities for some of their facilities.
 - c. Consider increases in funding for university infrastructure.
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7.9 Research, Technology Transfer, and Commercialization

While teaching is a university's most important responsibility, research carried out in its various disciplines is also a critical contribution to society. The gains from university research—in the physical and biological sciences, engineering, social sciences, humanities, and business—accrue to society, especially for pure or discovery research that expands the foundations of our knowledge. Applied research also advances our knowledge but is closer to being directly and immediately usable by businesses, government, and other organizations. The focus in the report is on applied research that has the potential to be commercialized.

University faculty in Nova Scotia rely on both government and private sources of funding to support their research, with the former providing about 55 per cent of the total financing. The individual institutions vary significantly in the level of financial support per faculty member they receive. In addition, the data on research funding at a national level indicate that the province's university faculty are not attracting financial support at the same pace as their colleagues in the rest of the country. The reasonable conclusion to draw is that the universities in Nova Scotia are relatively less research-intensive than their counterparts in other provinces.

If it is considered desirable that, for the purposes of commercial application, there be a significant increase in the transfer of research-based knowledge and technology from the university to the wider community, the current

level of research activity in the province's universities may be inadequate to that task. This implies a need to be as effective as possible in utilizing the applied research that is being done.

There has been a longstanding debate on the extent to which university research should be deliberately tilted more towards the applied end of the spectrum. Universities and their faculty tend to assert that those engaged in research should be free to follow the paths towards which their curiosity and experience lead them. The contrary position, often associated with policy makers, is that public funds support university teaching and research. Taxpayers have a right, from this perspective, to expect more tangible benefits from this research than the satisfying of academic curiosity.

The practical approach to resolving this debate is to accept that many university researchers are inclined towards the applied end of the research spectrum. Policy efforts should be directed towards harnessing the potential commercial benefits that may be embedded in such research rather than attempting to mandate that faculty engage in more applied work.

There are, in fact, internal university/college mechanisms and federal and provincial government-supported programs that are designed to effect the transfer of knowledge and technology from the university community to the business community. For universities, the primary internal mechanism for technology/knowledge transfer and research commercialization is the industrial liaison office (ILO). The core function of the ILO is to be the institutional focal point for commercializing a university's research activity and facilitating and supporting enhanced linkages between this research activity and business. Springboard Atlantic is a regional coordinating organization for the network of Atlantic region ILOs. Both the individual ILOs and Springboard Atlantic are financially supported by the federal government.

A number of federal and provincial programs have been developed to support and encourage the technology transfer and commercialization process in Nova Scotia and the Atlantic region. Some of them are directed towards university researchers (e.g., the Early Stage Commercialization Fund), while others provide funding for businesses to support their purchase of services from university researchers (e.g., the Productivity and Innovation Voucher Program and the Industrial Research Assistance Program). As well, there are federal agencies and programs whose focus is on fostering academic–industry partnerships. The best known of these is the Atlantic Innovation Fund (AIF), which has awarded, since 2001, a total of \$640 million to 247 individual projects across Atlantic Canada.

Most of the programs of support are of relatively recent vintage, having emerged only in the last decade. As a consequence, Nova Scotian and Atlantic Canadian institutions are in the early stages of developing a formal and focused capacity for facilitating increased commercialization of their research activity. Although the region's universities are far behind their counterparts in other parts of Canada, there are indications of some modest catch-up occurring. Data on licensing and royalty income, level of industry-sponsored research, and the number of spin-off ventures for the member institutions of Springboard Atlantic point to a better performance on these metrics for Atlantic Canadian institutions relative to counterparts elsewhere in Canada.

The programs supporting and facilitating technology transfer and commercialization of applied university research have been in place long enough for some initial assessment of their effectiveness. Before the renewal of government funding, especially for AIF and Springboard Atlantic, such an evaluation should be conducted. One area that ought to be examined is the value of having ILOs in all of the province's universities. Given the modest level of funded research being carried out in most of the universities, an ILO for Dalhousie and one for the other universities should be considered.

