

The Economic Impact of Post-secondary International Students in Atlantic Canada: An Expenditure Analysis



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**DALHOUSIE
UNIVERSITY**

Inspiring Minds

School of Public Administration

The Economic Impact of Post-secondary International Students in Atlantic Canada

An Expenditure Analysis

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In conducting the research described in this report, the investigators adhered to the policies and procedures set out in the Tri-Council Policy Statement: Ethical conduct for research involving humans, National Council on Ethics in Human Research, Ottawa, 1998 as issued jointly by the Canadian Institutes of Health Research, the Natural Sciences and Engineering Research Council of Canada and the Social Sciences and Humanities Research Council of Canada.

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Abstract

The School of Public Administration, Dalhousie University, carried out an expenditure analysis of the economic impact of international students in Atlantic Canada's universities and colleges. The study used a survey of international students and a combination of the literature, government and university information. The initial economic impact of international students was found to be \$376 million per year, including an initial injection of \$175 million of new money to Atlantic Canada. International students spent \$2.64 (\$1.91 of which is new money injected into the economy) in Atlantic Canada for every dollar spent by Atlantic Province governments for their education and health care. The total economic impact of international students was \$565 million after application of the spending multiplier. Generally, international students had positive impressions of Atlantic Canada, and 40 percent of survey respondents expressed interest in permanent residence, suggesting that this group was a good candidate source of future immigrants who could help to address the region's demographic challenges.

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Executive summary

The Economic Impact of Post-secondary International Students in Atlantic Canada: An Expenditure Analysis

Fazley Siddiq; Judy Baroni; Jeannette Lye; Warren C.E. Nethercote; Dalhousie University School of Public Administration ; July 2010.

Background: Atlantic Canada faces a serious demographic challenge. The region's population is aging and the proportion of younger people is in decline. Atlantic Canada's dependency ratio will rise in the future with negative consequences, such as increased social services costs. Over the next 15 years, Atlantic Canada's labour force is expected to decrease (Martel et al., 2007; Everenden, 2008); this is not encouraging in the face of increasing social services costs.

Sustained economic growth will be required to offset the cost of social services demands of an aging population. Barring a significant change in the nature of Atlantic Canada's economy, growth in the labour force will be required to support economic growth. Alternatively, change in the nature of Atlantic Canada's economy to a greater proportion of knowledge-based activities will require increasing numbers of the very demographic group, the young, that is in decline. In both of these scenarios, immigration would be a key contributor to an effective labour force.

Citizenship and Immigration Canada (2008) credits immigration with avoiding population shrinkage in Atlantic Canada. This observation belies the true situation in Atlantic Canada, where immigrants make up less than 4 percent of the population, compared to about 18 percent for Canada as a whole (Akbari, 2008).

The Council of Atlantic Ministers of Education and Training (CAMET) contracted Dalhousie University to analyze the economic impact of post-secondary international students in Atlantic Canada by means of an expenditure analysis. The study used a survey of international students and a combination of the literature, government and university information.

Results: A cross-jurisdictional review revealed a competitive international market for international students, in which Canada is ranked seventh as an academic destination and attracts only a four percent share of international students. Across the globe, international students are valued, both as economic assets and as potential future immigrants who will be well-prepared to contribute to knowledge-based economies. Australia, Belgium, Canada, and the United Kingdom are the only nations charging differential tuition fees to international students. All others treat international and native students equally, in recognition of their benefit culturally and economically, and to maximize opportunities to attract future immigrants. Immigrants augment the stock of human capital which is diminishing in some jurisdictions due to demographic trends.

The initial economic impact of international students in Atlantic Canada was found to be \$376 million in 2009-2010, including an initial injection of \$175 million of new money to Atlantic Canada. The total economic impact of international students was \$565 million in 2009-2010 after application of the spending multiplier. The direct spending by international students averaged \$29,000 during the same period. International students spent 1.3 times the amount spent for their benefit by government, university and private sources. International students spend over \$1.91 of

new money in Atlantic Canada for every dollar spent by Provincial Governments on their education and health care. This 'return on investment' varies from province to province in Atlantic Canada, from \$1.78 in New Brunswick to \$4.04 in Nova Scotia. This province-to-province variation is due both to variations in spending from province-to-province by students and variations in spending from province-to-province by governments.

International students in Atlantic Canada are generally satisfied with Atlantic Canada and its educational institutions and 40 percent of the respondents to the survey expressed interest in applying for permanent residence in Canada. Citizenship and Immigration Canada (2008) indicates that 39.5 percent of foreign students transition to foreign worker status nationally, but that only 15.6 percent transition to permanent resident status. There appear to be opportunities to improve the retention rate for those international students who choose to work in Canada after completing their education, to the benefit of Atlantic Canada's labour force.

Significance: International students think highly of Atlantic Canada and its educational institutions, and are acclimatized to Atlantic Canada; therefore, they are ideal candidates for immigration, to help address Atlantic Canada's demographic challenges. International students alone could not address demographic issues in their entirety, even if they immigrated as a cohort, but improving the retention rate for international students would contribute to offsetting the negative effects of an aging society.

International students also have an important, immediate economic impact on Atlantic Canada. For example, most international students live in rental accommodations, to the benefit of local rental markets. This study estimates that the overall economic impact of international students on Atlantic Canada's economy is \$565 million in 2009-2010, or almost 0.6 percent of GDP. International students inject more new money into the economy than governments spend for their benefit; therefore, international students represent an important, profitable export market for Atlantic Canada.

Provincial Governments in Atlantic Canada should view international students positively, whether as potential immigrants to address future labour force problems, or as ongoing contributors to Atlantic Canada's economy.

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1 Introduction

The Council of Atlantic Ministers of Education and Training (CAMET), in collaboration with the Departments of Education for the four Atlantic Provinces, contracted the School of Public Administration of Dalhousie University to study international students in Atlantic Canada Universities and Community Colleges. The object of the study was to perform an expenditure analysis to determine the economic impact of international students in Atlantic Canada.

1.1 Motivation

In Atlantic Canada, population growth rates have declined continuously since 1945, and at the provincial level have largely stagnated in the early years of the 21st century (Metropolis, 2008, p. 8). The decline of Atlantic Canada's population is largely due to declining fertility rates, the aging of the resident population and the substantial out-migration of working age residents. These factors, combined with a looming skills shortage have made immigration one of the top public policy priorities in Atlantic Canada over the last five to ten years (Murphy & deFinney, 2008, p. 3).

In recent years, all four Atlantic Provinces have begun to adopt new initiatives aimed at attracting and retaining recent immigrants through job counselling, settlement services and language training. Retention rates have since increased across the entire region. New Brunswick's retention rate has increased from an estimated 62 percent in the ten-year period following 1991 to approximately 91 percent between 2001 and 2006 (Akbari, 2008; Goss Gilroy, Inc., 2005, p. 19). Similarly, Nova Scotia saw retention rates of 75 percent in the same five-year period, already exceeding the province's target of raising the immigrant retention rate to 70 percent by 2010 (Akbari, 2008).

Citizenship and Immigration Canada has stated that “were it not for immigration, populations in all four [Atlantic] provinces would be static or in decline” (CIC, 2008). In 2008, Atlantic Canada welcomed 2.9 percent of new immigrants to Canada, the highest share since 1997 (Akbari, 2008, p. 10). Despite this growth, Atlantic Canada still attracts a disproportionately small percentage of immigrants when compared to the rest Canada. Overall, immigrants make up about 3.8 percent of the population in Atlantic Canada, compared with approximately 18 percent in Canada as a whole (Akbari, 2008, p. 9).

Clearly, the stagnation of total population in Atlantic Canada, and growth of the proportion of older residents, presents a serious challenge. Atlantic Canada needs to attract more skilled immigrants if it is to offset the effects of an aging population and out-migration of working age residents. International students represent a substantial pool of potential skilled immigrants, ones who have become accustomed to life in Atlantic Canada by the end of their studies. Additionally, prior works (for example, Siddiq *et al.*, 2009; Lebrun & Rebelo, 2006; Gardner Pinfold, 2006) indicate that international students have, in their own right, a positive economic impact on local economies.

Thus, this study investigates the international higher education industry – which in some respects is a substantial and growing export business – and measures the impact international students

have on a region's economy. This study aims to provide some background information about the international education industry, to provide insight into global trends and government initiatives taking place in other countries, and to demonstrate the overall economic impact associated with international students. Finally, the report aims to communicate this information in a clear, coherent and comprehensive manner so policy makers within Atlantic Canada can develop the best policies for attracting, integrating and retaining international students in the region.

In 2009, Siddiq *et al.* carried out an expenditure analysis of international students enrolled in Nova Scotia Universities, to determine the economic impact of these students. The present study uses the methodology and lessons learned from Siddiq *et al.* (2009)

1.2 Scope of the Study

This study examines international students registered at universities and community colleges in Atlantic Canada during the winter term, 2010.

The study captures demographic data and students' intentions using an on-line survey addressed to all international students, and most importantly, expenditures by those students while in Atlantic Canada. These expenditure data are used, together with data from Government and university sources, to estimate the economic impact of international students in Atlantic Canada. The survey and expenditure analysis are supported by literature and cross-jurisdictional reviews of international students and government policies relating to them.

The results of the analyses are reported in aggregate, first for Atlantic Canada and then for each of the four Atlantic Provinces. Analyses were not carried out at the institutional level.

The study concludes by drawing attention to a number of key considerations about international students that will inform policy makers in Atlantic Canada.

1.3 Organization of the Report

This report is organized in six sections, four annexes and a reference list. Following the Introduction, Section 2 provides a review of the literature and presents necessary background information for the study. This includes a review of the demographic challenges in developed nations, the growth of numbers of international students internationally, a cross-jurisdictional review of education and immigration policies, and a review of the economic impact of international students.

Section 3 describes the methodology and study design for the analysis of expenditures by and for students. The section also includes a discussion of the spending multiplier and of the design of the survey, as well as an overview of review of the study by three Research Ethics Boards. This section provides the basis for determining the economic impact of international students in Nova Scotia.

Section 4 describes the data sources and characteristics for the study. It begins with a description of the sample for the survey of international students, and concludes with a description of

secondary data sources. In both cases, the discussion includes consideration of challenges arising from the information.

Section 5 describes the analysis of primary and secondary sources, together with the findings of that analysis. Survey responses are analyzed and presented in five ways: as demographic profiles, as university profiles, as student intentions, as categories of student comments, and as expenditures by students. Expenditures for students are derived from secondary sources, either university or Government. Section 5 closes by determining the economic impact of international students by combining expenditures by and for international students, and by applying the spending multiplier.

Finally, Section 6 presents a summary and conclusions arising from the study, to inform policy makers in Atlantic Canada of significant considerations concerning international students.

Detailed descriptions of the survey of international students, of responses to non-expenditure questions in the survey, and of the expenditure analyses are provided in Annexes. Secondary sources are identified in a Reference List.

The Literature Review provides a broad foundation for this expenditure analysis in the following section.

2 Literature Review

International students represent a growing component of higher education, worldwide. This section will review the literature on international students to examine important demographic challenges, the market for international students, government policies related to international students, and the economic impact of international students.

2.1 Demographic Challenges

Many industrialized countries are forecasting declines in population growth rates due to low birth rates and aging populations. These declines will result in serious labour shortages in the coming years (Verbik & Lasanowski, 2007). For example, it is estimated that sometime towards the middle of the next decade, “the number of people willing and available to work in Canada will be smaller than the number of jobs potentially available for them” (McNiven, 2008, p. 1). McNiven (2008, p.5) also referred to reports that suggest the provinces of Ontario and Quebec are likely to experience a shortfall of 325,000 and 292,000 workers by 2025, respectively (“Ontario’s Impending Labour Crunch,” 2007; Conference Board of Canada, 2007).

In Atlantic Canada, population growth rates have declined continuously since 1945, and at the provincial level have largely stagnated in the early years of the 21st century (Metropolis, 2008, p. 8). The decline of Atlantic Canada’s population is largely due to declining fertility rates, the aging of the resident population and the substantial out-migration of working age residents. These factors, combined with a looming skills shortage have made immigration one of the top public policy issues in Atlantic Canada over the last five to ten years (Murphy & deFinney, 2008, p. 3).

2.1.1 Population Declines

The Atlantic region’s percentage of the Canadian population has been continuously declining over the past half century (Denton, Feaver & Spencer, 1998). Between 1996 and 2001, the population of the Atlantic Provinces decreased by 2.1 percent while the national average population increased by 4.0 percent (Statistics Canada, 2001). Between 2001 and 2006 the population of Atlantic Canada stabilized, but Canada’s population growth overall increased by 5.4 percent. Within Atlantic Canada, a 1.5 percent decline in population in Newfoundland and Labrador was offset by modest growth in the Maritime Provinces. (Statistics Canada, 2006 Census of Population) Statistics Canada projects that the Atlantic population will only grow 2.5 percent between 2005 and 2031, which compares rather unfavourably with the 20.9 percent growth that is projected for the overall Canadian population during the same period (Munro, 2007, p. 5). It is projected that the labour force in Nova Scotia, New Brunswick and Newfoundland and Labrador will fall between 2006 and 2031 (Martel et al., 2007, table 2; Evernden, 2008, p. 13). McNiven (2008, p.7) offers a more pessimistic projection than Statistics Canada, estimating that Nova Scotia’s population will decline by 4.6 percent by 2026, dropping from 938,000 in 2004 to 895,000 in 2026. McNiven’s projection assumes no net migration, so that the effects of death rate exceeding birth rate are directly reflected in population decreases; this assumption of no net migration is considered unnecessarily conservative.

The aging of the population in Atlantic Canada is a major factor behind the stagnation of population growth. According to Statistics Canada (2009), the population of the Atlantic Canadian provinces is significantly older than the rest of Canada, with a greater proportion of residents over the age of 65 (15.4% and 13.9%, respectively). Meanwhile, the proportion of residents under the age of 15 is significantly lower in the Atlantic region than in the rest of Canada (15.4% and 16.5%, respectively). Based on the 2006 census data, it is projected that by 2022 seniors in every province will outnumber children (Statistics Canada, Census year 2006, p.14).

It has been estimated that the number of people over the age of 65 in Nova Scotia will increase by more than 70 percent by 2026. The university-age population (18 to 22 years of age for undergraduates) is forecast to decline by nearly 30 percent, representing a decrease from 73,000 in 2001 to 51,000 in 2026 (McNiven, 2008, p. 8; McNiven et al., 2006). Nova Scotia's natural increase in population has been declining significantly since the early 1990s, mainly due to a low fertility rate (1.4 in 2004), which is well below the replacement rate of 2.1 (McNiven et al., 2006, p.2). An aging population and the lowest fertility rates in the country have had similarly profound effects on the population of Newfoundland & Labrador, where population declines have been further exacerbated by substantial rates of out-migration. The province has experienced the largest per capita out-migration loss of all Canadian provinces, averaging a net loss of nearly 5,000 migrants per year since the mid-1990s (Canadian Council on Learning, 2006). Out-migration has been a significant challenge across Atlantic Canada, with rural areas suffering the brunt of the loss as working-age residents move towards greater employment opportunities in Ontario and Western Canada.

Historically, New Brunswick has had one of the highest fertility rates in Canada; however, a high rate of Pre-World War II births in the province has largely contributed to growth in the over 65 population. In 2006, the number of residents in this age group made up 14.7 percent of the population (Census year 2006, p. 19). Similar to Nova Scotia and Newfoundland & Labrador, the fertility rate in New Brunswick has declined to a point below the national average. By 2009, New Brunswick had the second highest proportion of residents 65 or older in Atlantic Canada behind Nova Scotia (15.5% and 15.8% respectively). Prince Edward Island (PEI) has maintained fertility rates that are comparable to the national average and has the highest percentage of its population of people under 15 years old of the four Atlantic Provinces. In 2009, approximately 15.3 percent of PEI residents were over the age of 65 while the number of residents under the age of 15 fell from 17.7 percent in 2006 to 16.5 percent in 2009; nonetheless, PEI still has the highest percentage for the under 15 age group in the Atlantic region (Statistics Canada, Population by sex and age group, by province and territory, 2005-09).

The aging population of Atlantic Canada, coupled with low fertility rates and out-migration, has had significant economic consequences in the region. Particularly, the reduction in the number of labour force participants has caused skills shortages in the trades, such as construction and bricklaying, as well as in healthcare services (Akbari, 2008, p. 7). In response, all four Atlantic Provinces have adopted strategies, primarily focused on the recruitment and retention of skilled immigrants and foreign workers, to help reverse negative demographic trends; however, this response has been largely ineffective to date. As a proportion of population, Atlantic Canada attracts far fewer immigrants than the rest of the country, as will be discussed in the following sub-section.

2.1.2 Immigration

Citizenship and Immigration Canada has previously stated that “were it not for immigration, populations in all four [Atlantic] provinces would be static or in decline” (CIC, 2008). Immigrants also help lower the average age of the population¹ and increase the number of people in Atlantic Canada’s labour force. More than 75 percent of immigrants coming to Atlantic Canada between 2001 and 2006 were less than 45 years of age, while only about 55 percent of the local population in 2006 was in that age group (Metropolis, 2008, p. 8). Highly skilled immigrants comprise a significant proportion of the new immigrants to Atlantic Canada, reflecting provincial initiatives to attract internationally trained foreign workers in labour shortage areas such as health, engineering and natural science (Akbari, 2008, p. 41). Across all skill categories, recent immigrants have accounted for nearly 45 percent of the growth in Atlantic Canada’s labour force (Metropolis, 2008, p.9).

Between 2001 and 2005, the Atlantic Provinces welcomed over 15,000 new immigrants representing an estimated 1.7 percent of new immigrants to Canada (CIC, 2006a). In 2008, the region welcomed 2.9 percent of new immigrants to Canada, the highest share since 1997 (Akbari, 2008, p. 10). Nova Scotia is the most popular destination for immigrants to the Atlantic region, although the new immigrant population has increased consistently across all four Atlantic Provinces. This increase can be largely attributed to new immigration strategies adopted by provincial governments such as the Provincial Nominee Program (PNP). Despite this growth, Atlantic Canada still attracts a disproportionately small percentage of immigrants when compared to the rest Canada. Overall, immigrants make up about 3.8 percent of the population in Atlantic Canada, compared with approximately 18 percent in Canada as a whole (Akbari, 2008, p. 9). With these statistics, it is hard for immigration to offer a credible solution to Atlantic Canada’s demographic challenges.

While the inflow of new immigrants to the Atlantic region has contributed to population growth, the draw to greater economic opportunities and larger immigrant communities elsewhere in Canada has also intensified increasing rates of out migration of the working-age population. Larger immigrant populations in the four major immigrant-receiving provinces (Alberta, British Columbia, Quebec and Ontario), greater opportunities for employment in larger cities (Toronto, Vancouver and Montreal), and the existence of labour market barriers in the Atlantic provinces are all major contributing factors in an immigrant's decision to leave Atlantic Canada (The Daily, 2005). Between the 1980s to early 2000s, the Atlantic region faced historically low immigrant retention rates. During this period, retention rates declined from approximately 70 percent to 45 percent (Akbari, 2008, p. 23). Newfoundland & Labrador estimated that retention rates for the province were the lowest in Canada at 36 percent (Goss Gilroy, Inc., 2005, p. 19).

In recent years, all four Atlantic Provinces have begun to adopt new initiatives aimed at attracting and retaining recent immigrants through job counselling, settlement services and language training. Retention rates have since increased across the entire region. New Brunswick's retention

¹ The reduction of average age is true mathematically, but with limited impact on its own. For example, in Nova Scotia, an order of magnitude increase in current immigration rates would be required to offset demographic trends, in absence of other factors. (Private communication, Nova Scotia Office of Immigration, based on Nova Scotia Department of Finance data)

rate has increased from an estimated 62 percent in the ten-year period following 1991 to approximately 91 percent between 2001 and 2006 (Akbari, 2008; Goss Gilroy, Inc., 2005, p. 19). Similarly, Nova Scotia saw retention rates of 75 percent in the 2001 to 2006 period, already exceeding the province's target of raising the immigrant retention rate to 70 percent by 2010 (Akbari, 2008).

2.2 The Growth of International Student Numbers

Global estimates of international student enrolments is the subject of much debate; however, there is general agreement that the number of international students has increased dramatically over past three decades and will continue to rise significantly in the foreseeable future. Verbik and Lasanowski (2007, p.1) estimated that there were 2.7 million international students in 2005, representing a 61 percent increase in enrolment since 1999 and a more than fourfold increase from 1975. UNESCO projects that enrolments will grow to five million by 2020 (Adrian Kershaw Consulting, 2005, p. 9). Likewise, the number of international students in Canada has grown considerably over the past few decades. International student enrolment in Canadian universities has increased from 57,000 in 1980 to nearly 145,000 in 2002 (IPSEA, 2005, p.2). It is estimated that the number of foreign students who came to the country for tertiary education increased by approximately 8.9 percent a year between 2000 and 2006 (Statistics Canada, 2009a, p. 60).

Advanced English-language skills, locally relevant training and a high degree of acculturation make international students ideal candidates for immigration to Canada (Metropolis, 2008, p.10). Attracting students from major immigrant source countries has become a priority for universities in Canada as well as other countries throughout the world. Competition amongst universities worldwide has escalated in order to attract the interests of international students seeking degrees from reputable institutions outside of their home countries.

To understand the importance of international students regionally or locally, it is first necessary to examine global trends in international student mobility and enrolment. Such a global examination provides a strong foundation upon which to assess the performance of Atlantic Canadian institutions.

2.2.1 International Mobility and the Convergence of Knowledge

The growth of international student numbers is part of a larger global phenomenon of increased mobility and the convergence of knowledge. In the past, human capital was fairly immobile. People tended to remain in their country of birth for the majority of their lives; alternatively, if they left their country of origin, they generally stayed in their adoptive country (Tung, 2008). In recent years, there has been a global trend towards increased mobility due to the globalization of the world economy and reduced barriers to the movement of people between most countries of the world (Tung, 2008). Nowadays, people routinely leave their home country to study and/or work abroad, and then bring their increased human capital back to their country of origin. This global trend leads to a phenomenon of “brain circulation” as described by Tung (2008, p. 469):

Thus, the concepts of ‘brain drain’ and ‘brain gain’ – whereby one nation’s gain becomes another country’s loss – appear to become less relevant as they are replaced by that of ‘brain circulation’ or ‘triangular human talent flow.’

The increasing adoption of advanced technology together with rising levels of education (Conrad, 2007) in developing countries is contributing to a global convergence of knowledge. As this knowledge base continues to grow in developing countries, so does competition for skilled labour, and by extension, international students. Knowledge has become perhaps the most important determinant of economic success, further intensifying the need for skilled labour. As quoted in an Australian Government report:

For countries in the vanguard of the world economy, the balance between knowledge and resources has shifted so far towards the former that knowledge has become perhaps the most important factor determining the standard of living – more than land, than tools, than labour. Today's most technologically advanced economies are truly knowledge-based (World Bank, 1999, p. 16, quoted in Australian Government, 2008, p. 88).

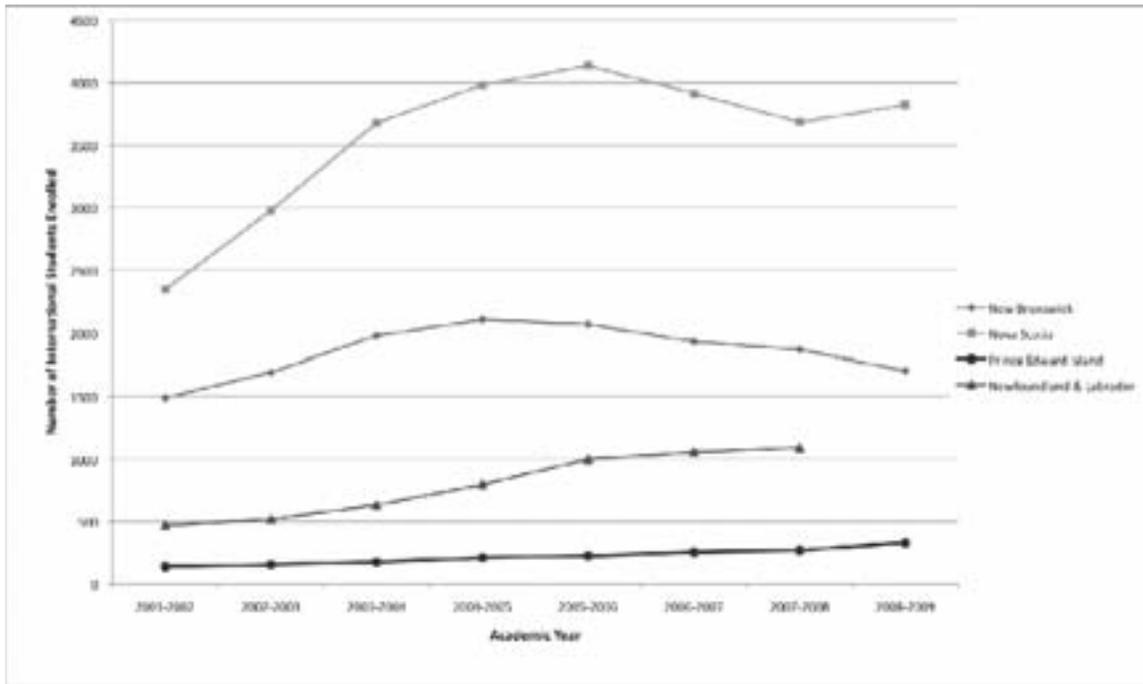
To maximize the economic potential of the international education industry, it is important to understand the geographic areas to which international students are going, as well as from where they are coming. Currently, the majority of foreign students enrolled in higher education choose to study in certain well-established countries. In 2008, G-8 countries hosted approximately two-thirds of all international students, with more than half of all students enrolled in four countries: the United States (21%), the United Kingdom (13%), France (9%), and Germany (8%) (Atlas of International Student Mobility, 2008). Canada is ranked as the 7th top host country with four percent. International students frequently cite Canada's reputation as one of the safest countries to live in and low cost of living as primary reasons for choosing to study at a Canadian university (Lebrun & Rebelo, 2006, p. 134; CBIE, 2004).

Within Canada, some provinces have higher proportions of international students than others. International student enrolment in each of British Columbia, New Brunswick, and Nova Scotia represents over 10 percent of the total student population. Quebec and Manitoba have proportions of international students similar to the national average of eight percent (Statistics Canada, 2009). The proportion of international students in Alberta and in Ontario is slightly lower at approximately seven percent and Saskatchewan, Prince Edward Island, and Newfoundland and Labrador each have less than six percent (Statistics Canada, 2009a).

The establishment of Canadian Education Centres in China, Korea and India has contributed significantly to international student enrolment rates at Canadian universities (Akbari, 2008, p. 55). Asia is the leading source for international students coming to Canada with nearly half originating from Asian countries (IPSEA, 2005, p. 7). This proportion is expected to increase in the future, based on the notion that post-secondary participation rates are anticipated to increase dramatically in developing nations over the next 20 years. For example, China is expected to increase participation rates from 4 percent in 2005 to 19 percent in 2020 (Adrian Kershaw Consulting, 2005, p. 9). Moreover, Asia is widely considered to have by far the top growth potential of all regions of the world and is expected to account for approximately 70 percent of global demand for international education in 2025 (Verbik & Lasanowski, 2007, p. 1).

Atlantic Canada's 17 universities have become increasingly outward looking with regards to their student populations, an emphasis largely driven by a projected decline of the university age population in the region (Gardner Pinfold, 2006). Between 1996 and 2005, the annual inflows of new international students enrolling in Atlantic universities doubled from 1,500 to 3,000 (Metropolis, 2008, p. 10). By 2008, more than 8,000 international students from 160 countries

were studying in universities in Atlantic Canada, representing 6 percent of all international students enrolled across the country (Akbari, 2008, p. 54). The top five source countries in Atlantic Canada were China, the United States, Korea, Saudi Arabia and India. Though Saudi Arabia is not one of the major source countries of international students in other regions of Canada, recruitment programs created by Atlantic universities such as Memorial and Mount Saint Vincent have contributed to increased enrolments from the Middle East. Akbari (2008, p. 54) highlights the noticeable lack of international students from European countries, given the proximity of Atlantic Canada to Europe.



*Enrolment figures taken from Memorial University of Newfoundland (2009); College of the North Atlantic (2008); MPHEC Postsecondary student information system (2009).

** Data for the College of the North Atlantic unavailable for 2009.

Figure 1: Undergraduate international student enrolment by province (2001-2009)*

2.2.2 The Market for International Students

As noted earlier, the number of international students has risen dramatically in recent decades. This increase can be explained by higher participation rates from developing countries and by the fact that most jobs in the global knowledge economy require educational qualifications at the tertiary level. Yet, as the number of international students has increased, so has the market for their enrolment become increasingly competitive.

Among the top six receiving countries, the United States experienced the lowest growth in international student enrolment between 1999 and 2005 with 17 percent. From 2003 to 2005, the number of international students enrolled in American universities decreased for the first time in thirty years (International Institute of Education [IIE], 2009). During this same period, enrolment

grew by 29 percent in the United Kingdom, 42 percent in Australia, 46 percent in Germany, 81 percent in France and 108 percent in Japan (American Council on Education, 2006, p. 1). Falling international student enrolment rates in the United States, coupled with increased competition from universities in other countries, have led to aggressive policy initiatives to increase enrolment numbers at American universities. In 2009, IIE reported the largest percentage increase in international enrolments in the United States since 1980, with India as the leading sending country, followed by China.

Historically labelled "sending countries" such as China and India are building their indigenous higher education capacity and are encouraging students to stay home for their education so as not to lose them to the United States (NAFSA, 2006). China invested heavily in higher education beginning in the late 1990s with the goal of making nine top Chinese universities world-class. This investment appears to be having the desired effect as Chinese students are citing the improvement of Chinese higher education as an important factor in their decision to stay home for advanced study (Gribble, 2008). New competitors in Asia and the Middle East have also entered the market with declared ambitions to become regional education centres "by attracting as many as several hundred thousand international students" to their countries (Verbik & Lasanowski, 2007, p. 2). Furthermore, these newly emerging education centres – such as Singapore and Dubai – have the resources necessary to recruit high quality faculty members from universities around the world.

New competitors in the international student market are starting to set recruitment targets: Malaysia wants to attract 100,000 international students by 2010 (up from 45,000 in 2005); Jordan plans to have 100,000 by 2020; Singapore would like 150,000 by 2015; China seeks to host 300,000 by 2020; and Japan has set the ambitious goal of hosting one million foreign students by 2025 (up from the current 120,000) (Obst, 2007, ¶ 12). Furthermore, many countries that are recruiting foreign students are providing them with incentives to join the workforce of the host country, an approach that Guruz (2008, p. 142) has called "human resources development through *brain power*".

This has negatively affected enrolments in the traditional receiving countries (American Council on Education, 2006). A 2007 study from the United Kingdom states that:

Developments over the past 5 to 6 years demonstrate both that overall predicted student numbers have not been as high as expected and that international student demand might not continue to focus on what have been the main destinations in the past. The United States, the United Kingdom and Australia have all experienced either a decline in enrolments or a "slump" in the growth experienced in previous years (Verbik & Lasanowski, 2007, p. 2).

In the modern era of knowledge-based economies, the sustainability of long-run economic growth has become extremely dependent on the availability of high quality human capital (Van Leeuwen & Foldvari, 2008). International students offer a source of human capital and many countries around the world depend on them for economic development. Verbik & Lasanowski (2007, p.2) state that Canada – with one of the lowest birth rates in the OECD – is expected to become increasingly reliant on international students and skilled immigration to the country in order to boost the labour force.

2.3 Education Policies

In response to the increased competitiveness of the international student market, governments around the world are developing new and innovative policies to help attract and retain international students. Some of these policies are clearly within the educational regime, but others address immigration issues that are just as important. The following cross-jurisdictional review examines the leading international education policies, such as the European Higher Education Area created by the Bologna Process and the efforts in Australia to align education and immigration policies to attract more international students. National policies that aim to create coordinated whole-of-government approaches towards the recruitment of international students, such as those established in France and the United Kingdom are also discussed. In addition, this review examines university funding across Canada and other factors that influence a student's decision to study in a particular country, such as differential tuition fees and cost of living.

2.3.1 Multi-national Policies

Various countries are collaborating on coordinated education policies in order to make certain geographic regions more attractive destinations for international students. The most influential and innovative example of such initiatives is found in Europe. The Bologna Process was established in 1999 to facilitate the convergence of higher education across the European Union (EU) by 2010. The Bologna Process seeks to make the EU “the most competitive and dynamic knowledge-based economy in the world by 2010” (The Europe Unit, 2005, p.9). The Process has significant political support within Europe and applies to around 4,000 institutions hosting 16 million students (Australian Government, 2006; Adelman, 2008). In April 2009, the Process adopted a mobility target that will see 20 percent of EU students studying abroad by the year 2020 (Commission of the European Communities, 2009, p. 20).

The Bologna Process is a commitment by 46 countries across Europe to harmonize their systems and structures of higher education in order to create an integrated European Higher Education Area (EHEA). The EHEA is not intended as a unitary European system of higher education. Rather, it is a “space” in which national systems possess common key features, in which qualifications offered by institutions in the EHEA are easily recognized and assessed by institutions and employers. This offers a high level of mobility to students and staff seeking education or employment (Australian Government, 2006, p. 4). In April 2009, the Commission of European Communities adopted a new mobility target for higher education in the context of the Bologna Process. This stipulates that by 2020, at least 20 percent of those graduating in the European Higher Education Area should have a study or a training period abroad. In May 2009, the European Council invited the Commission to study the possibility of extending such a benchmark to include vocational education and training and teacher mobility (Commission of the European Communities, 2009, p. 20).

Since the initiative is still unfolding, the impact of the Bologna Process is still unknown; however, the aggregate total international student enrolment in 36 of the then 45 member countries was 1.1 million in 2006, nearly half of all international students worldwide for that year (American Council on Education, 2006, p. 12). The Bologna Process is claimed to have “made Europe, overnight, a major competitor in the international student market” (NAFSA, June 2006, p. 4). The Bologna Process seems likely to have a profound effect on the development of higher

education globally, as observers from other continents are taking a close interest in the reform process and are beginning to consider how their own systems can be more closely aligned with “Bologna” thinking (Australian Government, 2006, p. 3). The Australian Government (2006) has been keeping a close eye on the success of the Bologna Process stating that:

If Australia is not able to maintain alignment with the [Bologna Process] developments, a significant proportion of the current 32,000 European enrolments in Australian institutions may find other destinations more attractive. Similarly should Asian countries or institutions choose to align with the Bologna Process, Europe may become a more attractive destination for those students (p. 2).

While still a work in progress, parts of the Bologna Process have already been imitated in Latin America, North Africa, and Australia (Adelman, 2008, p. 5). Efforts are also underway among Asian-Pacific countries to create a regional higher education space like that in Europe (American Council on Education, 2006, p. 12). New competitors, such as Singapore and the Middle East, have also entered the market and are in the process of creating regional education hubs (American Council on Education, 2006, p. 14). In a report of the 2009 Bologna Process Symposium, the Association of Universities and Colleges of Canada (AUCC, 2009) acknowledged that the new system could have both positive and negative impact on the Canadian university industry. A new agreement between the European Union and Canada in 2007 renewed a co-operation programme to promote international curriculum development and student mobility between the two regions. The European Commission’s Directorate General for Education and Culture administers the EU-Canada Programme jointly with Human Resources and Social Development Canada (HRSDC), in conjunction with the Canadian Department of Foreign Affairs and International Trade. The 2006-2013 programme plans to implement roughly 210 projects with some 4,500 EU and Canadian individuals participating in mobility activities over the eight year period. The Transatlantic Exchange Partnership (TEP) is one of the projects under the consortium that oversees the exchange of students and faculty between the EU and Canada including recognition and transfer of credits between institutions. There are plans to expand TEP to include not only transfer credits but also joint degree programs between EU and Canadian universities.

2.3.2 National Policies

As the benefits associated with international education become more apparent, national governments (along with state and provincial authorities) have been launching coordinated policies and whole-of-government approaches to attracting international students (Obst, 2007). For example:

- France established a national agency in 1998 (renamed CampusFrance in 2007) with ninety-eight offices abroad to promote French higher education and provide a comprehensive web portal for prospective students to search for programs and institutions, apply online, and receive information on visas, insurance, residency, and employment (Obst, 2007, ¶ 7; American Council on Education, 2006, p. 13).
- The United Kingdom established the Universities & Colleges Admissions Service (UCAS), a consortium of universities to help students find a school, simultaneously apply online to 180 universities and colleges (and list preferences for up to six universities), check their visa status online and assess their qualifications for admission. Globally, the British Council

promotes the UK's higher education system through its offices in 110 countries (American Council on Education, 2006, p. 13).

- Korea implemented the “Study Korea” program to increase international student enrolments by 50,000 between 2005 and 2010 (OECD, 2008, p. 83). Through the initiative, the Korean government promotes their higher education institutions through a website and international education fairs.
- The Netherlands Education Support Offices (NESO) can be found in the popular sending countries of China, Indonesia, Mexico, Taiwan and Vietnam with new offices contemplated for the Russian Federation and Thailand (OECD, 2008, p. 84).
- The New Zealand government has implemented a new International Education Agenda that features an integrated, long-term, whole-of-government strategy for international student recruitment (Obst, 2007, ¶ 9). The agency *Education New Zealand* is funded by universities and mandated to conduct market research, create a unified national brand for the country's higher education institutions and provide policy advice to government (OECD, 2008, p. 83). Interestingly, despite New Zealand's efforts to promote their national brand, a recent study of international students indicates that since 2003 the number of international students studying in New Zealand has declined (Infometrics, 2008, p. 1).
- The Australian Department of Education, Science and Training has created the Australian Education International network to promote their brand of higher education in eighteen countries. The network facilitates communication between universities, government agencies in Australia and assists tertiary education providers in their overseas operations (OECD, 2008, p. 84).

Other countries such as Germany and Singapore have also established specific organizations to promote their higher education sector abroad (American Council on Education, 2006, p. 14; Obst, 2007, ¶ 8). In contrast, the United States has neither a national policy on international students nor a national strategy for recruiting them. Institutions are largely acting individually in their recruitment efforts (American Council on Education, 2006, p. 11).

In Canada, responsibility for education is constitutionally assigned to the provinces and territories. As a result, although there are comparable structures and similar terminology across provinces, each province has adopted different arrangements regarding higher education access, curricula, student mobility, the granting of degrees and planning. As a result, there is limited transferability across provincial boundaries as credits are not fully portable (Hatt & Harley, 2005). The Canadian Association of University Teachers (2008) argues that the Government of Canada and the provincial governments should cooperate to establish and implement policy and programs for international students at all public post-secondary institutions. A small step forward was taken in September 2008, when provincial education ministers announced the launch of a national brand – a stylized red maple leaf with a bilingual slogan that says “Imagine Education in Canada” – in a bid to attract more foreign students to study and possibly stay in Canada (Canadian Press, 2008). The rationale behind the launch of the brand was that “in a country like China, it doesn't make sense to try to pitch individual provinces” (Canadian Press, 2008).

2.3.3 Funding of Universities in Atlantic Canada

Government approaches for funding universities in Atlantic Canada vary from province to province, as they do Canada-wide.

Nova Scotia is currently the only province in Atlantic Canada that makes specific reference to undergraduate and graduate international student enrolments in its government funding model. The model provides the same enrolment-based funding for international students as it does for domestic students, within the constraint of enrolment limits for international students at the institutional level of 10 percent of undergraduate enrolment, and 30 percent of graduate enrolment, above which international student enrolments will not be supported by public funding (Nova Scotia Council on Higher Education (NSCHE), 1998, p. 7). Two policy considerations support the limits: the need to prevent recruitment of international students to the exclusion of domestic students in order to exploit market-based differential fees; and, the importance of international students to many graduate programs (p. 7). An often forgotten third policy consideration provides the Government with the option to review individual graduate programs on a public interest basis should international student enrolments in them exceed 50 percent (p. 8).

The New Brunswick Commission on Post-Secondary Education's report, *Advantage New Brunswick*, outlines the province's blended formula of funding the four public universities. The enrolment grant portion of the report excludes international students enrolled in undergraduate programs in its calculation of 'weighted full-time equivalents' (WFTE) but includes graduate international students. The Province's Tuition Freeze Grant provides universities with funds that assist them in limiting tuition increases for Canadian students. Since international students are not counted in this allotment of grant money, there is no protection against increasing international student tuition (Email, Pascal Robichaud, Director of Post-Secondary Affairs, Government of New Brunswick, January 19, 2010; Implementation of the Maritime Provinces Higher Education Commission's Unrestricted Operating Assistance Policy for Universities in the Province of New Brunswick, undated). Currently, there is no government funding available to post-secondary institutions for undergraduate or graduate international students studying in Prince Edward Island or Newfoundland and Labrador.

2.3.4 Tuition and Differential Fees

Cost of education is one of the factors affecting an international student's choice of study venue. Historically, differential tuitions fees were introduced because several host countries were concerned about the rising cost of subsidizing students from abroad (Woodhall, 1987, p. 119). Britain was the first country to introduce differential fees for international students in 1967, followed by Belgium in 1972 and Australia in 1980 (Woodhall, 1987, p. 120). In contrast to those nations who charge differential fees, tuition in Germany and France is free, both for domestic and foreign students. Moreover, the French Government has declared a policy of equality of access and treatment for all students, regardless of nationality (Woodhall, 1987, p. 121). Recently, Australian universities have reversed their stance on differential tuition fees, opting to take a more aggressive approach towards international student recruitment by introducing tuition waivers for graduate and post-doctoral students from other countries. The Council of Australian Postgraduate Associations has stated that fee waivers will likely become a trend as universities compete in the

international student market; a sharp contrast to the previous attitude of universities trying to attract the maximum number of international students paying differential fees to boost incomes (Maslen, 2008). New Zealand has also followed suit by removing differential tuition fees for international students enrolled in Ph.D. programs (New Zealand Universities, 2010).

Canadian provinces introduced differential tuition fees in the 1970s and increased them sharply during the 1980s. Quebec is unique, with international tuition fees 5 to 6 times higher than those charged to domestic students, but with nearly 50 percent of the international students being exempt from those fees under the province's policy of encouraging francophone students from other parts of the world to attend university in Quebec (Eastman, 2003). In Nova Scotia, Université Sainte-Anne offers an automatic scholarship to francophone international students to offset the cost of differential fees, although it still charges differential fees to students enrolled in its French immersion program (Université Sainte-Anne, 2010). Université Sainte-Anne's policy regarding the scholarship may be a response to the exemptions offered in Quebec.

Prior to the adoption of the current university funding formulae in Nova Scotia and New Brunswick, international student fees included a government-mandated \$1,700 per FTE differential fee for international students, which was remitted to the Maritime Provinces Higher Education Council (MPHEC) for redistribution among universities as part of their operating grants. Upon introduction of the current funding formula in Nova Scotia, this mandatory fee was amended allowing universities "to charge whatever fees the international student market will bear" (NSCHE, 1998, p. 7). New Brunswick's differential fees now also appear more market-based according to University web sites.

*Table 1: Weighted average university tuition fees paid by Canadian and international undergraduate students (2005-2010)**

	Domestic Tuition Fees, \$					International Tuition Fees, \$				
	2006/ 2007	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010
Canada	4,211	4,400	4,458	4,747	4,917	12,548	13,205	13,985	14,487	15,674
Newfoundland & Labrador	2,606	2,633	2,632	2,619	2,619	9,083	10,147	9,599	9,322	9,322
Prince Edward Island	4,645	4,920	4,440	4,530	4,710	8,981	8,970	8,760	8,940	9,710
Nova Scotia	6,281	6,422	6,110	5,877	5,696	12,110	12,364	12,376	12,405	12,454
New Brunswick	5,037	5,470	5,590	5,479	5,479	10,487	10,630	10,990	10,973	11,297
Quebec**	1,900	1,932	2,056	2,180	2,272	12,349	12,330	12,551	13,196	14,780
Ontario	4,881	5,155	5,388	5,667	5,951	14,112	14,541	15,745	16,891	17,873
Manitoba	3,272	3,319	3,271	3,238	3,377	9,517	9,122	8,457	9,690	11,407
Saskatchewan	5,062	4,774	5,015	5,064	5,238	11,239	10,374	10,204	10,465	12,377
Alberta	5,125	4,763	5,122	5,308	5,520	14,681	12,617	13,309	14,399	17,123
British Columbia	4,874	4,740	4,922	4,746	4,840	15,769	15,564	16,463	15,378	15,685

*Source: Statistics Canada data compiled from Tuition and Living Accommodation Costs (TLAC) survey.

** Domestic fees represent tuition paid by residents of Quebec attending Quebec universities.

In the 2009-2010 academic year, Nova Scotia had the fifth highest tuition fees in Canada for international students, and the highest of the four Atlantic Provinces. Tuition fees for international students in Nova Scotia are competitive with those of British Columbia, Ontario and Quebec, the leading receivers of international students in Canada. While fees increased in most provinces for the 2009-2010 academic year they remained unchanged for Newfoundland and Labrador's international students (The Daily, 2009). International fees in Nova Scotia and New Brunswick rose marginally (less than 3%), while PEI increased their fees by over 8 percent. With the exception of students from Quebec, Canadian students in Newfoundland and Labrador pay the lowest domestic tuition fees in the country while international students pay the lowest international tuition fee. Similarly, universities in PEI have domestic and international undergraduate tuition fees that are below the national average.

2.4 The Impact of Canadian Universities on Immigration

A 2006 study stated that immigration is emerging as the new economic role for Atlantic Canada's universities; "The region's universities can play a central role in helping the region deal with its demographic challenges and its growing need for qualified workers by attracting, integrating and retaining more international students in the region" (Lebrun & Rebelo, 2006, p. 27). It is further argued that Atlantic Canada's disproportionately large number of universities could become more involved in encouraging international students to immigrate and become permanent residents to the region upon graduation.

2.4.1 Ability to Work during Studies

A cross-jurisdictional review of policies related to student employment during studies reveals that certain countries impose greater limitations on work by international students than others. The United States has very restrictive policies. For example, foreign students in the US are generally barred from off-campus employment (although exceptions are made for extreme financial hardship and employment with an international organization) and may only engage in on-campus employment if it does not displace an American resident (Haddal, 2006, p. 2).

Australia imposes few limitations and allows foreign students to work both on and off campus while studying for their degrees (Peykov, 2004, p. 17). A 2005 study found that 64 percent of foreign students studying in Australia finance their education by working in the country (OECD, 2008, p. 69). This is perhaps one of the contributing factors that make Australia one of the most popular host destinations.

Similarly, Canadian legislation allows foreign students to work on campus without an employment authorization. In April 2006, Citizenship and Immigration Canada (CIC) implemented the Off-Campus Work Permit program that allows foreign students to work while completing studies. All provinces have signed agreements with CIC that allow international students to work off-campus for up to 20 hours a week while studying in the academic term, and full-time during scheduled breaks and holidays. In turn, provinces have signed agreements with eligible post-secondary institutions so their students can participate in this program (CIC, 2009a).

2.4.2 Post-graduation Employment Policies

Immigration policies that target skilled workers are closely related to international education policies. Demographic challenges in various countries, coupled with skill shortages in certain labour categories are forcing many developed countries to tailor their immigration policies to facilitate student migration (Gribble, 2008, p. 25). In the Canadian context, Murphy and deFinney (2008) state the following about international students:

The fact that they are already living in and are familiar with the region, that they will earn well-recognized Canadian credentials, and that they may already have gained some Canadian work experience makes them an obvious and highly desirable group from which to recruit new permanent residents (p. 4).

This principle is reflected directly in the Government's expansion of the Canadian Experience Class for prospective permanent residents to include the Post-Graduation Work Permit (CIC, 2008a). The permit allows international students to obtain an open work permit under the Program, with no restrictions on the type of employment and no requirement for a job offer. In addition, the duration of the work permit has been extended to up to three years² across the country. Previously, the work permits only allowed international students to work for one or two years, depending on location. The program is specifically designed to provide international students with work experience in Canada, which may lead to more students applying for permanent residence, either through a provincial nominee program stream or the Canadian Experience Class.

2.4.3 Skilled Immigrant Points System

Various countries have shifted their immigration policies in order to focus on highly skilled workers. Immigration policies that are used to target a high-skill labour force may also encourage undergraduate international students to apply for graduate and postgraduate studies with the further prospect of obtaining permanent residency and long-term employment in the host country. Australia, Canada and the United Kingdom have used point systems to achieve this goal (McLaughlan & Salt, 2002, p. 6). In 1998, Australia amended its points-based immigration system with additional points for graduates of Australian universities; by the start of 2002, such international students represented nearly 50 percent of all skilled applicants. At the same time, Australia experienced a 30 percent rise in demand for its tertiary courses (Hawthorne, 2005, p. 688). It is also interesting to note that since 2003, Australia has been awarding an extra five points to skilled applicants who have studied and resided in one or more areas in Australian regions or low population growth metropolitan areas for at least two years (Ziguras & Law, 2006, p. 64).

Canada introduced its points-based system in 1967 to limit the discretionary power of immigration officials, with modifications in 2002 and 2008. Under the points system, immigrants are given points (or scores) for six factors: education, adaptability, work experience, language ability, age, and arranged employment in Canada (August & Leo, 2006, p. 9). Thresholds are set for total points, as well as for individual factors. For example, the Education factor awards up to 25 points for applicants with graduate degrees completed above and beyond the Masters level

² The duration of any specific work permit is equivalent to the duration of studies in Canada, to a maximum of three years.

with a minimum threshold of 5 points for completion of high school. Applicants with scores below set thresholds cannot be considered for immigration. Currently, the minimum score required to qualify for permanent residency as a skilled immigrant is 67. Additionally, applicants applying for permanent residency under the Skilled Worker class must either have arranged employment already, or meet one of 38 specified occupations (CIC, 2010).