Recommendation 9:

Encourage more research, technology transfer, and commercialization, under the following guidelines:

- a. Create an effective mechanism for harnessing the potential of applied research currently being conducted by university faculty.
 - b. Before renewing major funding directed at encouraging research commercialization, carry out a comprehensive assessment of the effectiveness of such funding.
 - c. Consider maintaining the Industry Liaison and Innovation (ILI) office at Dalhousie, and amalgamating the industrial liaison offices (ILOs) of other universities into one.
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7.10 University Funding Formula

Substantive and broad-based provincial funding of Nova Scotia's universities began in the early 1960s. The role of the federal government has, since the late 1960s, been to provide grants—initially tied and later unrestricted—to assist provinces in post-secondary education financing. It also provides support directly to universities for research and special projects. From the beginning, the province has used some version of a funding formula that has enrolment as a key factor in setting the allocations.

From the mid-1970s to the late 1990s, the province used a funding structure first set up by the Maritime Provinces Higher Education Commission (MPHEC). In it, 75 per cent of the government grant was based on historical funding patterns, and the enrolment portion (25 per cent) was determined by a three-year weighted FTE average for each institution. This was to ensure that there were no dramatic funding shifts among institutions. However, over that period, there were substantial changes in enrolment, new programs were introduced, and funding decisions became increasingly ad hoc and disjointed. A new formula for financing Nova Scotia's university system had to be established. The revised university funding formula was first used for the 1998–99 fiscal year. The funding formula, almost from the beginning, became a funding allocation formula divorced from the decisions about total grant levels.

In 2003, two significant changes occurred in the operating grant structure that have continued to the present. The government decided to proceed with the negotiation of a multi-year agreement with the universities, the key objective of which was to bring rationality, comprehensiveness, stability, and transparency to the system's funding. There have been two successive three-year MOUs signed with the province's universities.

The other change was creation of a two-part structure for determining system and institutional funding. The first part involved establishing projections of the system's costs over the lifetime of the MOU. There was agreement on twelve “budget drivers” for the system that were standardized for each university. That is, the individual elements—faculty salaries, benefits, utilities, debt servicing, technology, etc.—were accounted for in the same way by each institution. Projections for the budget drivers and for inflation—along with the fiscal position of the government and tuition levels—were incorporated into the negotiations. This process set the total level of the operating grant.

The second stage laid out the allocation of the grant among the eleven universities. With the total funding level determined, 90 per cent of the allocation to universities is enrolment-driven and 10 per cent addresses special

circumstances and other items such as research. In the first MOU, the University Funding Distribution Formula used enrolment data for the three-year period 1994–95 to 1996–97, rather than the most current enrolments available. The enrolment levels were fixed for the three-year period of the MOU to prevent radical changes in the funding shares going to each university. For the second MOU, enrolment levels for years 2003–04 to 2005–06 were used and also fixed for three years.

The enrolment-driven component of the formula is built from data provided by the MPHEC through the Post-Secondary Student Information System (PSIS). Enrolments are arranged in 12 “bins” that reflect the relative cost of instruction/delivery. The least expensive bin (Alpha) has a weight of 1 and includes most of the courses taught in an undergraduate Bachelor of Arts program. Alpha’s value is set at an estimated course cost, and all courses in the other bins are set relative to Alpha. Dentistry, the most expensive program, has a bin weight of 10; therefore, one full-course-equivalent (FCE) in Dentistry would have a cost of ten times an Alpha (FCE). When the global funding for the system is increased, the base value of the operating grant per FCE changes for each course in every bin.

For the current MOU, use of the funding formula with updated enrolments would have meant that some universities would receive funding lower than their projected costs, and some would receive more. Consequently, an adjustment was made so that all universities received a funding increase for each year of the MOU.

The approach employed by Nova Scotia to determine the level of the university system grant and its allocation is basically logical, consistent, and well-structured. It combines a focus on the projected costs of the operation of the system with an allocation linked to enrolment levels at each institution. If one measure of the performance of a university is an ability to attract students, public funding should reflect success in that endeavour. Nova Scotia’s framework for funding its universities is, arguably, the best of its kind in Canada and should be retained in future.

The two MOUs on university funding have served all stakeholders in Nova Scotia well over the past six years. They have provided stable and predictable funding for the universities and allowed them to do medium-range planning. The MOU model appears to be unique in Canada and is certainly worth retaining.

Recommendation 10:

Retain the basic framework of the University Funding Distribution Formula and the multi-year funding agreement, under the following guidelines:

- a. Negotiate the enrolment baseline and the proportion of the formula driven by changes in enrolment levels.
 - b. Set the minimum length of the agreement at three years.
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References and Resources

Note to readers: *References and resources have been grouped into four categories: Books and Articles; Reports; University Websites; and Statutes. If you do not find an in-text citation in the Books and Articles category, please check the other categories.*

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