2.4.4 Graduate Retention

Many international students now consider overseas study as first step towards permanent residency in a country offering a higher standard of living than their home countries along with better employment and research opportunities (Gribble, 2008, p. 25). A 2006 UNESCO study found that of the total number of students studying overseas, 40 percent of students coming from East Asia and the Pacific remain in the regions in which they study after graduation (American Council on Education, 2006, p. 12). In the United States, recent data show that only half of all overseas students return to their home countries after completing their qualification. Similarly, approximately half of the migrants who immigrate to Australia through the skilled migration program are former foreign students (OECD, 2006; Gribble, 2008, p. 27). For many students, studying abroad is often part of a deliberate immigration strategy that is often facilitated by the immigration policies of the host country (Gribble, 2008, p. 27).

A 2006 study found that 51 percent of the international students studying in Atlantic Canada chose the region as their first choice of study destination. Sixty-seven percent were interested in applying for permanent residency in Canada and residing in Atlantic Canada upon completion of their studies (Lebrun & Rebelo, 2006, p. 47). These percentages are found to be exaggerated when compared to actual transition data for temporary residents across Canada. More recent data from Citizenship & Immigration Canada indicates that approximately 10,357 foreign students (15.6% of all foreign students) made the transition from foreign student to permanent resident. Another 11,760 (39.5% of all foreign students) transitioned from foreign student to foreign worker status (CIC, 2008b). These figures indicate that a significant number of new immigrants and workers to Canada come from the international student population. While the majority of international students in Atlantic Canada report the intention to stay in Canada and apply for permanent resident status, these CIC data suggest that only about half can be expected to make the transition. With the recent addition of the Post-Graduation Work Permit, it is projected that more international students will choose to stay and work in Canada.

2.5 Economic Impact of International Students

The concept of international education as a 'business' is dependent upon a demonstrable economic benefit associated with hosting international students. Many countries have recognised the immediate benefits and hence international competition for their business has significantly increased. In 2005 the OECD estimated that the higher education market in its member states was conservatively worth \$40 billion USD annually with the United States, the United Kingdom and Australia leading the way in the provision of international education (Gribble, 2008, p. 26; UNESCOPRESS, 2005; Hatakenaka, 2004).

2.5.1 Worldwide Trends

A 2007 study found that international students – through tuition fees and other expenditures – contributed approximately £3.74 billion to the British economy between 2004 and 2005 (Vickers & Bekhradnia, 2007, p. 11). Moreover, when adding the spending multiplier of 1.5, the total impact of spending by international students was estimated to be more than £5.5 billion (Vickers & Bekhradnia, 2007, p. 11).

The higher education industry in the United States, the most popular host country, has been heavily invested in measuring the economic contributions of international students. Export earnings in the U.S. have increased drastically in the last decade, rising from \$4.6 billion in 1989 to \$8.3 billion in 1996 and \$11.5 billion in 2001 (Guruz, 2008, p. 143). Furthermore, NAFSA (2008, p. 2) estimated the net contribution to the U.S. economy by foreign students and their families to be \$15.5 billion during the 2007 to 2008 academic year – or nearly \$25,000 USD per international student. In 2009, the U.S. Department of Commerce released a report indicating that in the previous year international students contributed \$17.8 billion USD to the U.S. economy through expenditures on tuition and living expenses, the highest amount recorded (Siegmund, 2009, p. 1). The Department of Commerce further estimates that the \$17.8 billion represents approximately 40 to 45 percent of the global market for international education services.

Throughout New Zealand, student numbers have grown exponentially from around 5000 in the early 1990s to a high of 125,000 in the 2002 to 2003 academic year. In 2008, Education New Zealand and the Ministry of Education commissioned an analysis of international student expenditure and the net impact of the expenditure on the economy (Infometrics et al., 2008). There were 91,300 international students studying in New Zealand between 2007 and 2008, including those attending primary and elementary institutions, private schools, universities and English as a Second Language programs. The analysis found the annual financial gain from international education to be approximately \$2.3 billion in foreign exchange of which \$70 million came from instructional provision in other countries, making international education one of New Zealand's largest export industries (Infometrics et al., 2008, p. 1). These figures take into account all spending by international students that is funded by offshore sources. Thus, the analysis includes earnings from offshore education activities that accrue to New Zealanders or New Zealand institutions and excludes spending that is attributable to the income earned in New Zealand by foreign students (Infometrics et al., 2008, p. 2).

A report prepared for the Australian Council for Private Education and Training estimated that just over 207,000 international students contributed \$13.7 billion AUD to the Australian economy between 2007 and 2008 (Access Economics Pty Ltd, 2009, p. 6-7). These findings have been critiqued in the media for being overstated especially when compared to estimates on the impact of international students in the US and New Zealand. In the same year, there were approximately 650,000 foreign students studying in the US who contributed \$15.5 billion USD to the national economy.

2.5.2 Canada

A 2005 study for the British Columbia Progress Board concluded that international students spend, on average, \$31,000 per year on study and leisure related activities – this amount includes \$12,000 in average tuition costs, \$9,000 in annual housing and food costs and \$10,000 on study

and leisure related activities (Adrian Kershaw Consulting, 2005, p. 7). This figure is comparable to one reported in an earlier study from 2003 which estimated the economic benefits of international students at \$229 million for the province, or approximately \$32,000 per student (IPSEA, 2005, p. 32). In 2006, another British Columbia study found that the 28,100 international students in that province spent close to \$511 million for direct purchases of goods and services, which translated to an overall contribution of \$485 million in provincial GDP, 9,100 jobs, and \$67 million in Government revenue (Roslyn Kunin & Associates, Inc., 2006, p. 16).

Roslyn Kunin and Associates, Inc. contributed a more recent report on the economic impact of international students studying throughout Canada (2009). Based on secondary data, largely from Citizenship and Immigration Canada and Statistics Canada, it was estimated that international students in the kindergarten to Grade 12 (K-12) system contributed nearly \$700 million to the Canadian economy while international students in the university institutions contributed over \$3.2 billion per year. Students in other post secondary institutions and short-term language training programs contributed another estimated \$2.3 billion. Based on these figures, Roslyn Kunin and Associates Inc. suggest that export education in Canada is of greater value than exports of coniferous lumber (\$5.1 billion) and coal (\$6.07 billion) to all other countries (Roslyn Kunin & Associates, Inc., 2008, p. iii).

The Roslyn Kunin & Associates analysis of the economic impact of international students to the Canadian economy raises similar concerns to those raised with regards to the Australian Council report. Tuition fees used in the Roslyn Kunin and Associates expenditure calculation were not based on data from individual institutions, rather from the average undergraduate student tuition fees reported by Statistics Canada's Annual Tuition and Living Accommodation Costs (TLAC) survey (Roslyn Kunin & Associates, Inc., 2008, p. 20). Similarly, the analysis estimated an allowance of \$2,500 per student regardless of province, for discretionary expenses (such as eating out, recreation, and entertainment). The report approximated the average expenditure per international student in Canada to be \$30,860 (p. 25). Given the study's reliance on broad estimations and secondary data, it is likely that the value of the international education industry to the Canadian economy has been overestimated. This is supported by findings of earlier studies. Guruz (2008, p. 143) reported that export earnings from foreign students increased from \$530 million in 1989 to \$595 million in 1997 and \$727 million in 2001. It would seem unreasonable that international education export earnings would rise so substantially in seven years – from \$727 million in 2001 to \$6.25 billion in 2008 as suggested by Roslyn Kunin & Associates.

2.5.3 Atlantic Canada

A 2006 study conducted by Gardner Pinfold focused on the overall student population of Nova Scotia and was not limited to international students. The study found that direct spending attributable to Atlantic Canadian universities was approximately \$2.15 billion (Gardner Pinfold, 2006, p. 20). This figure includes spending by the universities on operations (including payroll) and capital projects, as well as incremental spending by students and visitors. Students were estimated to have spent \$980 million in 2004, of which approximately 60 percent flowed to the universities to pay for tuition, residence fees and books while the remaining 40percent flowed to the wider economy to cover costs of rental accommodations, food, transportation and entertainment (Gardner Pinfold, 2006, p. 18). Using the multiplier effect Gardner Pinfold (2006, p. 21) estimated the overall economic output related to Atlantic Canada universities to be about \$4.39 billion.

With regards to the portion of economic benefits attributable to international students, the Gardner Pinfold study (2006, p. 25) states that the five to six thousand international students studying in Atlantic Canada generated over \$100 million in export earnings per year. The Gardner Pinfold study does not detail the methodology used to obtain the final figures. It lists the sources of the data as “Statistics Canada and Atlantic Universities.” In another 2006 study, Lebrun and Rebelo examined economic development of international students in Atlantic Canada universities. Their report states that a single international student spends an average of \$25,000 per year in Atlantic Canada, for an overall contribution of \$1.5 billion to the region’s economy. Like the earlier Gardner Pinfold study, Lebrun and Rebelo do not explicitly define how the \$25,000 figure was obtained, although they make reference to a 2005 presentation by the Association of Atlantic Canada Universities.

Newfoundland and Labrador published an immigration strategy in 2007 that estimated that international students spend between \$18,000 and \$25,000 per year in the province (Newfoundland and Labrador, 2007, p. 17). These estimates are lower than those for studies of other provinces, but Newfoundland and Labrador has the lowest tuition fees for international students in Canada. Similarly in 2009, Siddiq *et al.* examined international students in Nova Scotia universities and calculated the initial economic impact of international students to be \$154 million between 2008 and 2009, including an initial injection of \$91 million of new money to province. The total economic impact of international students was \$231 million after application of the spending multiplier. The direct spending by international students averaged \$28,500 per student during the same period (Siddiq *et al.*, 2009, p. 61). The study estimated that international students spend over \$3.40 of new money in Nova Scotia for every dollar spent by the Government of Nova Scotia on their education and health care (Siddiq *et al.*, 2009, p. 42).

Table 2: Estimates of average expenditures by international students

Region	Study	Average Expenditure Per Student
Canada	Roslyn Kunin and Associates, Inc. (2009, p. iii)	\$30, 860
British Columbia	Adrian Kershaw Consulting (2005, p. 7)	\$31, 000
	IPSEA (2000, p. 32)	\$32, 000
Atlantic Canada	Lebrun and Rebelo (2006, p. 29)	\$25, 000
Nova Scotia	Siddiq <i>et al.</i> (2009, p. 61)	\$28, 500
Newfoundland & Labrador	Newfoundland and Labrador (2007, p. 17)	\$18, 000 - \$25, 000

2.5.4 Other Benefits of International Students

The benefits related to having international students living and studying in a region are not limited to the financial flows they generate. There exist many other less tangible benefits that have no readily measurable economic value. International students enrich a region’s cultural diversity, helping to increase understanding of other societies including cultural aspects such as music and the arts, helping to expose different perspectives on international affairs, etc. (Gardner Pinfold, 2006, p. 25). Having people abroad who have lived in the Atlantic region and are familiar with its products and services can also help strengthen the region’s economic and political ties with other countries. Moreover, many university departments – such as those in

engineering and the sciences – depend strongly on international students to remain viable (Vickers & Bekhradnia, 2007, p. 4). Ziguras & Law (2006, p. 61) even argue that “in the long term, the aging of the population in developed countries may mean that the labour force advantages of international education will outweigh the direct economic benefits from tuition fees and living costs of international students.”

3 Methodology and Study Design

The study used an expenditure-based approach to determine the economic impact of international students in the four provinces of Atlantic Canada. This section of the report first describes the framework used for the expenditure-based study, including a discussion of the spending multiplier. The section also describes the methods used to collect primary and secondary information, including the design of the survey of international students and research ethics review.

3.1 Conceptual Framework

Economic activity can be measured using two essentially equivalent methods: the expenditure approach and the income approach. The former measures all expenditure and the latter all income. It is important to note that every expenditure results in the receipt of income at the other end while income can only be generated if *and only if* an expenditure is incurred.

The *expenditure approach* is a widely used method for measuring economic activity. At the national level, it measures gross domestic product (GDP) as total spending on all final goods and services produced in the economy (Williamson, 2007). It ignores spending on intermediate goods (money spent on goods used as inputs in the production of other goods and services) (Ragan and Lipsey, 2011) to avoid “double counting.” Most conventional definitions of national income accounting express total expenditure as follows:

$$\begin{aligned} \text{Total expenditure} &= C \text{ (consumption expenditure)} + I \text{ (investment expenditure)} \\ &+ G \text{ (government expenditure)} + NX \text{ (total exports – total imports)}. \end{aligned}$$

The second approach measures economic activity from the income side. The income approach sums all incomes received by economic agents (Williamson (2007). Incomes include compensation of employees, rent, net interest, corporate profits, government and business enterprise profits before tax, inventory valuation adjustment and depreciation. The summation of these factors, non-factor payments and depreciation represents national income.

The income approach and expenditure approach yield the same estimate for the magnitude of economic activity other than those that are due to errors of measurement (Williamson, 2007). The sale or purchase of goods and services in an economy shows up on the expenditure side. Spending on output is recorded on the income side because what is spent to produce output is income for someone in the economy, in some form or another. It is thus essential that these two measures are not confused, or used simultaneously, to avoid counting each dollar of activity more than once.

3.2 Empirical Methodology

The methodology used in this study is based on the theoretical underpinnings of the expenditure approach. It measures actual spending in a given year by and for international students in

Atlantic Canada. The expenditure approach was chosen because it measures: (i) spending on goods and services *within* Atlantic Canada *by* international students; and (ii) spending by government, universities and other entities *for* international students in Atlantic Canada³ quite comprehensively.

The empirical methodology of the study will focus on the actual flow of money by and for international students. This flow of money will be analyzed through *direct expenditure* by and for international students as outlined in Table 3 and *indirect expenditure* arising out of this initial direct expenditure.

Table 3: Expenditure variables

Area	Measure (Expenditures)
Direct Spending by International Students	Communication Services (home, cell, internet and cable) Groceries (food & other general household supplies) Rent or Mortgage Utilities Residence Fees Residence Meal Plan Transportation Costs (public transportation, car insurance/payments, maintenance, gas) Tuition/University Fees Textbooks and Supplies Clothing and other goods and services (including un-insured medical or dental expenditures) Entertainment Travel Other expenditures
Government Spending for International Students through Post Secondary Institutions	Provincial Grants Other Government Grants
Other Government Spending for International Students	Medical Services Insurance
Post Secondary Institutional Spending for International Students	Endowment Research Grants, Projects and Contracts

³ The authors will use ‘Atlantic Canada’ and ‘the region’ interchangeably

The key assumptions underlying this study are as follows:

- (1) The study is concerned with students enrolled in programs paying fees and educational institutions receiving public funding due to the presence of these students. It does not include post-doctoral students/fellows that do not pay fees and for whom universities do not receive public funding.
- (2) International students do not displace domestic students: there is sufficient excess capacity in the system to accommodate international students in most disciplines.
- (3) Educational institutions in Atlantic Canada are operating under a balanced budget, where annual revenues equal annual expenditure.
- (4) Scholarships, stipends, bursaries and assistantships are distributed in direct proportion to the ratio of international students to all students. Thus, if 14 percent of a particular university's students are international, 14 percent of expenditure on scholarships, stipends, bursaries and assistantships are assumed to be dedicated for international students.
- (5) The sample is representative of the underlying population, which is homogeneous.

Data will be obtained from primary and secondary sources. Student expenditure data will be gathered primarily from the survey while other expenditure data will be collected from secondary sources consisting mainly of university and Government documents.

One important challenge for this study is to ensure that all relevant expenditure is captured and included in the estimates, but that the same expenditure is not counted more than once. As a result, direct payment to students through government grants, endowment expenditure, research grants, projects and contracts are not included since they are income for students, which one would assume is spent for tuition, books and supplies, room and board, and other expenditure. Thus, direct payments to students are captured when that money is spent (under *direct spending by international students*), which is precisely what the expenditure approach seeks to achieve. Expenditure in support of international students for research, in kind, and in forms other than direct payment is captured from government grants and university spending after deducting the direct payment to students. These two expenditures are tabulated in Annex D under *government spending for international students through post secondary institutions* and *post secondary institution spending for international students* respectively. This will ensure that no expenditure is missed, but double counting of the same expenditure is also avoided.

The methodology also estimates the indirect expenditure arising out of the direct expenditure on an annualized basis. These economic spinoffs due to the presence of international students in Atlantic Canada are estimated using alternative measures of the spending multiplier. The sum of direct and indirect expenditure provide a more comprehensive estimate of the contribution of international students to the economy of Atlantic Canada. The rationale behind using alternative estimates for the multiplier is to ensure that the study identifies a range within which lies the true contribution of international students to economic activity in the region.

An additional focus of this study will be to distinguish between expenditure that can be characterized as a net injection of resources into Atlantic Canada as opposed to money that is spent from sources that originate in the region. This is an important consideration since it allows policy makers to determine the amount of resources that become available to the provincial

economy solely on account of hosting international students. Moreover, the resources that are spent from regional sources complement money that comes from abroad. The two sources together constitute a significant investment in enhancing the human capital base within Atlantic Canada in addition to expanding the region's economy.

3.3 The Multiplier

This section examines the “spending multiplier” for the initial increase in expenditures in Atlantic Canada by foreign students over a one-year period. Some discussion of the background to the multiplier used in economic studies is necessary because of the variability across studies in methodology and output to determine which approach is most relevant in the case of international students.

The original multiplier was designed for use at the national level to estimate the ultimate impact of a change in government spending or taxation. In its simplest form, this multiplier equals $1/\text{the marginal propensity to save (MPS)}$, in an economy without taxes and imports. An MPS equalling 0.2 means that when individuals receive additional income, they save 20 cents of every dollar received. Thus the multiplier in this case is $1/0.2$, or 5. If government spending is increased by \$5 billion, the eventual impact on the economy will be \$25 billion. This \$25 billion is the accumulation of a series of expenditure increases over time, as the expenditure of \$5 billion becomes income for consumers who spend 80 percent, or \$4 billion, on consumer goods, and this \$4 billion then initiates additional spending of \$3.2 billion, and so on until consumer expenditures have increased by a total of \$20 billion.⁴

Two important lessons are suggested by this simple example. One is that taxes and imports are neglected, and that portion of the \$5 billion injection spent on them does not necessarily contribute to a subsequent increase in income. This effect can be very large. For example, if the marginal propensity to pay taxes is 0.2, so that consumers pay out 20 percent of their income on taxes, and the marginal propensity to import is 0.4, so that 40 percent of consumer expenditures are for imported goods, then the resulting multiplier is reduced from 5 to 1.32. With this reduced multiplier of 1.32, after all the spending cycles are complete, the increase in national income will be \$6.6 billion rather than \$25 billion as consumer expenditures increase by only \$1.6 billion rather than \$20 billion.⁵

The second lesson from the simple example is that the multiplier process takes time, as the impact comes from a virtual series of infinite rounds of expenditures of ever decreasing amounts.

In the real world, the multiplier effect of a government stimulus package is hotly debated, as recent experience in the United States testifies. There is no consensus, but Paul Krugman, a recent Nobel Prize winner in Economics, suggests the multiplier in the US for both government expenditures and tax reductions is 1.5 (Stirton, 2009).

⁴ Without government and foreign trade, the marginal propensity to spend, $z = MPC$, where MPC is the marginal propensity to consume. The simple multiplier $k = 1/(1 - z) = 1/(1 - MPC)$.

⁵ With government and foreign trade, $z = MPC(1 - t) - m$, where t is the marginal propensity to pay taxes and m is the marginal propensity to import. The simple multiplier is then $k = 1/(1 - z) = 1/[1 - \{MPC(1 - t) - m\}]$.

When economists approach the problem of estimating a state, regional, provincial or local multiplier, they tend to use a simpler model than the government expenditure model outlined above. This model has different versions, but the most convincing one places the focus on three components to calculate the spending multiplier. The three components are the initial impact, the backward linkages and the forward linkages (Miller, undated). Using the value added approach for a region, consider a firm that earns \$1 million from an export, \$600K of which represents value added to the firm and \$400K of which was paid to buy raw materials. The initial impact or direct effect in this case is \$600K. The “indirect effect” in this case, the backward linkage, is the portion of the raw materials purchased from firms within the region, say 50 per cent or \$200K. The “induced effect” or forward linkage is in two parts. The first is the increase in expenditures in the region by households, which received part of the \$600K value added as wages, say \$450K, of which they saved some, spent some outside the region, paid taxes, and spent the rest, \$350K in the province. The second part is the value added in the region by the subsequent spending of the \$200K spent locally on raw materials, say \$150K. In this case, the so-called Type I multiplier is calculated as \$600K plus \$200K divided by \$600K or 1.33. The Type III multiplier is calculated as \$600K plus \$200K plus \$350K plus \$150K divided by \$600K, or 2.2.⁶

While informative, these multiplier calculations have to be used carefully. On the one hand, they underestimate the multiplier because they neglect the cascade effect of many rounds of expenditure. On the other hand, they overestimate the multiplier because they do not take account of the import content of expenditures within the region of the workers who earn wages and spend a portion locally.

The procedure adopted in this expenditure analysis study to calculate spending multipliers is to obtain a sense of the order of magnitude of the likely multiplier associated with spending by foreign students. These estimates will not be precise, nor can they be, but will provide a rough approximation of the range within which lies the true multiplier.

The most directly relevant study is by Gardner Pinfold (2006) entitled “The Economic Impact of Universities in the Atlantic Provinces”. The document covers a wide range of relevant topics, but the focus here is on the calculation of the spending multiplier for Atlantic Canada. (The study also calculates other multipliers, including the “Direct Employment Multiplier” and the “Tax Revenue Multiplier”, the former calculated at 1.8 and the latter at 1.6 for the Type III version.)

Gardner Pinfold (2006) calculate the direct spending by students in Atlantic Canada at \$1,131 million, the Indirect Spending at \$163 million and the Induced Spending at \$717 million, for a total impact of \$2,011 million. The Type III multiplier equals \$2,011 million divided by \$1,131 million, or 1.8. Multipliers for individual provinces may also be derived from the report: NB 1.7; NL 1.8; NS 1.8; and PEI 1.9. The study notes that the indirect spending by universities is low because spending on goods and services, other than direct wages, is low, and the import content of what spending there is on goods and services is high.

⁶ Type I Multiplier = (initial impact + backward linkage)/initial impact. Type III Multiplier = (initial impact + backward linkage + forward linkage)/initial impact.

Another estimate of a spending multiplier for Nova Scotia universities may be derived from a January 2000 APEC study. Using economic impact data presented in the study, the spending multiplier for Atlantic Canada becomes 1.5; the same multiplier is found for the four provinces, to one decimal point. The 2000 APEC study differs from that of Gardner Pinfold (2006) by excluding indirect spending. For comparison purposes, excluding the Indirect Spending from the Gardner Pinfold estimate generates a multiplier of 1.6 for Atlantic Canada.

A 2008 study conducted in New Zealand is also relevant. The study examines the contribution of all forms of foreign education in 2004, including “public and private tertiary” (e.g., university level) students (Infometrics, 2008). The impact on GDP of an estimated \$1.8 billion spending by students amounts to “a total contribution to GDP of \$2.21 billion”. The multiplier implied in these numbers is 1.23, a relatively low number in the literature on the subject.

There is an extensive literature on multipliers. One area of interest is the multiplier impact of tourism, an economic activity that suggests itself as having similar economic impacts as foreign students, in the sense that money is brought directly into an economy rather than, say, via the sale of an export product where there is a high probability of an import component. For this reason, special attention is paid to calculations of tourism spending multipliers.

A more detailed study, “Variations in Economic Multipliers of the Tourism Sector in New Hampshire” by Joshua Wiersma (2004) and others, has generated some interesting results. The study begins by noting an existing estimate of the tourism multiplier for New Hampshire of 2.61. A second study reports the multiplier as 1.6. After a thorough analysis, the authors estimate the tourism multiplier for New Hampshire as 1.51. They then report on other tourism multipliers: a range of 1.32 to 1.67 for 114 towns; a range of 1.19 to 1.67 for 30 countries; and a range of 1.5 to 1.8 for IMPLAN⁷ studies using a common framework. Their conclusion: use 1.5 where a specific number is needed for tourism.

The range of values in the literature suggests upper and lower values of the multiplier of 1.8 and 1.3 for the present study.

3.4 Survey Design

An on-line survey was the central element of this study, to support the determination of the economic contribution of post-secondary international students to the four Atlantic Provinces, as well as to establish demographic and institutional characteristics. The survey was the sole means used to collect data on expenditures *by* students.

The survey was derived from an earlier survey of international student in Nova Scotia conducted in October 2008 on behalf of the Nova Scotia Department of Education (Siddiq et al, 2009). Revisions to the earlier survey addressed a number of issues:

- Expansion of the scope of the survey to include all of Atlantic Canada, and to address community colleges as well as universities;

⁷ IMPLAN: *a regional input-output model*

- Revision of a number of question sets to exploit the results of the earlier survey, for greater clarity, or to facilitate analysis: for example, differential fees were identified as of concern to students in open ended questioning in the Nova Scotia survey, so explicit questions related to differential fees were added to the present survey;
- Adoption of a different on-line survey utility (OPINIO) to provide both a better user interface than for the earlier survey and to facilitate survey management and analysis.

The survey addressed five main themes, although its focal point was measurement of expenditures by post-secondary international students in Atlantic Canada. The five themes of the survey were:

- Institutional and program details for international students, which addressed institutional information such as which post-secondary institution they were attending, enrolment status (full-time, part-time), which program they were registered in, year of the program in which they were currently enrolled, as well as their expected year of graduation. Additionally, students were asked how they came to be aware of their institution and factors that influenced their choice of institution. Institutional and program related questions are asked for a number of reasons: in order to categorize responses, to clarify expenditure responses, and to gather information about how students select an international post-secondary institution. Knowing how students choose institutions in Atlantic Canada may help these institutions recruit international students more effectively.
- Sources of financial support, including the nature of the support (for example: family, self, scholarships) and the geographic source of bursaries, scholarships or awards.
- Expenditures by international students, both academic and living, in the 2009-2010 academic year.
- Demographics for international students, including employment status while studying; there is evidence that offering opportunities for work experience in Canada may help attract international students and may lead to more students applying for permanent residence after graduation (Siddiq et al, 2009).
- Future intentions of international students after completion of current studies, particularly with respect to remaining in Atlantic Canada.

Students were not questioned about their personal income *per se*, both because of the survey's expenditure-based approach, but also because of concerns that income-related questions might discourage students from completing the survey.

The survey structure and content were subject to review by two means: a project Steering Group of stakeholders⁸ under the leadership of the CAMET Project Authority; and research ethics review conducted by three of the target institutions (as will be described in Section 3.5).⁹ The

⁸ The Steering Group was comprised of representatives of: CAMET: the Departments of Education of NB, NL, NS and PEI; the Association of Atlantic Universities; the Atlantic Provinces Community Colleges Consortium; the Maritime provinces Higher Education Commission; and EduNova.

⁹ After the execution of the survey there was also an independent 'data audit' of the resulting SPSS file. This audit could only affect the analysis process; where appropriate, reference is made to the data audit in text or as footnotes.

approved question sets were translated into French through the CAMET office. The translated survey was then implemented in OPINIO as a linked survey with the master English survey, so that all responses to both the English and French surveys are captured as a single dataset.

There were a total of 93 questions in the survey. Depending on a respondent's choices, the number of questions an individual might answer ranged from a minimum of 53 to a maximum of 74. See Appendix A for the survey questions and a schematic of the question skip pattern.

3.5 Research Ethics Review

The research plan and survey were submitted to the Dalhousie University Research Ethic Board for their consideration in accordance with the Tri-Council Policy Statement on Ethical Research Involving Humans (MRCC, NSERC and SSHRC, 1998). The application was approved after amendments.¹⁰ The Research Ethics Board (REB) was concerned that international students were a vulnerable population, and required that special attention be given to the invitation message for the survey to avoid the potential for coercion of respondents. The Dalhousie University REB also expressed concerns over potential conflict of interest between the researchers and their clients, who might influence analysis inappropriately in order to support preconceived results. The researchers argued that the contractual framework, especially the statement of work, was the primary defence against such coercion, as long as it was accepted that it was the client that specified the original requirement in a contractual arrangement. This argument was accepted.

Most other institutions participating in the study accepted the Dalhousie University REB review, with the exception of the Nova Scotia Community College and St. Thomas University, both of whom had policies requiring local review. In each case, new REB submissions were prepared, and approvals were given.¹¹ Both REBs expressed concern over the clarity of Questions 19 (Field of Study) and Question 75 (Employment Sector) in Annex A, but accepted them as written when advised that these were categories used by Statistics Canada.

¹⁰ Dalhousie University REB approval 2009-2095 (version 3), dated January 13, 2010

¹¹ Nova Scotia Community College REB approval, dated January 20, 2010, and St. Thomas University REB approval 2010-01, dated January 29, 2010

4 Data: Sources and Characteristics

This section of the report examines the data used to determine the economic impact of international students at post-secondary institutions in Atlantic Canada, first with respect to expenditure by students, and then with respect to expenditure for students.

4.1 The Survey: Expenditure by Students

During the winter term of 2009-2010, invitations to complete the online survey were sent to all international students registered and attending classes at the 17 publicly-funded universities and community colleges in Atlantic Canada. Invitations to participate were issued through the registrars at each institution to keep the researchers at arms length from the survey respondents.

Eight thousand one hundred and fourteen invitations were issued by registrars. There were 1,932 raw survey responses. Eight respondents declined consent. Five hundred and thirty-six surveys were incomplete and were not analyzed, as specified in the research ethics applications. Six completed survey were not analyzed for cause; for example, one respondent input clearly arbitrary expenditure responses (\$12312, \$123, \$1234, etc.). Four exclusions were identified as administrative tests at participating institutions. This left a total of 1382 complete surveys for analysis. Eleven hundred and thirty-seven respondents who completed surveys provided student numbers so that they might be considered in a draw for a participation prize.¹² Table 4 shows the number of completed surveys ('surveys analyzed') by institution and province.

Before conducting the expenditure analysis, expenditure data were examined, question by question, and tested for outliers using a box-plot approach (McClare & Sincich, 2006, p. 93). Entries lying outside three standard deviations of the mean were considered for exclusion, consistent with conventional practice. The number of outliers was sufficiently low that a rational analysis could be applied to every case, to establish whether each case was an outlier, or simply an extreme value. Extreme values that were determined to be outliers were replaced by imputation, generally of the mean plus three standard deviations.

Table 4 shows considerable variation in response rate, both by province and by institution, indicating that applying weights to the survey responses would be appropriate during analysis. Given the variation in response rate across institutions, it is simplest to apply weightings at the institutional level, with one exception. Since tuition and fees at AVC are significantly higher than those in other UPEI programs, and the response rate for AVC was high, AVC was treated as a separate institution for the purposes of applying weights. It could also be argued that campus-based weights be extended to community colleges to reflect local variations in living costs, but would not be warranted since international students at community colleges represent only three percent of the survey population, and inter-campus living cost variations are much smaller at community colleges than tuition variations for UPEI main campus and AVC.

¹² Three participation draw prizes of \$500 each were awarded to students at MUN, NSCC and MSVU.

Table 4: Survey response rate by institution, province and region

Post-Secondary Institution and Province	Survey Invitations N_k	Surveys Analyzed n_k	Return Rate	Weight Factor N_k/n_k
Collège Communautaire du Nouveau-Brunswick	44	12	27%	3.67
Maritime College of Forest Technology	0	-	-	-
Mount Allison University	157	48	31%	3.27
New Brunswick Community College	46	8	17%	5.75
St. Thomas University	78	22	28%	3.55
Université de Moncton	548	60	11%	9.13
University of New Brunswick, Fredericton	613	151	25%	4.06
University of New Brunswick, Saint John	394	43	11%	9.16
New Brunswick	1880	344	18%	-
Centre for Nursing Studies	0	-	-	-
College of the North Atlantic	40	19	48%	2.11
Memorial University of Newfoundland	1180	319	27%	3.70
Newfoundland and Labrador	1220	338	28%	-
Acadia University	408	78	19%	5.23
Atlantic School of Theology	2	1	50%	2.00
Cape Breton University	336	50	15%	6.72
Dalhousie University	1422	239	17%	5.95
Mount Saint Vincent University	449	31	7%	14.48
Nova Scotia Agricultural College	80	23	29%	3.48
Nova Scotia Community College	61	27	44%	2.26
NSCAD University	65	10	15%	6.50
Saint Mary's University	1339	105	8%	12.75
St. Francis Xavier University	223	26	12%	8.58
Université Sainte-Anne	64	13	20%	4.92
University of Kings College	33	7	21%	4.71
Nova Scotia	4482	610	14%	-
Collège Acadie Î.-P.-É.	0	-	-	-
Holland College	46	10	22%	4.60
University of Prince Edward Island	486	80	16%	-
UPEI, ex. AVC	389	53	14%	7.34
AVC campus of UPEI	97	27	28%	3.59
Prince Edward Island	532	90	17%	-
Total: Atlantic Canada	8114	1382	17%	-

Applying weights institutionally corrects both for inter-institutional variations in educational expenditures and intra-regional differences in living expenditures, apart from inter-campus differences for community colleges, already discussed. Weights might also be applied to other characteristics, of which level of program is one. An analysis of weighting by level of program is given in Annex C, from which it is concluded that application of weights on an institutional basis is reasonable for this study.

The weighting formula chosen is a *ratio estimator* approach to correct for both scale and proportion. (StatsCan 1994) The formula can be expressed as: N_k / n_k , where N_k represents the number of international students invited at a particular institution and n_k the number of responses at that institution. Table 4 also shows the weight factors applied to each institution, to two decimal places as practiced by Statistics Canada (1999).

Expenditure parameters were calculated using both unweighted and weighted survey responses. Mean values of parameters were tested for differences between means from unweighted and weighted responses using a t-test. No significant differences were found at the 95 percent confidence level for any of the variables; more detail is provided in Annex C.

The overall margin of error for the regional sample of 1382 responses lies within 2.4 percent, 19 times out of 20. This margin of error is based on an underlying distribution that is normal, although expenditures are often characterized by other types of distribution such as Paretian or log-normal distributions. The nature of the distributions for many of the expenditure responses indicates that the distributions are not normal. Such variations from the usual assumptions associated with approximately normal distributions must be considered during data analysis.

The margins of error at the provincial level are higher, due to the smaller samples:

- For New Brunswick, with 344 completed surveys the margin of error is 4.78 percent, 19 times out of 20;
- For Newfoundland and Labrador, with 338 completed surveys the margin of error is 4.53 percent, 19 times out of 20;
- For Nova Scotia, with 610 completed surveys the margin of error is 3.69 percent, 19 times out of 20; and
- For Prince Edward Island, with 90 completed surveys the margin of error is 9.42 percent, 19 times out of 20.

4.2 Expenditure for Students

Secondary sources were used to estimate expenditure for students. While the survey of students was conducted in academic and fiscal year 2009-2010, the latest available finalized government and university financial data were for financial year 2008-2009.

Annual reports of post secondary institutions for the fiscal year 2008-2009 were the main source of information on expenditures for students, since these annual reports describe university expenditures from all sources. Most reports were available on line, or as paper copies by request. Some universities (such as the Nova Scotia Agricultural College) do not publish an annual report

in the conventional sense but equivalent financial data were obtained from the CAUBO website (CAUBO, 2010).¹³ Similarly, the Nova Scotia Community College does not publish an annual report with a statement of accounts, but was able to respond to a data request. Supplemental questions were addressed directly to the educational institutions to determine the level of direct payments to students, which were not generally broken out in statements of accounts. Direct payments to students had to be deducted from expenditures by post secondary institutions to avoid double counting of expenditures, since these payments would be spent by students, and captured in the survey of students.

Expenditure for international students is estimated in two components. The first and most significant component is spending for international students through universities. This component includes government grants to universities, since it is the universities that expend the grants in the economy. The second component is expenditure by government for healthcare for international students through each province's medical insurance coverage system. These expenditures were obtained through requests to the Departments of Education of Newfoundland and Labrador and Nova Scotia. New Brunswick and Prince Edward island do not provide such coverage to international students, so their expenditures in this sub-category are zero. This second component is less than ¼ percent of the value of the first, but is included for completeness

Full Time Equivalents (FTE) were used to estimate the level of expenditure per student, with one exception. Full Time equivalent data were available from the educational institutions themselves, from MPHEC for universities in the Maritime Provinces, or from the Department of Education in Newfoundland and Labrador. The Nova Scotia Community College advised the researchers that it did not use FTEs as an enrolment measure and supplied raw enrolment data instead.

¹³ CAUBO: *Canadian Association of University Business Officers.*

5 Analysis and Findings

Analysis and findings are reported in the following subsections. Sections 5.1 through 5.4 present an overview of demographics, institutions and programs, and intentions respectively, from the survey. More details of responses to the survey in these areas can be found in Annex B. Section 5.4 categorizes student students' comments provided in free-field questions. Section 5.5 presents the analysis of expenditures by students derived from the survey. Section 5.6 presents the analysis of government and university spending for students, from secondary sources. Finally, Section 5.7 presents the analysis of the economic impact of international students in Atlantic Canada, and its constituent provinces, using an expenditure-based approach.

Unless otherwise stated, percentages and calculated values in this section are based upon weighted survey data; appendices provide both unweighted and weighted figures.

5.1 A Demographic Profile of International Students

This section provides an overview of the demographic characteristics of the survey respondents. More detailed results are provided as tables and figures in Annex B.

Post-secondary institutions attract international students to Atlantic Canada from 120 countries; only 1.4 percent of respondents chose not to answer the country of origin question. Nearly half (48.2%) come from Asia and the Pacific, which is consistent with findings from our literature review. The next largest group (19.5%) comes from Europe and North America. The top three source countries regionally (China, the United States of America and India) are represented in the top five for each province. Table 5 summarizes the top 5 countries for each province, together with the top five regionally; the ranking is based on the regional representation. Entries 6 to 11 in Table 5 are *not* ranked sixth through eleventh in Atlantic Canada: they are simply counties of origin that were in the top 5 in one of the provinces. Haitian students, for example, are only represented significantly in New Brunswick, at Université de Moncton.

Respondents are generally young (mean age 24.1) with slightly more males (53.3%) than females. Eighty-seven percent of the respondents are single and only 4.1 percent of respondents report having dependent children living with them in Canada. Of the married respondents, 73.8 percent report that their spouse also lives in Atlantic Canada.

The majority of respondents (56.9%) list a language other than English or French as their first language; 35.1 percent report English as their first language, and 8 percent report French as their first language. On average, respondents rated their capacity in English very high (4.4 out of 5 for written; 4.3 out of 5 for oral). Capabilities in French were much lower, with an average rating of 1.9 out of 5 for written French and 1.9 out of 5 for oral French. Most of respondents (90.7%) completed the survey in English, while 9.3 percent completed the survey in French.

When language results are analyzed by the respondent's first language the results change dramatically with respect to capability in French. As may be expected, those whose first language is French rate their capabilities in both written and oral French very high (4.88 and 4.93, respectively). Those whose first language is English tend to fare slightly better in French (1.8

Table 5: Respondents by top five countries of origin (%) 2009-2010

	Overall	NB	PE	NL	NS
China	25.7	18.6	22.2	23.9	29.6
United States of America	8.0	5.3	22.4	5.8	8.2
India	7.3	5.3	4.3	8.2	8.3
France	2.8 (tie)	8.3	2.8	2.1	0.7
The Bahamas	2.8 (tie)	0.8	4.5	0.6	4.2
Iran	2.8 (tie)	2.4	0.0	4.9	2.7
Nigeria	2.7	2.2	12.8	4.2	1.3
Saudi Arabia	2.4	2.6	1.4	1.4	2.7
Bangladesh	2.3	1.2	2.3	6.7	1.6
Malaysia	1.9	3.2	0.0	5.2	0.7
Haiti	0.8	3.4	0.0	0.0	0.0
Top 5 countries indicated by bold percentages					

written and 1.7 oral) than respondents whose first language was neither French nor English (1.55 written and 1.5 oral).

Approximately 10 percent of respondents rate themselves as bilingual (4 or higher) in both of Canada's official languages; specifically, 9.3 percent rate their capabilities as 4 or higher in both Oral French and English, while 12.0 percent rate their capabilities as 4 or higher in both written French and English.

Rented accommodations are the most popular with respondents, by a three to one ratio compared to university residence (72.9% vs. 27.1%). This is a positive finding for the rental market. Very few respondents own their own housing (2.1%), live with friends or family (2.4%), or list 'other' housing arrangements (1.2%). Respondents report that they intend to live in the Atlantic Provinces during the 09-10 academic year for a mean value of 9.76 months; the mode of the distribution is 12 months, indicating that significant numbers will reside in the region year-round.

Nearly one-third (30.6%) of respondents report that they are currently employed. Of those employed, twenty-five percent hold more than one job. Seventy-nine percent of employed respondents work on-campus and 56.6 percent report that their jobs are related to their area of study. Forty point five percent of respondents report they are unemployed (i.e. looking for work), while 29 percent report they are not in the workforce (i.e. neither employed nor looking for work).

Respondents were asked to select the three top sources of funding for their current academic year. The most common first choice was parents (56.5%), followed by scholarships, bursaries or awards (19.9%), and then by the student themselves (10.1%). Students were also asked to report any monetary awards they received during the 2009-2010 academic year. Five hundred and thirty-eight respondents (37.3%) report holding a scholarship, award or bursary. Of these 538,

the majority (67.3%) hold awards from their current institution. Nearly half (46.5%) hold awards from non-Canadian sources. The average total scholarship funding for the 538 recipients was \$12,594 per year.

5.2 Institutions and Programs

This Section provides an overview of institutions and programs. More detailed results are provided as tables and figures in Annex B.

Most respondents (84.1%) indicated that they chose Canada as the primary site of their post-secondary education; 55.9 percent indicated that their current institution was their first choice. This latter figure is higher than the 51 percent reported earlier by Lebrun and Rebelo (2006) for a much smaller sample for Atlantic Canada. In 2009, 69 percent of international students in Nova Scotia indicated that their current institution was their first choice (Siddiq *et al.*, 2009).

Respondents indicated a variety of factors affecting their choice of institution, with program availability being the most popular choice (55.9%), cost of education being the second (44.3%), and reputation of institution being the third (36.7%); multiple choices were allowed. Given the importance of cost, differential fees should play a role in an international student's selection of a post-secondary institution. Students were asked if their institution charges differential fees. Surprisingly, 11.2 percent did not know. Respondents who answered yes to the question 'Does your institution charge differential fees?' were asked two additional questions about differential fees. As might be anticipated, the majority of respondents (70.5%) express disagreement with the statement "the differential fees I pay at my institution are reasonable." The majority of respondents (67.2%) also disagree with the statement "it is fair to charge differential fees to international students;" however, it is notable that a higher percentage of respondents agree to this statement than the previous concerning the reasonableness of their own fees (20.6% vs 15.5%).¹⁴

The majority of respondents are registered full-time (94.5%) and a significant number (41.5%) register for classes in all three academic terms. The majority of respondents are enrolled in a bachelor's degree program. The most common fields of study for respondents are Commerce, Management and Business Administration (33%), Engineering and Applied Sciences (18%), and Mathematics, Computer and Physical Sciences (12%). The majority of respondents (73.8%) express satisfaction with their educational experience at their current institution.

Only 285 respondents (24.3%) used the services of an Educational Agent in selecting or applying to a Canadian Institution. Respondents who used the services of an agent were asked to rate their agent's knowledge of Atlantic Canada's educational institutions on a scale of 1 to 5, where 1 would be "not at all knowledgeable" and 5 would be "very knowledgeable". The mean rating was 3.4. These respondents were also asked to rate their satisfaction with the services provided by their agent. Only 53.2 percent express some level of satisfaction.

¹⁴ The independent data auditor opined that there was no context for the questions about differential fees, and that the questions should neither have been asked nor reported. The questions were based on direct client request following the unprompted emergence of differential fees as an issue in the closing open-ended question of the 2009 survey of international students in Nova Scotia. (Siddiq *et al.*)

Only 149 respondents (11.4%) consulted a Canadian Embassy, Consulate, High Commission or trade office in their search for a post-secondary institution. These respondents were also asked to rate their satisfaction with the services provided by the Consular office. Only 57.1% express some level of satisfaction.

5.3 Student Intentions

This Section provides an overview of student intentions. More detailed results are provided as tables and figures in Annex B.

Eight hundred and five respondents answered Question 77 about applying for permanent residence in Canada, with 67.8 percent (562, or 40% of all respondents) indicating that they had applied, or intended to apply. When asked about intentions upon completing their current program, 25.3 percent of respondents intended to find employment in Atlantic Canada, 20.6 percent were undecided, and 13.5 percent intended to find employment in Canada, outside of Atlantic Canada. Other options, ranging from returning to their home country to various educational options, attracted lesser responses.

In their 2006 study of Atlantic Canada, Lebrun and Rebelo found that 67 percent of respondents were interested in applying for permanent residency (p. 47), which is consistent with the present survey. Siddiq *et al* (2009, p. 36) reported a lower number (51.1%) for Nova Scotia. Intentions do not necessarily translate into action, according to data from Citizenship and Immigration Canada, who report that 15.6 percent of all foreign students transition to permanent residence and 39.5 percent of all foreign students transition to foreign worker status. (CIC, 2008) Citizenship and Immigration Canada provides no information on transition from foreign worker to permanent resident status; regardless, response rates of 60 percent or more to Question 77 appear optimistic. Use of a net response rate for Question 77 would appear more realistic: 562 of 805 respondents to question 77 said “yes” but those 562 represent only 40 percent of all 1382 respondents to the survey as a whole.

5.4 Student Comments

The survey offered an opportunity for students to make unprompted comments. Many (468 respondents) chose to do so, as summarized in Table 6, with 562 comments in 16 categories. Regrettably, discrimination based on race/ethnicity is one of the categories. Comments include:

High Fees:

- “The tuition fee is too high for our international students. We pay twice higher than native students.”
- “They shouldn't charge international differential fee. they already made a lot of money on international students.”
- “Tuition is unreasonably expensive”

Need Better Funding:

- “It is very difficult to apply for Canadian/provincial government international student scholarship since there are not too many options. To encourage more immigrants to live in Atlantic Canada, this is a critical and important factor.”
- “Lack of financial aid for international students is disappointing. We pay the most school fees, even sometimes double than any other students, and yet we are treated like we don't matter sometimes. I find this very disappointing.”
- “My PhD program only offers funding for three years when the program itself will take a minimum of four years to complete. As a non-Canadian I do not have access to many of the scholarships that the departments depend upon for funding. I feel that money should be available for the time expected to complete a degree.”
- “There are a lack of bursaries for international students. We pay twice as much as Nova Scotian students and don't have even half of the bursary/scholarship opportunities they do.”

Table 6: Classification of student comments (2009-2010)

	Frequency	Percent
High Fees	202	35.9%
Need Better Funding	65	11.6%
Lack of Employment Opportunities	46	8.2%
Positive Comment about Educational or Living Experience	38	6.8%
Lack of Services for International Students	37	6.6%
Comment about Program of Study or Institution	23	4.1%
General Positive Comment	22	3.9%
Cultural Issues, including Language	18	3.2%
High Cost of Living	18	3.2%
Has Faced Discrimination Based on Race/ethnicity in Atlantic Canada	11	2.0%
Comment about Healthcare	11	2.0%
Survey Issue	9	1.6%
Desire Permanent Residence	9	1.6%
Negative Comment about Educational or Living Experience	5	0.9%
Difficulty with Visa Process	4	0.7%
Other	44	7.8%
Total	562	100.0%

Lack of Employment Opportunities:

- “International students are not sure of getting jobs in on campus (part time) until 6 months. They cannot work outside according to the rules. This is the worst part where student is feeling high pressure in the new country. There is nothing wrong in working and allowing a student to work part time off campus from the first day.”¹⁵

¹⁵ This student is misinformed, which speaks to the importance of communicating working regulations as reported in Section 2.4.

- “Work terms/internships in Atlantic Canada are scarce and students often have to leave Atlantic Canada to find them.”

Positive Comment about Educational or Living Experience:

- “Great place to study, student oriented, not too many distractions but enough social/night life to not get bored.”
- “I enjoyed the education at [my institution], and I will recommend it to others from my home country.”
- “Canada is a great place to study. People are friendly and made a lot of friends”

Lack of Services for International Students:

- “I think there should be more support and assistance for international students in terms of their inclusion to the university community, for example.”
- “Absolutely no services dedicated to international students and a complete disregard to international students by most faculty members at [my institution]. Despite the fact we have to pay twice as much in tuition fees.”

Comment about Program of Study:

- I recommend that, instead of writing two comprehensive papers in the PhD program in Linguistics, one is preferable.
- Departments on campus do not cooperate with each other very well

General Positive Comment:

- It has been a wonderful experience.
- These places are good for living.

Cultural Issues:

- The experience of a "mature student" in the small student body of [my institution] is a bit awkward because reluctance to engage on the social level results in feelings of alienation. Though I had not initially noticed it upon arrival, I have subsequently found that Halifax is a very conservative, "white" city.
- There should be more opportunities for international students to meet Canadians...Most international students I know only have friends who are also studying in Canada from abroad, like themselves. These students never get to experience true Canada because they never get out of their small social circle.
- [I was given] the impression ...that I was heading to an open multi-cultural centre...on recruitment trips. It is not true and I have been trying to reconcile with being in this hostile environment where drinking is the centre of all social activities at university ever since. If universities are continuously going to recruit so heavily in international countries they need to tell the truth. In addition, they need to provide the services and allow spaces for International students to be comfortable socially.

High Cost of Living:

- Canada's significantly higher cost of living more than offsets the savings on tuition as compared to the United States.
- Home's rent is so expensive for such a this place, I just pay as my friend pays in Vancouver for a bigger house.
- The province is too expensive to live in; I was surprised by the price of rent, food and shopping (comparable to much bigger cities rather than Halifax)
- It is a difficult decision to choose this part of Canada because of the high cost to day-care (if you are lucky to find any), and lack of family doctors for our children. This is an area of great concern. Most of our friends have decided to go elsewhere for graduate and post-doc research, because of no day-care for their kids and no family doctors.

Discrimination Based on Race/ethnicity:

- Because I am not white, sometimes it is very uncomfortable even to walk around Halifax. I am always conscious of people staring, as if I am guilty of some crime. Especially in shops.
- I have experienced racism in Atlantic Canada more than Western Canada. I don't know they get any education about how the racism is bad.
- The treatment of international students is unfair, discriminatory, and most times rude. It discourages the return to Canada.
- Most of us are segregated and treated as outsiders. It is very stressful.

Healthcare:

- I think that the health insurance plan needs to be changed. you pay 650\$ in addition to differential fees for being international and then when you actually need to go the doctors the insurance does not cover anything. This seems fraudulent and not fair.
- It is a difficult decision to choose this part of Canada because of the high cost to day-care (if you are lucky to find any), and lack of family doctors for our children. This is an area of great concern. Most of our friends have decided to go elsewhere for graduate and post-doc research, because of no day-care for their kids and no family doctors.

Survey Issue:

- This survey does not list Bermuda as a country of residence. This is where I reside, not the UK, but I do have British citizenship.
- There is not my country 'Taiwan' to choose in this survey. Please add my country in.
- La prochaine fois que vous faites des sondages essayez d'écrire en français, le Chique n'est pas un langage formel. [Translation: The next time you conduct a survey try to write it in French, Chique {local French dialect in New Brunswick} is not a formal language].

Desire for Permanent Residence:

- For me, I think it will be a great opportunity if I get the permanent residence. I get a lot of experience and I am planning to bring my family, I need them to be behind me.

- The province should be more accommodating of advanced international students in the permanent residency process.
- The process of obtaining permanent citizenship should be simpler, and should not take as long or be as expensive as it currently is.

Negative Comment about Educational or Living Experience:

- Very, very disappointed in the level of education and the services I receive in return for what I pay (which is too much).
- [My institution] basically closes down when undergrads are not around, i.e. March break leaving nearly no services for Grad students including food, health centre. It is appalling! Also students need to learn more at high school as they know almost no math, humanities or science. It's like we teach them high school stuff at university.
- In hiring professors, university must be more careful to employ professors because some professors have very low quality to educate students

Difficulty with Visa Process:

- Pour venir étudier au Canada c'est vraiment difficile d'obtenir les papiers. mais une fois sur place, on nous sommes bien traités. [Translation: It's really difficult to get papers to come study in Canada, but once things are in place we are well treated].

Other:

- “Cigarettes should be sold on campuses again because a high majority of students are of age to smoke”
- “It is very good, however, like all other institutions, there is little space for international students in schools for medicine, and other professions.”
- “The tax rate in NL is higher than other provinces in Canada. Reduce the tax rate.”

5.5 Expenditure by International Students

Expenditures by international students were derived from the survey of international students. Annex C provides details of how this information was derived from the survey. Table 8 provides a summary of expenditure by international students for Atlantic Canada and the individual Provinces. Table 7 provides weighted data only. Annex C demonstrates that there are no significant differences between weighted and unweighted data at the 95 percent confidence level.

Annual spending of \$29,000 per year per student in Atlantic Canada (rounded from \$29,249¹⁶) is similar to estimates in other reports, although the derivation of those other estimates was generally not explained. In British Columbia, Adrian Kershaw Consulting reported \$31,000 (2005, p. 17) and IPSEA reported \$32,000 (2005, p. 32). Lebrun and Rebelo reported \$25,000 for

¹⁶ Note to the reader: If expenditures by students are extracted from this document without reference to margin of error, then it is recommended that expenditures be rounded to two or at most three significant digits; for example, \$29,249 becomes \$29,000 with two significant digits.

Table 7: Average annual expenditure by international students in Atlantic Canada (2009-2010)

	Mean	Margin of Error¹⁷	
Education Expenditure			
Atlantic Canada	\$13,417	\$512 (3.81%)	
NB	\$11,996	\$762 (6.4%)	
NL	\$7,938	\$721 (9.1%)	
NS	\$14,659	\$661 (4.5%)	
PEI	\$20,551	\$4,248 (20.7%)	
Housing Expenditure			
Atlantic Canada	\$6,065	\$196 (3.2%)	
NB	\$5,339	\$323 (6.1%)	
NL	\$5,449	\$359 (6.6%)	
NS	\$6,598	\$320 (4.8%)	
PEI	\$5,556	\$677 (12.2%)	
Meals & Groceries Expenditure			
Atlantic Canada	\$3,265	\$162 (5.0%)	
NB	\$3,063	\$322 (10.5%)	
NL	\$3,144	\$272 (8.7%)	
NS	\$3,455	\$259 (7.5%)	
PEI	\$2,647	\$473 (17.9%)	
Other Goods & Services Expenditure			
Atlantic Canada	\$6,503	\$458 (7.0%)	
NB	\$7,281	\$1120 (15.4%)	
NL	\$6,306	\$778 (12.3%)	
NS	\$6,245	\$656 (10.5%)	
PEI	\$6,376	\$1487 (23.3%)	
Average Annual Expenditure			
Atlantic Canada	\$29,249	\$856 (2.9%)	
NB	\$27,679	\$1,728 (5.9%)	
NL	\$22,837	\$1,345 (5.9%)	
NS	\$30,957	\$1,206 (3.9%)	
PEI	\$35,131	\$5,078 (14.5%)	
	I: Number of International Students	II: Average Expenditure	III: Total Direct Expenditure (IxII)
Atlantic Canada	8114	\$29,249	\$237,326,386
NB	1880	\$27,679	\$52,036,520
NL	1220	\$22,837	\$27,861,140
NS	4482	\$30,957	\$138,749,274
PEI	532	\$35,131	\$18,689,692

¹⁷ Margin of Error at 95% confidence, calculated as $\pm (z*SD)/\sqrt{n}$

Atlantic Canada (2006, p. 29) and Newfoundland and Labrador (2007, p. 17) reported a low-end value of \$18,000 to \$25,000 for that province. In the United States, NAFSA reported \$25,000 USD per international student (2008, p. 2). Siddiq et al reported average annual expenditure by international students in Nova Scotia at \$28,500 per year (2009, p. 38).

Question 48 of the survey asked “what proportion of what you will spend in Atlantic Canada during the 2009-2010 academic year comes from sources outside Atlantic Canada?” Respondents report that an average of 70 percent of the money they would spend in Atlantic Canada the 2009-2010 academic year came from sources outside of Atlantic Canada. On average, each international student injects \$21,623 of ‘new money’ to the Atlantic Canada economy. This means that of the \$237.3M spent by international students in 2009-2010, \$175.4M is an injection of new money from outside of our region. See Table 8 for a breakdown of injection of new money by province and Table 9 for details of the distribution of responses to Question 48.

*Table 8: Injection of ‘new money’ in Atlantic Canada by international students (2009-2010)
Direct expenditure*

	Number of International Students	Injection per Student	Margin of Error¹⁸	Total Direct Expenditure of New Money
Atlantic Canada	8114	\$21,623	\$941 (4.4%)	\$175,449,022
NB	1880	\$20,009	\$1599 (8.0%)	\$37,616,920
NL	1220	\$14,293	\$1485 (10.4%)	\$17,437,460
NS	4482	\$23,265	\$1441 (6.2%)	\$104,273,730
PEI	532	\$30,321	\$5039 (16.6%)	\$16,130,772

*Table 9: Injection of ‘new money’ in Atlantic Canada by international students (2009-2010)
Characteristics of the distribution*

Q48: Proportion of spending that comes from sources outside Atlantic Canada	n	Mean (%)	Margin of Error * (%)	Median (%)	Mode (%)	25th Percentile (%)	75th Percentile (%)
	1382	70.9	2.40	90.0	100.0	50.0	100.0
Responses from NB	344	71.5	4.78	90.0	100.0	50.0	100.0
Responses from NL	338	58.7	4.53	75.0	100.0	15.0	100.0
Responses from NS	610	72.7	3.69	90.0	100.0	50.0	100.0
Responses from PEI	90	81.3	9.42	90.0	100.0	80.0	100.0

*Margin of Error of Mean at 95% confidence

In Table 9, there are notable differences between Provinces, even accounting for the large margin of error for Prince Edward Island. Table 10 examines the possibility that these differences are related to country of origin, by ranking the ‘top five’ countries in Table 5 on two bases: what proportion of that country’s respondents answered 75 percent or more to Question 48, and what proportion of that country’s respondents answered 25 percent or less to Question 48. For

^{18 18} Margin of Error at 95% confidence, calculated as $\pm (z*SD)/\sqrt{n}$

example, 84.5 percent of respondents from Malaysia report that 75 percent or more of their spending comes from outside Atlantic Canada, and only 6.5 percent report that 25 percent or less comes from outside Atlantic Canada; by contrast, only 25.7 percent of respondents from Iran report that 75 percent or more of their spending comes from outside Atlantic Canada, while 48.2 percent report that 25 percent or less comes from outside Atlantic Canada.

*Table 10: Injection of 'new money' in Atlantic Canada by international students (2009-2010)
Responses for 'top 5' countries in the provinces and the region (from Table 6)*

Country	n	Answered 75% or more in Question 48	Answered 25% or less in Question 48
Malaysia	32	84.5%	6.5%
Saudi Arabia	30	79.9%	0.0%
France	34	79.8%	5.3%
The Bahamas	37	78.9%	5.7%
Nigeria	43	75.9%	5.5%
United States of America	127	72.2%	20.3%
Haiti	7	71.4%	28.6%
India	100	58.8%	19.4%
China	328	57.3%	25.0%
Bangladesh	39	47.6%	38.0%
Iran	46	25.7%	48.2%

n=823

5.6 Expenditure for International Students

Expenditures by government and post-secondary institutions on education represent a significant component of the economic impact of international students in Atlantic Canada. This section estimates expenditures for international students for the fiscal year ending March 31, 2009, the most recent complete fiscal year available at the time of the study. The estimates are based primarily upon the published accounts for the 17 universities and 8 colleges in Atlantic Canada, supplemented by Government information where necessary, particularly for health care.

5.6.1 Expenditure through Post-secondary Institutions

Total overall expenditure for students through post-secondary institutions was determined by adding *operating expenditure* (spending from government grants, excluding funding from tuition and student fees, and excluding direct payments to students through scholarships, stipends, bursaries, and assistantships), *non-operating expenditure* (spending from endowments, scholarly and applied research grants, less direct compensation to students) and *capital expenditure*. Expenditures in the form of direct payment to students were excluded from university spending to avoid double counting, because expenditures arising from payments to students were captured as student spending through the international student survey. It must be emphasized that the figures

used in this report to quantify expenditure for students through post-secondary institutions represent the benefit to Atlantic Canada’s economy, and that these figures do not necessarily correspond to the amounts found in government or university budgets. Annex D provides a detailed description of calculations of expenditure for students through post-secondary institutions, by institution.

To estimate the average expenditure per student, full time equivalents (FTEs) were used as a common measure of enrolment.¹⁹ This measure is not necessarily used for the purposes of allocation of funds to institutions (for example, Nova Scotia uses ‘weighted full course equivalents’), but it is a commonly understood measure throughout the educational community.

Table 11 summarizes the results of the calculations. Table 11 also includes the component of spending through post-secondary institutions that is based upon grants from Provincial Governments, assuming that these grants can be apportioned according the ratio

$$\text{FTE}_{\text{international students}}/\text{FTE}_{\text{all students}}$$

Only Nova Scotia provides an operating grant to post-secondary institutions for undergraduate international students; thus, it could be argued that only the capital portion of Provincial Government grants should be attributed to international students in NB, NL and PEI. This argument is not accepted here: the Governments of NB, NL and PEI do not *count* international student for the purposes of calculating and awarding grants, but after the grants are received by post-secondary institutions they are expended for the benefit of all students, regardless of their presence or absence in the funding formula.

Table 11: Expenditure for international students through post-secondary institutions (2008-2009)

	Student Type	Total Expenditure through Post-secondary Institutions	Provincial Government Component of Expenditure
Atlantic Canada	All students	\$1.79B	\$1.19B
	International students	\$138.8M	\$88.4M
NB	All students	\$528.8M	\$279.7M
	International students	\$61.8M	\$29.2M
NL	All students	\$431.0M	\$387.1M
	International students	\$18.7M	\$14.7M
NS	All students	\$717.4M	\$442.1M
	International students	\$51.9M	\$34.5M
PEI	All students	\$112.9M	\$85.0M
	International students	\$6.3M	\$5.0M

¹⁹ There was one exception: the Nova Scotia Community College does not maintain records of FTEs and instead provided enrolment data. Consequently, the ratio used for NSCC is based on full time enrolment for all students and of international students.

5.6.2 Expenditure on Healthcare for International Students

The only expenditures for students that were not made through institutions were expenditures made by governments through provincial healthcare services on behalf of those students who were eligible for provincially-funded health care; however, not all governments provide such support. Neither New Brunswick nor Prince Edward Island provides health care support to international students.

According to data provided by the Newfoundland and Labrador Department of Health and Community Services, Government expenditure for healthcare for international students through Medical Care Plan (MCP) in 2008/2009 was \$92,440. A total of 1192 international students and 107 of their dependents claimed MCP in 2008/2009 for a per-user average cost of \$71.16. This expenditure represented a per-capita cost of \$75.77 per eligible international student, or \$0.17 per Newfoundlander²⁰.

International students become eligible for Medical Services Insurance (MSI) in Nova Scotia after 13 continuous months residence in NS; services are only covered if provided within NS. According to data provided via the Department of Education, Government expenditure for healthcare for international students and their dependents through Medical Services Insurance in 2009 was \$116,430.73. A total of 1328 international students and 152 of their dependents claimed MSI in 2009 for a per-user average cost of \$78.67. This expenditure represented a per-capita cost of \$87.67 per eligible international student, or \$0.12 per Nova Scotian²¹.

5.7 Economic Impact of International Students

This section draws upon the expenditure analyses presented in Sections 5.5 and 5.6, together with spending multipliers described in Section 3.3, to present an expenditure-based analysis of the economic impact of international students in Atlantic Canada. As discussed earlier in the report, spending activity in the expenditure analysis is captured at the point of spending on final goods and services, avoiding intermediate expenditures, such as the payment of scholarships, bursaries or awards by post-secondary institutions to students.

5.7.1 Initial Impact

The initial or direct economic impact of international students on the economy in Atlantic Canada is summarized in Table 12. Expenditures by and for international students have been summed, generating an initial (direct) economic impact of \$376.3 million for 2009-2010. This can be compared to \$153 million in initial impact reported by Lebrun and Rebelo (2006, p. 29) for 6,119 international students in Atlantic Canada (p. 29), which can be pro-rated to \$203M for 8114 students in the current study. The present authors have deduced that Lebrun and Rebelo's 'contribution to the Atlantic economy' was based upon direct expenditures, by means of calculation. Thus, Lebrun and Rebelo's estimate corresponds to only line 'I' in Table 12, which is \$237.3M.

²⁰ Based on NL population estimate of 508,900; Stats Canada population estimate 2009.

²¹ Based on NS population estimate of 938,200; Stats Canada population estimate 2009.

Respondents to the survey were asked what proportion of the funds they spent in Atlantic Canada came from outside Atlantic Canada. On the basis of responses to this question, \$175M of expenditures by international students represents an initial injection of new money to the Atlantic Canada economy in 2009-2010. Corresponding figures for the Atlantic Provinces are: NB \$37.6M; NL \$17.4M; NS \$104M; and PEI \$16.1M.

Table 12: Initial (direct) economic impact of international students in Atlantic Canada (2009-2010)

		Spending
I: Expenditures by International Students	Atlantic Canada	\$237.3M
	NB	\$52.0M
	NL	\$27.9M
	NS	\$138.7M
	PEI	\$18.7M
II: Expenditures for International Students through Post-secondary Institutions (includes Government funds)	Atlantic Canada	\$138.8M
	NB	\$61.8M
	NL	\$18.7M
	NS	\$51.9M
	PEI	\$6.3M
III: Expenditures for International Students through Provincial Health Care	Atlantic Canada	\$0.21M
	NB	-
	NL	\$0.09M
	NS	\$0.12M
	PEI	-
Initial Spending (I + II + III)	Atlantic Canada	\$376.3M
	NB	\$113.8M
	NL	\$46.7M
	NS	\$190.8M
	PEI	\$25.0M

The results in Table 12 are based upon the summation of expenditures by students in 2009-2010 and expenditure for students in fiscal year 2008-2009, since 2008-2009 was the last fiscal year for which final expenditure data for educational institutions and government were available. Final expenditure data for 2009-2010 were not available to the authors within the delivery schedule of the contract. The different financial bases for expenditures *by* and expenditures *for* students could be reconciled more than one way.

It would be tempting to apply some inflationary measure, such as the consumer price index (CPI), to institutional and government spending in 2008-2009 to bring it up to 2009-2010 standards. To do so would be incorrect, since the purpose of the study is to examine *actual* expenditures in a given year, not inflation-adjusted expenditures. The primary focus of the present study is an expenditure analysis, whereas CPI is a *price-based* index. An increase in price does not

necessarily lead to an increase in nominal expenditure. Price and expenditure are two different concepts.

Using annual report summaries available from CAUBO, the authors examined the growth of nominal expenditures from 2003-2004 to 2008-2009 for four institutions (Dalhousie University, a large urban institution; Mount Allison University, a small rural institution; St. Francis Xavier University, a larger rural institution; and the University of Prince Edward Island, a small institution). This analysis resulted in an average annual growth rate for expenditures through universities of 1.2 percent.²² Institutional and government spending for 2009-2010 could be estimated by applying this average annual growth rate the 2008-2009 expenditures of \$138.8M. After the addition of health care expenditures and expenditures by students, the estimate of initial spending in Atlantic Canada for 2009-2010 would increase from \$376.8M to \$378.5M. This overall increase of less than one half percent overall is not considered to be of sufficient magnitude to warrant the application of this average annual growth rate. The calculations in Table 13 will be used as presented.

5.7.2 Final Impact

The final impact of international students upon the Atlantic Canada economy is summarized in Table 13, wherein the initial economic impact is multiplied by the spending multiplier. Three values of the multiplier are used: an upper (1.8) and lower bound value (1.3), taken from Section 3.3, together with an intermediate, most likely value, taken to be 1.5. The final economic impact of international students on Atlantic Canada is found to be \$565 million in 2009-2010, based upon the most likely spending multiplier.

Table 13: Economic impact of international students in Atlantic Canada (2009-2010)

				Lower Bound	Most Likely	Upper Bound
IV	Initial Impact of International Students	Atl. Can	\$376.3M			
		NB	\$113.8M			
		NL	\$46.7M			
		NS	\$191.7M			
		PEI	\$25.0M			
V	Spending Multiplier			1.3	1.5	1.8
VI	Final Impact of International Students (IV x V)	Atl. Can		\$489.2M	\$564.5M	\$677.3M
		NB		\$147.9M	\$170.7M	\$204.8M
		NL		\$60.7M	70.1M	\$84.1M
		NS		\$249.2M	\$286.6M	\$345.1M
		PEI		\$32.5M	\$37.5M	\$45.0M

²² This estimate of 1.2 percent is based upon actual nominal expenditures without any adjustment for inflation.

5.7.3 Parsing the Economic Impact of International Students

International students spent \$237 million in Atlantic Canada in 2009-2010, of which \$175 million was new money injected into the region's economy. This \$175 million is equivalent to export earnings, the final impact of which would be \$263 million after application of the most likely spending multiplier. This is considerably more (2.4 times) than the \$100 million estimated by Gardner Pinfold for export earnings generated by "the five to six thousand international students studying in Atlantic Canada" (2006, p. 25), and even 1.6 times the Gardner Pinfold estimate were it pro-rated for increased enrolment in 2010. It is possible that the Gardner Pinfold estimate was not based upon use of the spending multiplier, which would explain the difference.

Post-secondary education institutions spent \$139 million from various sources (including the Governments of the four Atlantic Provinces) for international students in 2008-2009. Neglecting the effect of any increases in expenditures from 2008-2009 to 2009-2010, international students spent \$1.26 for every dollar²³ spent through post-secondary institutions for the benefit of international students. Nearly \$0.90 of that \$1.26 was new money injected into Atlantic Canada's economy.

Provincial Governments' share of the spending through post-secondary education institutions for international students was \$88.4 million in 2008-2009. Additionally, the Governments of Newfoundland and Labrador and Nova Scotia spent \$209 thousand on health care for international students. Thus, again neglecting the effects of any year-over-year increase in spending, international students spent \$2.68 for every dollar spent by the Governments of the Atlantic Provinces. Over \$1.91 of that \$2.68 was new money brought to Atlantic Canada.

Table 14 provides a breakdown of the results of this section by province. There are notable, but explainable variations from province to province for student spending per dollar of institutional or government spending. To use an example, New Brunswick has the lowest student spending per institutional and government dollar, and Nova Scotia has the highest or second highest student spending per dollar of institutional and government spending. Our findings show that international students in Nova Scotia spend 12 percent more on average than international students in New Brunswick. On the other hand, per FTE spending by institutions in Nova Scotia is 73 percent of that in New Brunswick, and per FTE grants by government²⁴ is 87 percent of that in New Brunswick. Thus, international students spend more in Nova Scotia even though, or perhaps because, their host provincial government spends less on them.

²³ To calculate student spending per dollar of institutional spending, the ratio, (average student spending 2009-2010)/(institutional or government spending per FTE 2008-2009) has been used to correct for the effect of differing numbers of students. For example, whereas the population of international students in Nova Scotia for the 2009-2010 survey was 4418, the number of international student FTEs in Nova Scotia for the 2008-2009 accounts was 3816. Comparing gross student expenditure to gross institutional or government expenditure in this case would over estimate the 'dollar per dollar' index.

²⁴ For this purpose, grants are distributed across *all* students, including international students, once they are spent by the educational institutions,

Table 14: Parsing the economic impact of international students

International student spending, 2009-2010	Atlantic Canada	\$237.3 M
	NB	\$52.0M
	NL	\$27.9M
	NS	\$138.7M
	PEI	\$18.7M
Injection of new money by international students, 2009-2010	Atlantic Canada	\$175.4M
	NB	\$37.6M
	NL	\$17.4M
	NS	\$104.3M
	PEI	\$16.1M
Export earnings due to international students, 2009-2010	Atlantic Canada	\$263.1M
	NB	\$56.4M
	NL	\$26.1M
	NS	\$156.5M
	PEI	\$24.2M
International student spending for every dollar spent through educational institutions, 2009-2010	Atlantic Canada	\$1.26
	NB	\$0.61
	NL	\$0.93
	NS	\$2.01
	PEI	\$2.55
International student spending for every dollar spent by provincial governments, 2009-2010	Atlantic Canada	\$2.68
	NB	\$1.78
	NL	\$1.88
	NS	\$4.04
	PEI	\$3.71

6 Summary and Conclusions

Atlantic Canada faces a serious demographic challenge. The region's population is aging and the proportion of younger people is in decline. As a result, Atlantic Canada's dependency ratio will continue to rise with negative consequences, such as increased social costs. Over the next 15 years, Atlantic Canada's labour force is expected to decrease (Martel et al., 2007; Everenden, 2008). This is an ominous sign in the face of increasing social services costs.

Sustained economic growth will be required to offset the social costs of an aging population. Barring an unlikely change in the nature of Atlantic Canada's economy, growth in the labour force will be required to support economic growth. Alternatively, change in the nature of Atlantic Canada's economy to a greater proportion of knowledge-based activities will require increasing numbers of the very demographic group, the young, that is in decline. In both of these scenarios, immigration would be a key contributor to an effective labour force.

International students are an important source of potential immigrants. The survey of international students indicates that they think favourably of Atlantic Canada. Seventy percent of respondents to a question on permanent residence, or 40 percent of respondents overall, expressed interest in applying for permanent residence. Citizenship and Immigration Canada (2008) report that 39.5 percent of foreign students transitioned to foreign worker status and 15.6 percent transitioned to permanent resident status. There appear to be opportunities to improve the retention rate for those international students who choose to work in Canada after completing their education, to the benefit of Atlantic Canada's labour force.

Forty percent of international students come from the top three countries of origin: China (25.7%), the United States of America (8.0%) and India (7.3%). International students are typically young (mean age 24) and single (87%). International students are also healthy, based on data from Newfoundland and Labrador and Nova Scotia, with annual costs for healthcare of \$76 and \$88 respectively per eligible international student. This should be no surprise given the requirement for pre-visa medical examinations for international students, and it speaks to international students as potential immigrants who will not stress the healthcare system.

Cost of education is one of the top three factors identified by international students when selecting an institution. Program availability and institutional reputation were the other two. From 2006-2006 to 2009-2010, the price competitiveness of Atlantic Canada's universities has improved relative to Ontario and Quebec (StatsCan TLAC Survey). Since Lebrun and Rebelo's 2006 report, the number of international students in Atlantic Canada has increased significantly – by approximately a third. This growth, in conjunction with increased price competitiveness, suggests that students' concerns over cost be given considerable credibility.

The favoured fields of study for international students are Commerce, Management and Business Administration (33%), Engineering and Applied Sciences (18%), and Mathematics, Computer and Physical Sciences (12%), all of which are valued in a knowledge-based economy. Although fluency in English is more prevalent than fluency in French (92 percent of international students attend English speaking institutions), respondents rate their oral and written fluency in the official language of their educational institution highly. Thus, international students are language-prepared for participation in Canadian society.

International students also have an important, immediate economic impact on Atlantic Canada. For example, most international students live in rental accommodations, to the benefit of local rental markets. This study estimates that the overall economic impact of international students on Atlantic Canada's economy is \$565 million in 2009-2010, or almost 0.6 percent of GDP²⁵. International students injected \$175 million of new money to the Atlantic Canada economy in 2009-2010, and spent \$2.68 of new money in Atlantic Canada for every dollar spent by the Governments of the Atlantic Provinces. This ratio of injection of new money to expenditure by government varies from province to province. The ratio is highest in Nova Scotia, which ironically is the only province to count international students in its funding formula for post-secondary institutions.

The cultural contributions to Atlantic Canada by international students must also be acknowledged, as a means to strengthen local links to the world at large. International students represent a pool of potential immigrants, already acclimatized to Canada, who can help address Atlantic Canada's medium and longer-term demographic challenges.

Citizenship and Immigration Canada (2008) credits immigration with avoiding population shrinkage in Atlantic Canada. This observation belies the true situation in Atlantic Canada, where immigrants make up less than 4 percent of the population, compared to about 18 percent for Canada as a whole (Akbari, 2008). A stable population is hardly a measure of success when the population is becoming more aged, and more reliant upon a shrinking labour force to support growing social services costs. Atlantic Canada's Governments have made notable progress in improving their immigration and immigration retention records, but recent successes should be interpreted with caution. Should current immigration trends persist, Atlantic Canada's share of the total population will decline, coupled with an increase in the dependency ratio. This will lead to an increasing burden on the resources available for health, education and social welfare. More aggressive immigration strategies with appropriate incentives are required to slow this trend and provide much needed stability to the dependency ratio.

Policy makers would be wise to recognise the value of international students when plotting the future course of the Atlantic Provinces.

²⁵ Based on GDP for 2008 of \$97 billion: NB \$27.4B; NL \$31.3N; NS \$34.2B; PEI \$4.6B (Statistics Canada, 2009b).

Annex A Survey of International Students

A.1 OPINIO

The survey of international students was executed using an on-line application, OPINIO²⁶, available to Dalhousie University through an enterprise license.

A simplified logic structure for the survey is illustrated below in Figure A1. Individual respondents answered a minimum of 53 questions to a maximum of 74 survey questions. Survey questions follow in Section A2.

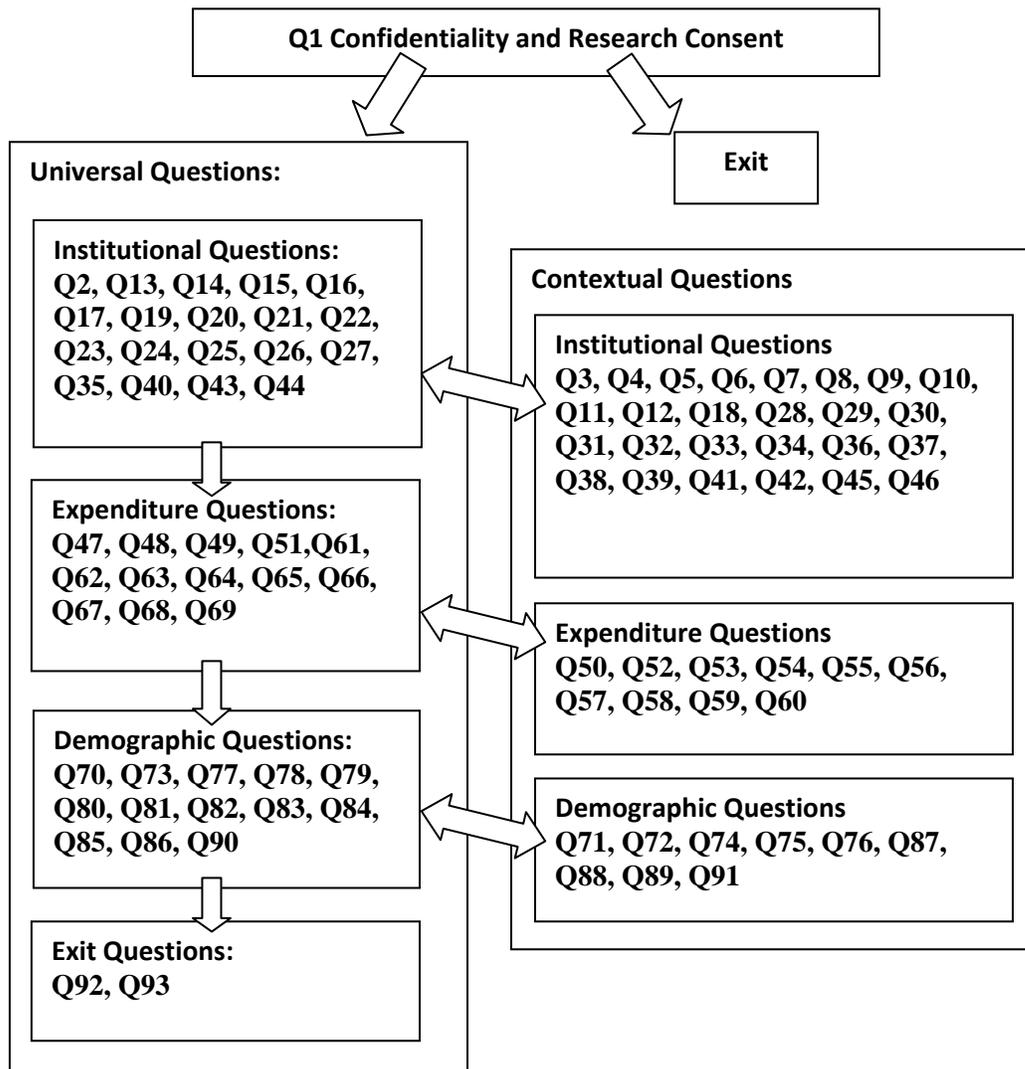


Figure A1: Simplified logic for survey

²⁶ For further details of OPINIO see <http://www.objectplanet.com/opinio/> accessed April 20, 2010

A.2 CAMET International Student Survey

The questions in the survey of international students follow. Skip patterns are excluded for simplicity.

Question 1: Consent for Research Participation

I hereby consent to participate as a subject in this International Student Survey for the Council of Atlantic Ministers of Education and Training. I understand that the purpose of this research is to inform government policy makers with respect to international students. I understand that my participation is voluntary and that I may withdraw at any time during the survey by exiting my internet browser, and that the researchers will not analyze incomplete surveys. Should I wish to participate in the prize draw, I understand that I must supply my student number. I understand that my student number will be used for no other purpose than the award of draw prizes, and that the researchers cannot identify me from my student number. Since the survey requires the collection of no information that identifies me, I understand that I cannot request that my completed survey be disregarded. I understand that the raw data from the survey will not be available to third parties. Access will be limited to the Dalhousie University researchers and OPINIO web survey technicians, to the Council of Atlantic Ministers of Education and Training, and to the Atlantic Provinces Departments of Education. I understand that all reports from this survey, whether published or internal, will be combined as an aggregate result.

- Yes, I accept and will continue with the survey
- No, I do not accept and will not complete the survey

Question 2: Which post-secondary institution are you currently attending? ²⁷

- Acadia University
- Atlantic School of Theology
- Cape Breton University
- Centre for Nursing Studies
- Collège Acadie Î.-P.-É.
- Collège Communautaire du Nouveau-Brunswick
- College of the North Atlantic
- Dalhousie University
- Holland College
- Marine Institute
- Maritime College of Forest Technology
- Memorial University of Newfoundland
- Mount Allison University
- Mount Saint Vincent University
- New Brunswick College of Craft and Design
- New Brunswick Community College
- Nova Scotia Agricultural College
- Nova Scotia Community College
- NSCAD University

²⁷ The Marine Institute is a campus of Memorial University of Newfoundland and the New Brunswick College of Craft and Design is a campus of the New Brunswick Community College, but each was identified separately here because of reported student perceptions of autonomy.

- Saint Mary's University
- St. Francis Xavier University
- St. Thomas University
- Université de Moncton
- Université Sainte-Anne
- University of Kings College
- University of New Brunswick
- University of New Brunswick- Saint John
- University of Prince Edward Island
-

Question 3: At which College of the North Atlantic campus are you enrolled?

- Baie Verte
- Bay St. George
- Bonavista
- Burin
- Carbonear
- Clareville
- Corner Brook
- Gander
- Grand Falls / Windsor
- Happy Valley - Goose Bay
- Labrador West
- Placentia
- Port aux Basques
- Prince Philip Drive
- Ridge Road
- Seal Cove
- St Anthony

Question 4: At which Université de Moncton campus are you enrolled?

- Edmundston
- Moncton
- Shippagan

Question 5: At which Université Sainte-Anne campus are you enrolled?

- Halifax
- Petit-de-Grat
- Pointe-de-l'Église
- Saint-Joseph-du-Moine
- Tusket

Question 6: At which Collège Communautaire du Nouveau-Brunswick campus are you enrolled?

- Bathurst
- Campbellton
- Dieppe
- Edmundston
- Péninsule acadienne

Question 7: At which New Brunswick Community College campus are you enrolled?

- Fredericton
- Miramichi
- Moncton
- Saint John
- St. Andrews
- Woodstock

Question 8: At which Nova Scotia Community College campus are you enrolled?

- Akerley
- Amherst
- Annapolis
- Aviation Institute
- Burrige
- Centre of Geographic Sciences
- Cumberland
- Digby
- Institute of Technology
- Kingstec
- Lunenburg
- Marconi
- Nautical Institute & School of Fisheries
- Pictou
- Shelburne
- Strait Area
- Truro
- Waterfront

Question 9: At which Collège Acadie Î.-P.-É. campus are you enrolled?

- Charlottetown
- DeBlois
- Wellington

Question 10: At which Holland College campus are you enrolled?

- Adult & Community Education
- Aerospace Centre
- Atlantic Police Academy
- Canada's Smartest Kitchen
- Canadian Golf Academy
- Charlottetown Centre
- Culinary Institute of Canada
- East Prince Centre
- Georgetown Centre
- Glendenning Hall
- Marine Training Centre
- Montague Centre
- Montgomery Hall
- Motive Power Centre
- Royalty Centre
- Souris Centre
- Tignish/Dalton Centre
- Tourism and Culinary Centre

Question 11: At which Memorial University campus are you enrolled?

- St John's (Main Campus)
- Sir Wilfred Grenfell College

Question 12: At which University of Prince Edward Island campus are you enrolled?

- Atlantic Veterinary College
- Charlottetown (Main Campus)

Question 13: What is your current registration status?

- Part-time (fewer than 3 courses this term)
- Full-time (3 or more courses this term, or writing thesis this term)

Question 14: Did you register for courses at \${Institution} in the Fall Term 2009 (September - December)?

- Yes
- No

Question 15: Do you intend to register for courses at \${Institution} in the Spring/Summer Term 2010 (May –August)?

- Yes
- No

Question 16: During the period of September 2009 to August 2010, how many months do you intend to live in the Atlantic provinces(NB, NS, PE or NL)?

_____months

Question 17: In what type of program are you currently enrolled?

- Certificate
- Diploma
- Bachelor's Degree
- Master's Degree
- PhD Degree
- Other (Specify) _____

Question 18: Does your Master's program include a thesis component?

- Yes
- No

Question 19: What is your field of study? (i.e. your Faculty or program)

- Educational, Recreational And Counseling Services
- Fine And Applied Arts
- Humanities And Related Fields
- Social Sciences And Related Fields
- Commerce, Management And Business Administration
- Agricultural, Biological, Nutritional, And Food Sciences
- Engineering And Applied Sciences
- Applied Science Technologies And Trades
- Health Professions And Related Technologies
- Mathematics, Computer And Physical Sciences
- Other (Specify) _____

Question 20: When did you begin your current program?

please select a month [dropdown list]

please select a year [dropdown list]

Question 21: In what year of your program are you currently enrolled?

- 1st year (includes Preparatory or Foundation Year)
- 2nd year
- 3rd year
- 4th year
- 5th year or more

Question 22: In what year do you expect to graduate from your current program?

- 2010
- 2011
- 2012
- 2013
- 2014 or later

Question 23: Overall, how satisfied are you with your educational experience at {Institution}?

- 1 (Very Unsatisfied)
- 2
- 3
- 4
- 5 (Very Satisfied)

Question 24: Overall, how satisfied are you with the number of services for international students provided by {Institution}?

- 1 (Very Unsatisfied)
- 2
- 3
- 4
- 5 (Very Satisfied)

Question 25: Overall, how satisfied are you with the quality of services for international students provided by {Institution}?

- 1 (Very Unsatisfied)
- 2
- 3
- 4
- 5 (Very Satisfied)

Question 26: What factors influenced your decision to study in Atlantic Canada? Select all that apply.

- Availability of program
- Cost of education
- Opportunities for work
- Reputation of institution
- Reputation of New Brunswick
- Reputation of Newfoundland and Labrador
- Reputation of Nova Scotia
- Reputation of Prince Edward Island
- Scholarship or funding
- Other (Specify) _____

Question 27: Was {Institution} your first choice?

- Yes, my current institution was my first choice
- No, another institution in Atlantic Canada (NB, NS, PE, NL) was my first choice
- No, another institution elsewhere in Canada was my first choice
- No, an institution in my home country was my first choice
- No, an institution outside of Canada and my home country was my first choice

Question 28: What made {Institution} your first choice?

Free text

Question 29: In the previous question [Question 27 in this list], you indicated that another institution in Atlantic Canada was your first choice for your studies. In which of the four provinces is this institution located?

- New Brunswick
- Prince Edward Island
- Newfoundland and Labrador
- Nova Scotia

Question 30: Which New Brunswick post-secondary institution was your first choice?

- Collège Communautaire du Nouveau-Brunswick
- Maritime College of Forest Technology
- Mount Allison University
- New Brunswick Community College
- St. Thomas University
- Université de Moncton
- University of New Brunswick
- University of New Brunswick- Saint John

Question 31: Which Newfoundland and Labrador post-secondary institution was your first choice?

- Centre for Nursing Studies
- College of the North Atlantic
- Marine Institute
- Memorial University of Newfoundland

Question 32: Which Nova Scotia post-secondary institution was your first choice?

- Acadia University
- Atlantic School of Theology
- Cape Breton University
- Dalhousie University
- Mount Saint Vincent University
- Nova Scotia Agricultural College
- Nova Scotia Community College
- NSCAD University
- Saint Mary's University
- St. Francis Xavier University
- Université Sainte-Anne
- University of King's College

Question 33: Which Prince Edward Island post-secondary institution was your first choice?

- Atlantic Veterinary College
- Collège Acadie Î.-P.-É.
- Holland College
- University of Prince Edward Island

Question 34: Where is your first choice institution located?

- USA
- Bermuda, Greenland or Saint Pierre et Miquelon
- Latin America (including Mexico, the Caribbean, Central and South America)
- United Kingdom
- Continental Europe
- Africa
- Asia (including Eastern, South Central, South Eastern, Western Asia and the 'Middle East')
- Oceania (including Australia, New Zealand, Micronesia and Polynesia)

Question 35: Did you use an agent when searching for a post-secondary institution in Atlantic Canada?

- Yes
- No

Question 36: How did you find your agent? Select all that apply.

- Advertisement
- Internet search
- Recommended by a friend or family member
- Referred by home institution
- Through a Canadian government office abroad
- Trade or educational fair
- Other (Specify) _____

Question 37: How knowledgeable was your agent about Atlantic Canada's post-secondary institutions?

- 1 (Not at all knowledgeable)
- 2
- 3
- 4
- 5 (Very Knowledgeable)

Question 38: Please rate your satisfaction with the service provided by your agent when searching for a post-secondary institution in Atlantic Canada.

- 1 (Very Unsatisfied)
- 2
- 3
- 4
- 5 (Very Satisfied)

Question 39: Please note any comments or concerns you have about your experience using an agent to find a post-secondary institution in Atlantic Canada.

Free text

Question 40: Did you consult any Canadian Embassy, Consulate, High Commission or trade office in your search for a post-secondary institution?

- Yes
- No

Question 41: Please rate your satisfaction with the service provided by the Canadian Embassy, Consulate, High Commission or trade office in your search for a post-secondary institution in Atlantic Canada.

- 1 (Very Unsatisfied)
- 2
- 3
- 4
- 5 (Very Satisfied)

Question 42: Please note any comments or concerns you have about your experience consulting a Canadian Embassy, Consulate, High Commission or trade office in your search for a post-secondary institution in Atlantic Canada.

Free text

Question 43: Does \${Institution} charge differential fees to international students?

- Yes
- No
- Don't Know

Question 44: How important of a factor were differential fees in your selection of \${Institution}?

- 1 (Not at all important)
- 2
- 3
- 4
- 5 (Extremely important)

Question 45: The differential fees I pay at \${Institution} are reasonable

- Completely Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Completely Agree

Question 46: It is fair to charge differential fees to international students.

- Completely Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Completely Agree

Question 47: Please rank the three most important financial sources used in financing your education in Atlantic Canada:

a. Please select the MOST important source

- Yourself (includes savings and employment earnings)
- Spouse or partner
- Parents
- Other family members
- Scholarships, bursaries and/ or awards
- Student line of credit/ credit cards
- Government loans
- Sponsorship by employer

b. Please select the SECOND MOST important source...

- Yourself (includes savings and employment earnings)
- Spouse or partner
- Parents
- Other family members
- Scholarships, bursaries and/ or awards
- Student line of credit/ credit cards
- Government loans
- Sponsorship by employer
- n/a

c. Please select the THIRD MOST important source...

- Yourself (includes savings and employment earnings)
- Spouse or partner
- Parents
- Other family members
- Scholarships, bursaries and/ or awards
- Student line of credit/ credit cards
- Government loans
- Sponsorship by employer
- n/a

Question 48: In total, what proportion of what you will spend in Atlantic Canada during the 2009-2010 academic year comes from sources OUTSIDE of Atlantic Canada?

_____ percent (%)

Question 49: Are you currently the recipient of any scholarship, bursary or monetary award?

- Yes
- No

Question 50: How much, if anything, are you receiving in scholarships, bursaries or monetary awards from the following sources during the current 2009/2010 Academic Year? Please enter the total annual amount for the current academic year, and remember to answer in Canadian Dollars. Enter 0 if you did not receive funding from a source.

- _____ Government of Canada Awards Program
- _____ Canadian Commonwealth Scholarship Program
- _____ Canadian International Development Agency (CIDA)
- _____ Your current educational institution in Atlantic Canada
- _____ Other Atlantic Canada-based sources
- _____ Other Canadian-based sources
- _____ Home country or international sources
- _____ Other Sources not previously listed

Question 51: Do you live in a University/ College Residence?

- Yes
- No

Question 52: Which statement best describes your current accommodations?

- I live in accommodations that I rent
- I live in accommodations that I own
- I live with relatives/ friends and pay board to them
- I live with relatives/ friends and do NOT pay board to them
- Other

Question 53: How much do you spend monthly on rent/ mortgage payments?

_____ Canadian dollars

Question 54: Please select any utilities or services that are included in your monthly rent/ mortgage payment, noted above.

- Heat
- Electricity
- Cable TV
- Telephone
- Internet
- Parking
- Other (Specify) _____

Question 55: On average, how much do you spend each MONTH on heat and electricity if they are NOT included in your rent/mortgage?

_____ Canadian dollars

Question 56: How much do you spend, on average, each MONTH on communication services, including cable TV, telephone, cell phone, and internet?

_____ Canadian dollars

Question 57: How much will you spend on university/college residence fees for the current 2009-2010 academic year?

_____ Canadian dollars

This payment covers what time period?

- For one term (ex: September 2009- December 2009)
- For two terms (ex: September 2009 - April 2010)
- For three terms / entire year (ex: September 2009 – August 2010)

Question 58: Does this residence fee, noted above, include a meal plan, if any?

- Yes
- No

Question 59: How much will you spend on a university/college meal plan for the current 2009-2010 academic year?

_____ Canadian dollars

This payment covers what time period?

- For one term (ex: September 2009- December 2009)
- For two terms (ex: September 2009 - April 2010)
- For three terms / entire year (ex: September 2009 – August 2010)

Question 60: How much do you spend, on average, each MONTH on communication services, including cable TV, telephone, cell phone, and internet?

_____ Canadian dollars

Question 61: How much will you spend on tuition and fees for the current 2009-2010 academic year? Please include differential fees in this amount.

_____ Canadian dollars

This payment covers what time period?

- For one term (ex: September 2009- December 2009)
- For two terms (ex: September 2009 - April 2010)
- For three terms / entire year (ex: September 2009 – August 2010)

Question 62: How much will you spend on books and supplies for the current 2009-2010 academic year?

_____ Canadian dollars

This payment covers what time period?

- For one term (ex: September 2009- December 2009)
- For two terms (ex: September 2009 - April 2010)
- For three terms / entire year (ex: September 2009 – August 2010)

Question 63: How much do you spend, on average, each MONTH on the following types of transportation? Please DO NOT INCLUDE U-PASS fees if they are already included in your tuition fees.

_____ Car payments and related costs (includes gas, insurance, maintenance, and parking)

_____ Local public transportation

_____ Regional public transportation (e.g. Greyhound, VIA rail)

_____ Taxi

_____ Other (e.g. car rental, bicycle costs, etc)

Question 64: How much do you spend, on average, each MONTH on groceries, including food, personal hygiene items, and household supplies such as toilet paper or cleaning products? DO NOT INCLUDE UNIVERSITY MEAL PLAN FEES.

_____ Canadian dollars

Question 65: How much do you spend, on average, each MONTH on entertainment and recreation? Examples of entertainment include attending movies, live events or music purchases. Examples of recreation include engaging in sports, hobbies, or social outings.

_____ Canadian dollars

Question 66: If you have dependent children living with you in Atlantic Canada, how much do you spend, on average, each MONTH on child care?

_____ Canadian dollars

Question 67: How much do you anticipate spending in total this Academic YEAR (2009 - 2010) on clothing and related goods and services while living in Atlantic Canada? Examples include clothing, shoes, hairstyling and other personal services.

_____ Canadian dollars

Question 68: How much do you anticipate spending in total this Academic YEAR (2009 - 2010) on prescriptions, medical and dental care, and all types of insurance, while living in Atlantic Canada?

_____ Canadian dollars

Question 69: How much do you anticipate spending in total this Academic YEAR (2009 - 2010) on other expenditures NOT included elsewhere, while living in Atlantic Canada?

_____ Canadian dollars

Question 70: What best describes your employment status?

- Employed, and NOT looking for more or different work
- Employed, but looking for more or different work
- Unemployed (i.e. looking for work)
- Not employed and NOT looking for work

Question 71: How many jobs do you currently have?

Question 72: Please select the option that best describes your work environment (if you hold more than one job, select all that apply).

- On-campus, related to your area of study
- On-campus, NOT related to your area of study
- Off-campus, related to your area of study
- Off-campus, NOT related to your area of study

Question 73: Which of the following best describes what you plan to do upon completion of your current program:

- Enroll in another program at current institution
- Enroll in another program at a different institution in Atlantic Canada
- Enroll in another program at a different institution in Canada, but outside of Atlantic Canada
- Enroll in another program at an institution in your home country
- Enroll in another program at an institution outside of Canada and your home country
- Find employment in Atlantic Canada
- Find employment in Canada, outside of Atlantic Canada
- Find employment in your home country
- Find employment in another country outside of Canada and your home country
- Undecided

Question 74: In which Atlantic Province are you most likely to seek employment?

- New Brunswick
- Prince Edward Island
- Newfoundland and Labrador
- Nova Scotia

Question 75: In which sector will you primarily seek employment?

- Accommodation and Food Services
- Administrative and Support, Waste Management and Remediation Services
- Agriculture, Forestry, Fishing and Hunting
- Arts, Entertainment and Recreation
- Construction
- Educational Services
- Finance and Insurance
- Health Care and Social Assistance
- Information and Cultural Industries
- Management of Companies and Enterprises
- Manufacturing
- Mining, Quarrying, and Oil and Gas Extraction
- Other Services (except Public Administration)
- Professional, Scientific and Technical Services
- Public Administration
- Real Estate and Rental and Leasing
- Retail Trade
- Transportation and Warehousing
- Utilities
- Wholesale Trade
- Other
- Not sure

Question 76: In which Atlantic Province are you most likely to study in the future?

- New Brunswick
- Prince Edward Island
- Newfoundland and Labrador
- Nova Scotia

Question 77: Have you applied or do you plan to apply for Permanent Residence in Canada?

- Yes
- No
- Not sure

Question 78: What is your country of origin (i.e. the country in which you normally reside and hold citizenship)?

[drop-down list of UN states and entities]

Question 79: Please indicate your age in years:

_____ years old

Question 80: Please indicate your gender:

- Female
- Male

Question 81: What is the first language you learned in childhood and still understand?

- English
- French
- Other

Question 82: Please rate your capability in WRITTEN English, on a scale of 1 to 5, where 1 means you do not understand at all, while 5 means you easily and accurately understand.

- 1 (None)
- 2
- 3
- 4
- 5 (Fluent)

Question 83: Please indicate your capability in ORAL English, on a scale of 1 to 5, where 1 means you do not understand at all, while 5 means you easily and accurately understand.

- 1 (None)
- 2
- 3
- 4
- 5 (Fluent)

Question 84: Please indicate your capability in WRITTEN French on a scale of 1 to 5, where 1 means you do not understand at all, while 5 means you easily and accurately understand.

- 1 (None)
- 2
- 3
- 4
- 5 (Fluent)

Question 85: Please indicate your capability in ORAL French, on a scale of 1 to 5, where 1 means you do not understand at all, while 5 means you easily and accurately understand.

- 1 (None)
- 2
- 3
- 4
- 5 (Fluent)

Question 86: What is your marital status?

- Single (includes never married, widowed or divorced)
- Married/ Common Law

Question 87: Does your spouse / partner live in Atlantic Canada?

- Yes
- No

Question 88: Is your spouse /partner a Canadian Citizen or Permanent Resident in Canada?

- Yes
- No

Question 89: What is your spouse/ partner's primary occupation? Select all that apply.

- Student
- Employed part-time
- Employed full-time
- Not a student and unemployed

Question 90: Do you have any children?

- Yes
- No

Question 91: How many dependent children are living with you in Atlantic Canada?

_____ dependent children

Question 92: If you have any other comments or concerns about post-secondary education in the Atlantic provinces, please note them below:

Free text

Question 93: The researchers will use comments, like those of the previous question, to create categories and then provide statistical analysis of those categories in the final report. In the event that the researchers should like to provide examples of 'typical' responses in the report, do you give permission to use your written statements within this survey as examples of ANONYMOUS comments?

- Yes, I give permission to quote from my comments
- No, I do not give permission to quote from my comments

Annex B Responses to Non-Expenditure Questions

Expenditure analysis is the focus of this study, but the survey also asked questions unrelated to expenditure since these questions would help to provide a richer data set for policy makers. This annex provides a region-wide summary of non-expenditure data. It is organized by theme, largely to correspond with the order of presentation in Sections 5.1 through 5.3 of the main body of the report.

B.1 Demographics

B.1.1 Country of Origin

The respondent's country of origin has been coded by UNESCO region. According to UNESCO, "region[s] presented here follow the specific UNESCO definition which does not forcibly reflect geography. It refers to the execution of regional activities of the Organization"²⁸. A country can belong to more than one UNESCO region, but for the purposes of this analysis we need to categorize each country uniquely into one region or another.

Algeria, Morocco, Tunisia and Libya are part of both of the Arab States Region and the African Region. These four countries are members of the League of Arab States, a well recognized organization, so they were identified here as members of the UNESCO Arab States Region rather than the African Region.

Russia, Kazakhstan and Turkey are part of both of the Asia and Pacific Region and the Europe and North America Region. Russia was categorized as part of the Europe and North America Region because its culture and history is more closely aligned with Europe; Turkey was also categorized as Europe and North America because of its status as a European Union candidate country. Kazakhstan was categorized as part of the Asia and Pacific region because its indigenous population, the Kazakh, is more closely aligned with Asia than Europe.

Table B.1: Respondents by UNESCO region (weighted)

Asia and the Pacific	48.2%
Europe and North America	19.5%
Africa	13.2%
Latin America and the Caribbean	11.5%
Arab States	7.5%

²⁸ UNESCO, *UNESCO's activities in communication and information in Arab States*, accessed April 30, 2010. Available from: http://portal.unesco.org/ci/en/ev.php_URL_ID=1298&URL_DO=DO_TOPIC&URL_SECTION=201.html

B.1.2 Age, Gender and Marital Status

Overall, the mean age of respondents is 24.1 years, the median age is 23 years, and the mode is 22 years. Forty-six point seven percent of respondents are female, and 53.3 percent are male. Eighty-seven percent of respondents report they are single, and only 4.1 percent of all respondents have dependent children living with them in Atlantic Canada.

Table B.2: Age by gender

	All	Female	Male
Mean age	24.1	23.6	24.5
Median age	23.0	22.0	24.0
Mode age	22.0	20.0	22.0

Table B.3: Marital status by gender

	Female		Male	
	%	n	%	n
Single	88.6	542	85.8	628
Married/ Common Law	11.4	84	14.2	122

Of the married respondents, 73.8 percent report their spouse also lives in Atlantic Canada, but only 20.7 percent of spouses are Canadian Citizens or Permanent Residents. Thirty-eight point seven percent of respondents report their spouse is also a student; 28.3 percent report their spouse is employed full-time; 22.7 percent report their spouse is neither a student nor employed; and 15.3 percent report their spouse is employed part-time.²⁹ Of the respondents with dependent children living with them, 61.9 percent have only 1 dependent child; 21.1percent have 2 dependent children, and the remaining 17 percent have 3 or more dependent children.

²⁹ These numbers add up to more than 100% because respondents could choose more than one option.

Table B.4: Characteristics of spouse

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Student	60	38.5	38.7
Employed Full-time	41	26.3	28.3
Employed Part-time	22	14.1	15.3
Not a Student and unemployed	40	25.6	22.7

n=156

Table B.5: Number of dependent children by gender of respondent

Children	Female		Male	
	%	n	%	n
1	65.7	17	59.6	21
2	23.3	7	19.4	8
3	11.0	2	10.6	4
4	--	--	6.8	3
6	--	--	3.6	1

n=64

B.1.3 Language

The majority of respondents (56.9%) list a language other than English or French as their first language; 35.1 percent report English as their first language, and 8.0 percent report French as their first language. Ninety point seven percent of respondents completed the survey in English, while 9.3 percent completed the survey in French.

Respondents were asked to rate their capabilities both in French and in English on a scale of 1 to 5, where 1 means no capability at all and 5 means fluent. On average, respondents rated their capacity in written English very high (4.38 out of 5), as they did their capability in Oral English (4.3 out of 5); Capabilities in French were much lower, with an average rating of 1.91 out of 5 in written French and 1.82 out of 5 in oral French.

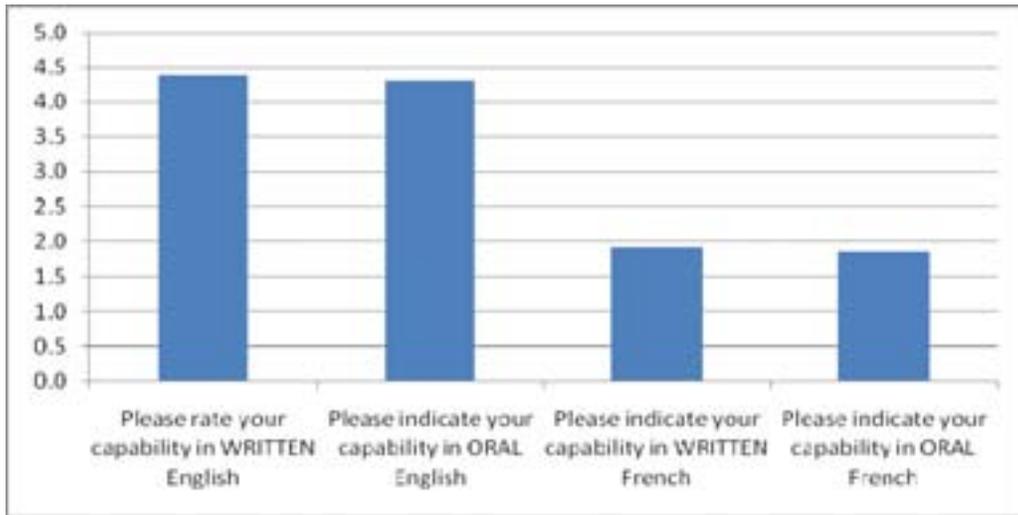


Figure B.1: Language capabilities, average of all respondents

When language results are analyzed by the respondent's first language the picture changes dramatically, as seen in Figure B.2. As may be expected, those whose first language is French rate their capabilities in both written and oral French very high (4.88 and 4.93, respectively). Those whose first language is English tend to fare slightly better in French (1.8 written and 1.7 oral) than respondents whose first language was neither French nor English (1.55 written and 1.5 Oral). Language capabilities also vary by the primary language of the institution. See figure B.3.

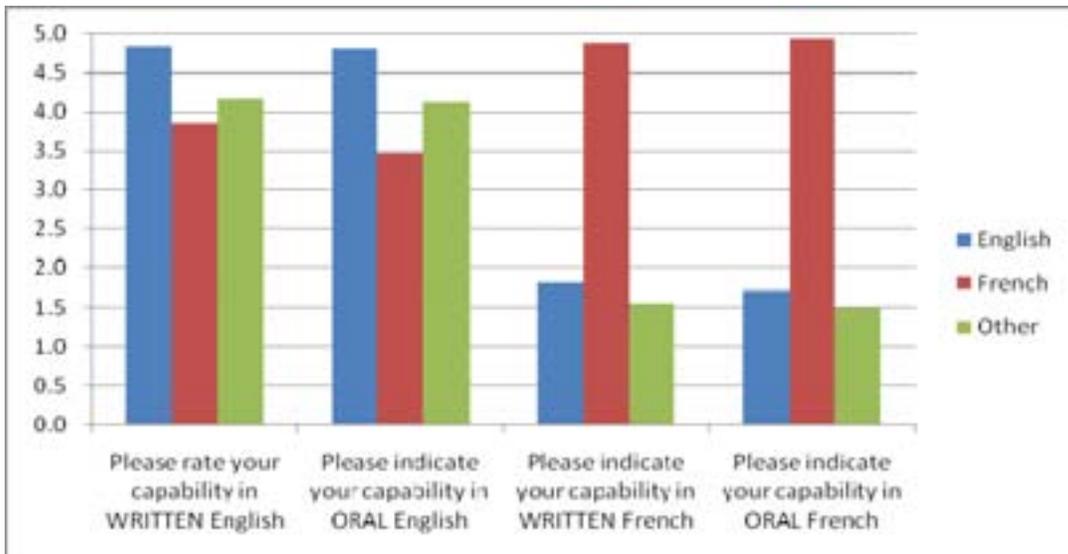


Figure B.2: Language capabilities by first language of respondent

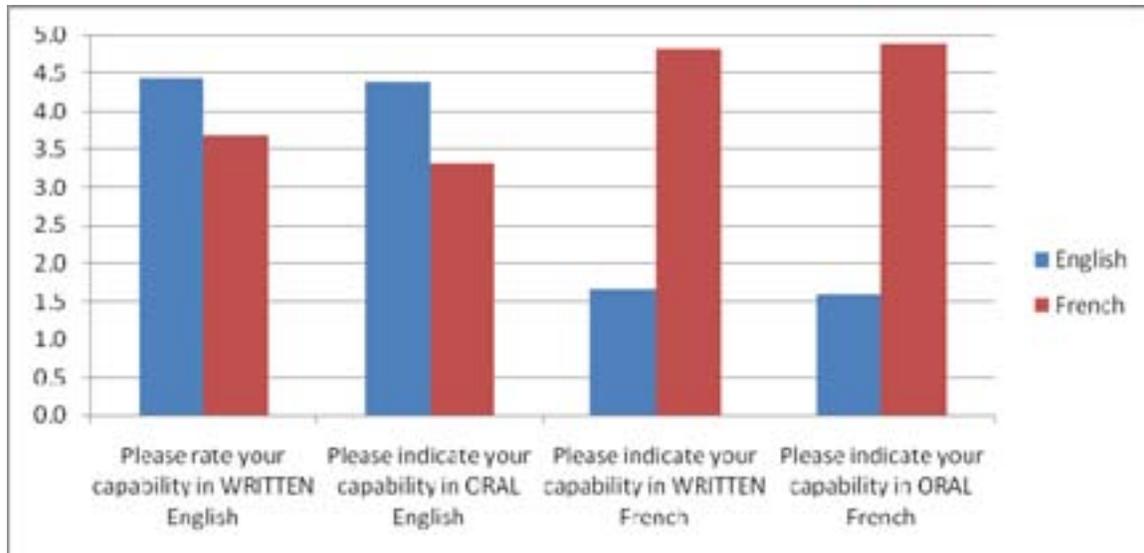


Figure B.3: Language capabilities by primary language of institution

B.1.4 Employment Status while Studying

About a third (30.6%) of respondents report they are currently employed. Of these, three-quarters (74.1%) hold a single job, while 22.9 percent hold 2 jobs; the remaining 3 percent hold 3 or more jobs. Forty-point-five percent of respondents report they are unemployed (i.e. looking for work), while 29.0 percent report they are not in the workforce (i.e. neither employed nor looking for work). Seventy-nine point one percent of employed respondents work on-campus and 56.6 percent report their jobs are related to their area of study.

Table B.6: Employment status

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Employed	196	14.2	13.5
Under-employed	227	16.4	17.1
Unemployed	547	39.6	40.5
Not in the workforce	412	29.8	29.0

n=1382

Table B.7: Type and location of employment

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Employed on-campus, related to area of study	195	46.1	42.6
Employed on-campus, NOT related to area of study	154	36.4	36.5
Employed off-campus, related to area of study	60	14.2	14
Employed off-campus, NOT related to area of study	71	16.8	20.3

n=423

B.1.5 Sources of Funding

Respondents were asked to select the three top sources of funding for their current academic year. The most common first choice was parents; followed by scholarships, bursaries or awards, and then by the student themselves.

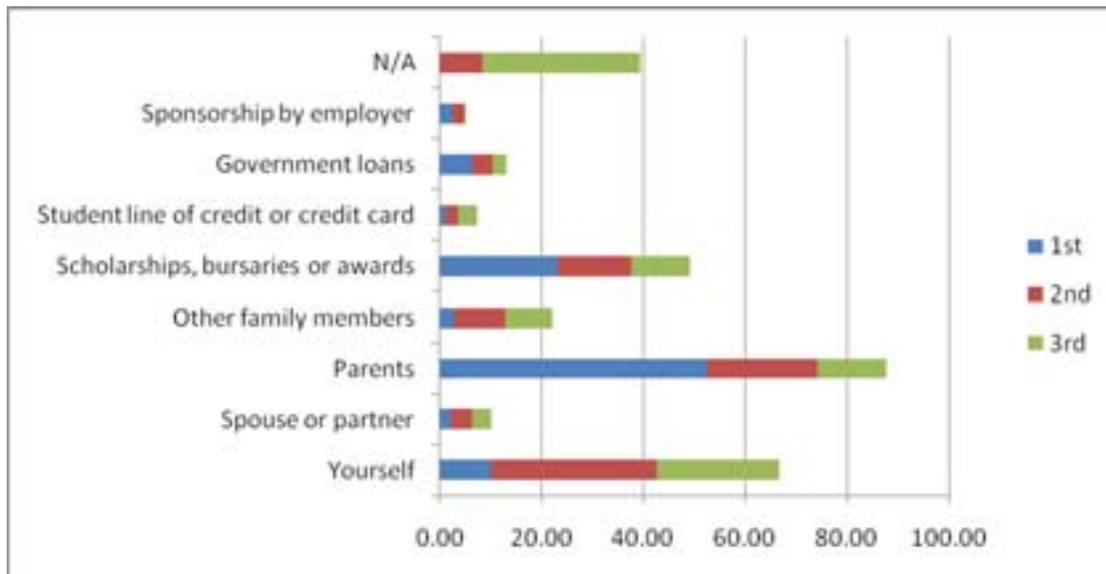


Figure B.4: Top three funding sources

Students were asked to report any monetary awards they received during the 2009-2010 academic year. Five hundred and thirty-eight respondents (37.3%) report holding a scholarship, award or bursary. Of these 538, the majority, 67.3 percent, hold awards from their current institution. A third (33.4%) hold awards from non-Canadian sources.

Table B.8: Are you currently the recipient of any scholarship, bursary or monetary award?

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Yes	538	38.9	37.3
No	844	61.1	62.7

Table B.9: Do you receive scholarships from the following sources

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Current educational institution	367	68.2	67.3
Home country or international sources	171	31.8	33.4
Other sources not previously listed	70	13.0	13.1
Other Atlantic Canada based sources	27	5.0	4.9
Other Canadian based sources	26	4.8	4.1
Government of Canada Awards Program	15	2.8	2.7
Canadian Commonwealth Scholarship Program	8	1.5	1.3
Canadian International Development Agency	5	0.9	0.9

n=538

Table B.10: Average funding to scholarship recipients

Average scholarship funding from Atlantic Canada sources	\$5,896.78
Average Scholarship funding from Canadian sources outside of Atlantic Canada	\$1,018.59
Average Scholarship funding from non-Canadian sources	\$5,678.48
Total average scholarship funding	\$12,593.85

n=538; using weighted data

B.2 Institutions and Programs

B.2.1 Choice of Venue

Eighty-four percent of respondents chose Canada as the venue for their post-secondary education; 56 percent indicated that their current institution was their first choice. The United States of America was the preferred venue for the 10.4 percent of respondents whose first choice international institution was outside Canada.

Table B.11: Was your current institution your first choice?

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Yes, my current institution was my first choice	791	57.2	55.9
No, another institution in Atlantic Canada (NB, NS, PE, NL) was my first choice	51	3.7	4.2
No, another institution elsewhere in Canada was my first choice	320	23.2	24.0
No, an institution in my home country was my first choice	83	6.0	5.5
No, an institution outside of Canada and my home country was my first choice	137	9.9	10.4

n=1382

Table B.12: First choice institution in Atlantic Canada, other than current institution

	Frequency (unweighted)	Percent* (unweighted)	Percent* (weighted)
New Brunswick	9	17.6	14.6
Mount Allison University	2		
Universite de Moncton	2		
University of New Brunswick-Fredericton	3		
University of New Brunswick-Saint John	2		
Prince Edward Island	3	5.9	3.3
Holland College	1		
University of Prince Edward Island	2		
Newfoundland and Labrador	6	11.8	6.4
Marine Institute	1		
Memorial University	5		
Nova Scotia	33	64.7	75.7
Acadia University	5		
Cape Breton University	1		
Dalhousie University	16		
Mount Saint Vincent University	1		
Nova Scotia Agricultural College	1		
Saint Mary's University	8		
University of King's College	1		

n=51

*Percentages not calculated at the institution level

Table B.13: First choice institution, outside of Canada

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
USA	74	54.0	53.4
Latin America	2	1.5	1.1
United Kingdom	20	14.6	16.7
Continental Europe	14	10.2	8.9
Africa	2	1.5	1.8
Asia	8	5.8	6.0
Oceania	17	21.4	12.2

n=137

B.2.2 Factors Affecting Choice of Institution

Those who said “Yes, my current institution was my first choice” were asked to comment on why their current institution was their first choice. The most common reasons cited were affordability, funding, the reputation of the institution, the home institution’s relationship with the institution, and availability of the program. Comments include:

- “Cheaper international student tuition when compared with most other institutions in Canada and the United States.”
- “They gave me the most money for scholarship.”
- “Because it's a well known university around my continent and also one of the best undergraduate universities in Canada.”
- “Car c'est un partenariat avec mon école d'origine en France.” [Translation: because of the partnership with my home institution in France]
- “They have the program that I want and also their program is accredited and recognized by many employers.”

Table B.14: Factors affecting choice of current institution

Factor	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Availability of program	769	55.6	55.9
Cost of education	646	46.7	44.3
Reputation of institution	513	37.1	36.7
Scholarship or funding	360	26.0	22.2
Reputation of Atlantic Provinces	299	21.6	22.0
Opportunities for work	264	19.1	19.5
Other	168	12.2	12.5

n=138

Given the importance of cost, differential fees should play a role in an international student's selection of a post-secondary institution. Students were asked if their institution charges differential fees. Surprisingly, 11.2 percent (155 respondents) did not know. Of these 155 respondents, 12.8 percent spend nothing (\$0) on tuition each term and 11.8 percent spend less than \$1,000 per term on tuition and fees; 38.6 percent spend between \$1,000 and \$5,000 per term on tuition and fees, while 30.0 percent spend between \$5,001 to 10,000 per term on tuition and fees. Knowledge of differential fees appears to be associated more with the respondent's institution rather than how much is spent on tuition per term. This may speak to how each institution publicizes the differential fee or itemizes their fee structure. See Figure B.5 and Table B.15.

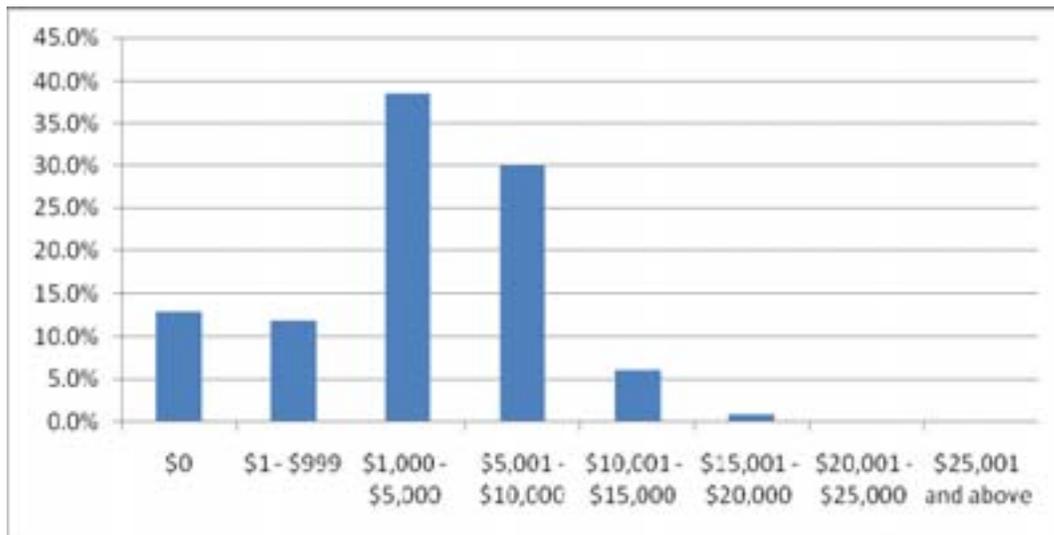


Figure B.5: Tuition Fees per term of respondents who did not know if their institution charges differential fees

Survey respondents were asked to rate the importance of differential fees in their selection of their current institution on a scale of 1 to 5, where 1 means 'not at all important', and 5 means 'extremely important'. Respondents who answered yes to the question 'Does your institution charge differential fees?' were asked to two additional questions about differential fees. As may be anticipated, the majority of respondents (70.5%) express disagreement with the statement "the differential fees I pay at my institution are reasonable." The majority of respondents (67.2%) also disagree with the statement "it is fair to charge differential fees to international students;" however, also notable is that a higher percentage of respondents agree to this statement than the previous concerning the reasonableness of their own fees (20.6% vs. 15.5%). See figures B.6 and B.7.

Table B.15: Institutional distribution of those who did not know if their institution charges differential fees (unweighted)

Institution	Frequency	Don't Know (percent of respondents at institution)
Marine Institute	2	63.6%
Université Sainte-Anne	7	53.1%
College Communautaire du Nouveau-Brunswick	4	34.1%
NSCAD University	3	30.3%
Nova Scotia Agricultural College	5	21.5%
College of the North Atlantic	4	20.5%
Holland College	2	19.6%
Mount Saint Vincent University	6	19.4%
Memorial University of Newfoundland	43	13.6%
University of Prince Edward Island	9	13.6%
Université de Moncton	8	13.3%
Acadia University	10	12.8%
Cape Breton University	6	11.9%
St. Francis Xavier University	3	11.7%
Dalhousie University	22	9.2%
University of New Brunswick - Saint John	3	6.9%
Mount Allison University	3	6.4%
University of New Brunswick- Fredericton	8	5.2%
St. Thomas University	1	5.1%
Saint Mary's University	5	4.8%
Nova Scotia Community College	1	3.3%
Atlantic School of Theology	0	0.0%
New Brunswick Community College	0	0.0%
University of Kings College	0	0.0%

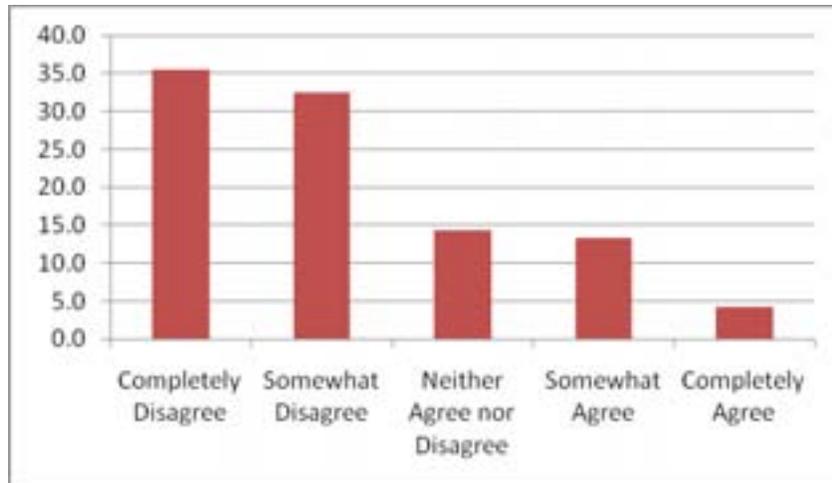


Figure B.6: The differential fees at my institution are reasonable

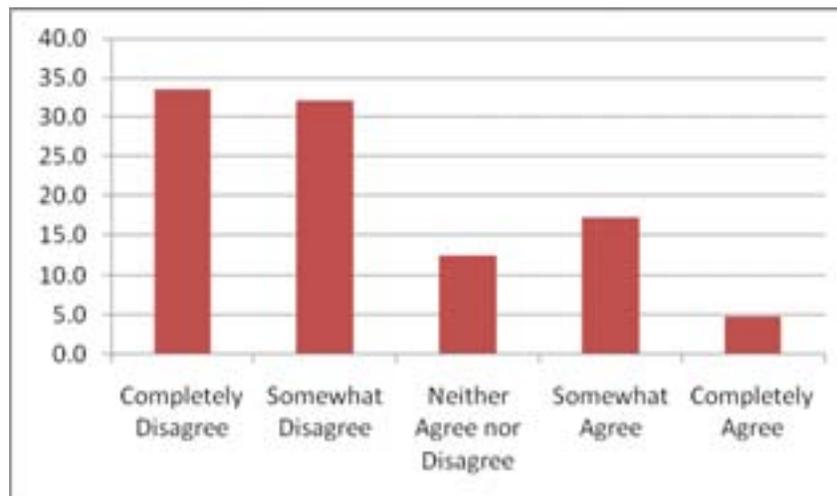


Figure B.7: It is fair to charge differential fees to international students

B.2.3 Registration Status, Programs and Fields of Study

The majority of respondents are enrolled in full-time studies.

Table B.16: Registration status

Registration Status	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Full-time	1308	94.7	94.5
Part-time	73	5.3	5.5

n=1381

The majority of respondents are enrolled in a bachelor’s degree program. The designation ‘Other’ in Table B.17 includes students studying English as a second language (ESL), post-doctorate students, and exchange/ visiting students. Nearly three-quarters (72.6%) of Master’s students say their program includes a thesis component.

Table B.17: Level of program

Program	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Bachelor's degree	807	58.4	62.7
Master's degree	303	21.9	22.0
PhD degree	150	10.9	8.4
Diploma	72	5.2	3.6
Certificate	27	2.0	1.5
Other	23	1.7	1.9

n=1382

The most common fields of study for respondents are Commerce, Management and Business Administration (33.0%), Engineering and Applied Sciences (18.2%), and Mathematics, Computer and Physical Sciences (11.8%).

Table B.18: Field of study

Field of Study	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Commerce, Management and Business Administration	375	27.1	33.0
Engineering and Applied Sciences	295	21.3	18.2
Mathematics, Computer and Physical Sciences	173	12.5	11.8
Social Sciences and Related Fields	142	10.3	10.6
Agricultural, Biological, Nutritional, and Food Sciences	137	9.9	9.0
Health Professions and Related Technologies	61	4.4	3.9
Fine and Applied Arts	60	4.3	4.2
Humanities and Related Fields	57	4.1	3.8
Applied Science Technologies and Trades	34	2.5	1.9
Educational, Recreational and Counseling Services	26	1.9	2.3
Other	22	1.6	1.2

n=1382

The majority of respondents report they started their program either in the month of September (63.9%), which is a traditional start date in Canada, or January (24.3%). The remainder list other start dates. More than half (51.9%) of respondents began their studies in the current 2009-2010 academic year. The majority (60.1%) anticipate graduating by the end of 2011.

Table B.19: Current year of program

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
1 st Year	527	38.1	36.3
2 nd Year	332	24.0	23.9
3 rd Year	258	18.7	19.5
4 th Year	215	15.6	16.9
5th Year or More	50	3.6	3.4

n=1382

Table B.20: Expected year of graduation

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
2010	388	28.1	28.1
2011	441	31.9	32.0
2012	265	19.2	19.9
2013	212	15.3	15.3
2014 or later	76	5.5	4.7

n=1382

B.2.4 Satisfaction with Institutional Services

The majority of respondents (73.8%) express satisfaction with their educational experience at their current institution (Figure B.8). Just over half (53.3%) express satisfaction with the number of services for international students at their current institution, while more than a quarter (29.7%) is neither satisfied nor dissatisfied (Figure B.9). A slightly higher number (57.6%) express satisfaction with the quality of services for international students at their current institution (Figure B.10).

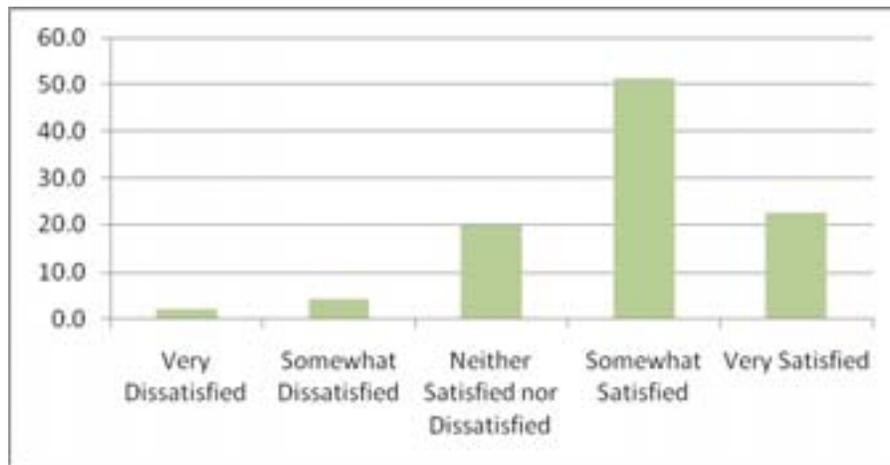


Figure B.8: Level of satisfaction with educational experience (%)

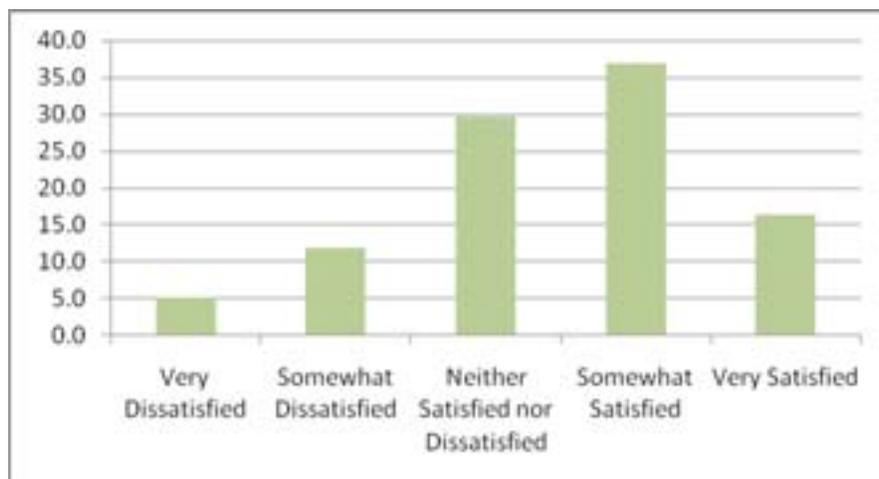


Figure B.9: Level of satisfaction with number of services for international students (%)

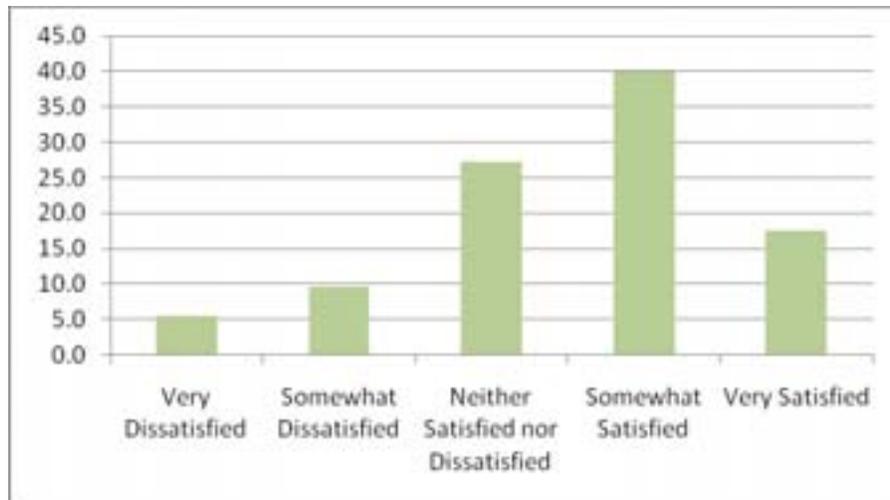


Figure B.10: Level of satisfaction with quality of services for international students(%)

B.2.5 Use of Agents and Offices of Government of Canada

Of the 1382 respondents to our survey, 285 (24.3%) used the services of an Educational Agent in selecting or applying to a Canadian Institution.

Table B.21: How did you find your agent?

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Recommended by family or friend	141	49.5	50.3
Advertisement	59	20.7	20.6
Referred by home institution	59	20.7	20.5
Education or trade fair	48	16.8	17.4
Internet search	44	15.4	15.9
Other	14	4.9	3.6
Through a Canadian government office	7	2.5	2.3

n=285

Respondents who used the services of an agent were asked to rate their agent's knowledge of Atlantic Canada's educational institutions on a scale of 1 to 5, where 1 would be "not at all knowledgeable" and 5 would be "very knowledgeable". The mean rating was 3.44 out of 5. These respondents were also asked to rate their satisfaction with the services provided by their agent; 53.2 percent express some level of satisfaction.

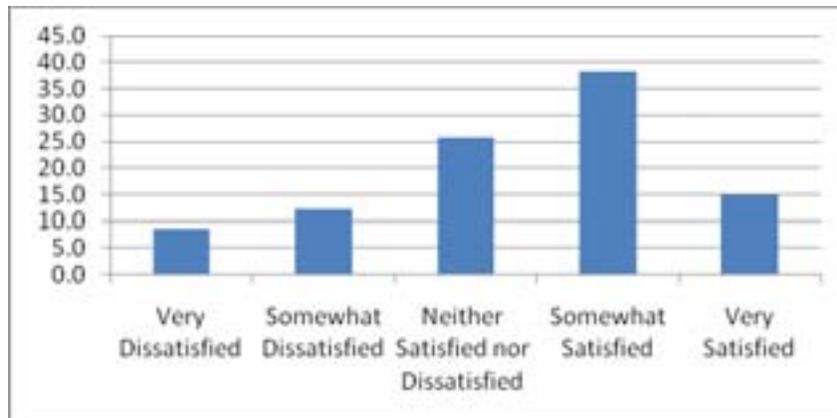


Figure B.11: Level of satisfaction with agent services (%)

Many respondents commented that the use of an agent made the process of applying more convenient, but note that their agent did not always provide reliable information or services. Comments included:

- “It is more convenience, but I think apply school by yourself will be more reliable and cheaper”
- “The agent I used gave me the wrong information about my program and the education function, they also did not submit some of my paper work to my first choice.”
- “I feel that the agent cannot give me all information which I need, but it is enough. Another problem is that before I go abroad, the agent just told me the good information, and sometimes this information will mislead me. Overall, the agent had helped me a lot.”

Of the 1382 respondents to our survey, 149 (11.4%) consulted a Canadian Embassy, Consulate, High Commission or trade office in their search for a post-secondary institution. These respondents were also asked to rate their satisfaction with the services provided by the Consular office; 57.1 percent express some level of satisfaction.

In commenting about their experience with a Canadian Foreign Office, many respondents noted a lengthy wait for visas and permits.

- “My application was delayed for no apparent reason. Eventually they issued my Visa just in the nick of time. I had to report to college late because of this delay. As a result I did not have enough time for orientation in college and the new culture.”

In general, student experience seems to vary by location of the foreign office. Comments include:

- “The staff [in Ghana] show great interest at promoting studies in Canada. Unfortunately, they do not have enough information of all the educational institutions in Canada. Especially, it will be good to update them, periodically, on course and living costs changes.”

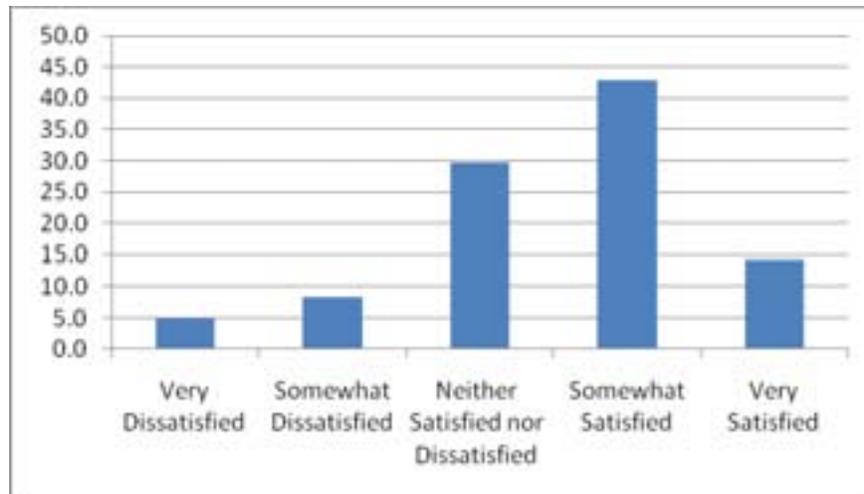


Figure B.12: Level of satisfaction with Canadian foreign office services (%)

- “The Canadian Embassy in [Malaysia] was the location at which I asked for information regarding study permits and regulations for international students planning to go to Canada. I was very disappointed with the service, as the staff was unfriendly, the opening hours were extremely unsuitable, waiting times exceeded 2-3 hours at each visit and I did not receive any information other than the application form and the link to the website of the Canadian government.”
- “They are rude and hard to give visa [in Turkey]. I have a lot friends want to come here, they do not have any problem even money, but they couldn’t get visa. I do not know why.”
- “The Canadian Embassy in Jamaica was very helpful in providing information. They even hold pre departure sessions for students in collaboration with other educational organizations.”

Also, a number of respondents made positive comments about the Embassy websites.

- “I used a Canadian embassy website for information regarding studying in Canada. The search function for programs and universities was very helpful, as was the information regarding visa applications.”

B.3 Student Intentions

When asked about intentions upon completing their current program, 24.5 percent of respondents intended to find employment in Atlantic Canada, 20.6 percent were undecided, and 14.2 percent intended to find employment in Canada, outside of Atlantic Canada. Other options, ranging from returning to their home country to various educational options, attracted lesser responses.

Table B.22: Intentions upon completion of current program

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Find employment in Atlantic Canada	339	24.5	25.3
Undecided	285	20.6	20.6
Find employment in Canada, outside of Atlantic Canada	196	14.2	13.5
Find employment in your home country	139	10.1	10.1
Enroll in another program at current institution	112	8.1	7.7
Enroll in another program at a different institution in Canada, but outside of Atlantic Canada	96	6.9	7.3
Enroll in another program at a different institution in Atlantic Canada	62	4.5	4.4
Enroll in another program at an institution outside of Canada and your home country	60	4.3	4.4
Enroll in another program at an institution in your home country	55	4.0	3.7
Find employment in another country outside of Canada and your home country	38	2.7	2.9

n=1382

Table B.23: In which Atlantic Province are you most likely to seek employment?

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Nova Scotia	171	50.4	59.5
New Brunswick	78	23.0	22.1
Newfoundland and Labrador	76	22.4	13.8
Prince Edward Island	14	4.1	4.6

n=339

Table B.24: In which sector will you primarily seek employment?

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Professional, Scientific and Technical Services	117	21.9	18.4
Finance and Insurance	73	13.6	16.8
Management of Companies and Enterprises	48	9.0	11.4
Not sure	39	7.3	7.6
Health Care and Social Assistance	33	6.2	7.1
Educational Services	38	7.1	7
Other	31	5.8	5.4
Mining, Quarrying, and Oil and Gas Extraction	32	6.0	4.7
Manufacturing	15	2.8	2.7
Administrative and Support, Waste Management and Remediation Services	12	2.2	2.5
Arts, Entertainment and Recreation	15	2.8	2.4
Information and Cultural Industries	15	2.8	2.4
Accommodation and Food Services	13	2.4	2.3
Public Administration	10	1.9	1.9
Construction	13	2.4	1.8
Utilities	7	1.3	1.1
Agriculture, Forestry, Fishing and Hunting	8	1.5	1.3
Wholesale Trade	6	1.1	1.1
Other Services (except Public Administration)	5	0.9	0.8
Transportation and Warehousing	3	0.6	0.6
Real Estate and Rental and Leasing	1	0.2	0.4
Retail Trade	1	0.2	0.3

n=535

Table B.25: In which Atlantic Province are you most likely to study in the future?

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Nova Scotia	42	67.7	77.9
New Brunswick	9	14.5	11.7
Newfoundland and Labrador	9	14.5	7.4
Prince Edward Island	2	3.2	3.0

n=62

Eight hundred and five respondents answered a question about applying for permanent residence in Canada, with 67.8 percent (562, or 40% of all respondents) indicating that they had applied, or intended to apply.

Table B.26: Have you applied or do you plan to apply for permanent residence in Canada?

	Frequency (unweighted)	Percent (unweighted)	Percent (weighted)
Yes	562	69.8	67.8
No	102	12.7	14.0
Not sure	141	17.5	18.2

n=805

Annex C Expenditure by Students

This Annex provides details of the calculation of expenditure by students. Section C.1 describes the calculation process; Section C.2 provides details of the process for determining whether extreme values of parameters were outliers, and how they were addressed; and Section C.3 provides details of the results of the calculations. Section C.4 addresses the differences in expenditures for international students at universities and at community colleges, and section C.5 addresses the differences in expenditures for students living in university or college residences and those not living in residence.

The results of the calculations are presented in this Annex without rounding, together with margins of error. If expenditures by students are extracted from this document without reference to margin of error, then it is recommended that expenditures be rounded to two or at most three significant digits; for example, average annual expenditure for international students in Atlantic Canada of \$29,249 becomes \$29,000 with two significant digits.

C.1 Calculating Average Annual Expenditures

Expenditures by students were estimated using the data collected by the international student survey.

The survey asked respondents to estimate expenditures in up to 14 categories: tuition and fees; textbooks and supplies; residence fees; rent/mortgage; heat and electricity; groceries; residence fees; communications; transportation; entertainment; childcare; clothing, etc.; medical, etc.; and 'other'. A respondent would not see all 14 expenditure-related questions, since some depended on whether a respondent lived in university residence or not. Regardless, the respondents were required to answer every expenditure-related question presented to them before proceeding to the next one. This strategy of obligatory responses ensured that there was a complete expenditure data set for each respondent, allowing supersets of expenditure and total annual expenditure to be calculated for each respondent: annual education; annual housing; annual meals and groceries; annual goods and services; and annual total expenditure.

Annual expenditures for an individual were calculated using derived parameters based on that individual's responses to supplementary expenditure-related questions. Annual educational costs were based on the number of terms the respondent was registered, or planned to register in the academic year. Annual housing, meals and groceries, and goods and services costs were based on the number of months that the respondent intended to live in Atlantic Canada during the academic year.

Average annual expenditures were calculated by averaging annual expenditures over the respondents.

C.2 Testing for Outliers

Before conducting the expenditure analysis, expenditure data were examined, question by question, and tested for outliers using a box-plot approach (McClare & Sincich, 2006, p. 93). Entries lying outside three standard deviations of the mean were considered for exclusion, consistent with conventional practice. The number of outliers was sufficiently low that a rational analysis could be applied to every case, to establish whether each case was an outlier, or simply an extreme value. This special consideration was appropriate given that distributions of expenditure are typically not normal, but are of other types, such as Paretian or log-normal. Extreme values that were determined to be outliers were replaced by imputation, generally of the mean plus three standard deviations. Examples of outliers include cases where responses were inconsistent with the balance of the respondent's responses, or where it appeared that typographical errors (extra zeroes) had been made by the respondent. Where extreme values were accepted, the exclusion criterion was adjusted upwards to include the highest accepted extreme value. See Table C.1 for a summary of the analysis, by expenditure parameter.

Table C.1: Summary of extreme value/outlier analysis

Parameter	No. of Extreme Values re. 3SD	Action
Rent/Mortgage	8	Outliers: Imputed as Mean + 3SD (\$1,396)
Heat and Electricity	23	Accepted as part of the distribution
Telecommunications	2	Outliers: Imputed as Mean + 3SD (\$2,591)
Tuition	25	Most were AVC students: all but 2 were accepted; these two were imputed at extended criterion (\$18,125)
Residence Fees	7	Outliers: Imputed as Mean + 3SD (\$9,172)
Residence Meal Plan	4	Outliers: Imputed as Mean + 3SD (\$4,874)
Books and supplies	19	Mixed: 3SD criterion extended to absorb near-by extreme values and 'distant' extremes taken as outliers. Imputed at extended criterion (\$2,000)
Transportation	7	Outliers: Imputed as Mean + 3SD (\$3,922)
Grocery	12	All but one accepted as part of the distribution; outlier imputed at extended criterion (\$3,200)
Entertainment	12	8 of 12 accepted as part of the distribution; 4 imputed at extended criterion (\$1,000)
Childcare	1	Accepted as part of the distribution
Clothing	18	13 accepted as part of the distributed and 5 were imputed at extended criterion (\$30,000)
Medical	12	10 accepted as part of the distribution; 2 imputed at extended criterion (\$10,000)
Other	32	Outliers: Imputed as Mean + 3SD (\$15,702)

C.3 Expenditure by Students

Variation in response rate across the Provinces and institutions indicated that it would be useful to apply weights to the survey results on an institutional basis, as discussed earlier in Section 4.1. No significant differences between weighted and unweighted results were found at the 95 percent confidence level for any of the variables, as shown in Table C.2: in every case $p > 0.05$.

Weights might also be applied to student characteristics, of which level of program is one, since it would be reasonable to assume that spending by undergraduate and graduate students would differ. Table C.3 presents difference of means tests for two subsets of the survey sample: students studying for a Bachelor degree (Undergraduate) and those studying for Master or PhD degrees (Graduate). Significant differences were found at either the 95 or 99 percent confidence levels for almost every sub-category of expenditure. Graduate students generally spend more than undergraduate students on housing, meals and groceries, and goods and services; residence fees and communications costs are understandable exceptions. Graduate students spend much less than undergraduate students on their education, since graduate students are better positioned to attract awards, bursaries or scholarships that reduce their individual expenditures for tuition, textbooks and supplies. Overall, graduate students in Table C.3 spend 9.3 percent less per year than do undergraduate students.

The statistically significant differences shown in Table C.3 would ordinarily support the application of weights to the analysis. In this study the researchers did not have access to statistics on level of program for the population; however, MPHEC data were available for

Table C.2: Difference of means tests, expenditure with and without weights, by institution (2009-2010)

	n	Unweighted Mean, \$	Weighted Mean, \$	Estimated p-value
Education Costs				
Tuition & Fees	1382	12,178.28	12,505.97	0.234
Textbooks & Supplies	1382	868.18	911.04	0.060
Housing Costs				
Residence Fees	351	7,043.20	7,402.31	0.118
Rent/Mortgage	1031	4,884.15	4,987.66	0.226
Heat and Electricity	1031	594.60	580.36	0.682
Meals and Groceries				
Groceries	1382	2,827.45	2,838.07	0.885
Residence Meals	351	1,534.14	1,575.05	0.744
Goods and Services				
Communications	1382	960.44	998.23	0.428
Transportation	1382	1,740.02	1,742.26	0.983
Entertainment	1382	891.34	947.36	0.059
Childcare	64	4,119.38	3,852.23	0.612
Clothing, Etc.	1382	1,062.20	1,130.98	0.288
Medical, Etc.	1382	436.84	448.22	0.569
Other Expenditure	1382	1,039.86	1,067.93	0.716

Maritime universities for academic years 2004-2005 to 2008-2009.³⁰ These MPHEC data allow the effects of the differences in undergraduate and graduate expenditure to be estimated. For the 1260 international students in the sub-set of Table C.3 the overall average annual expenditure is \$29,281. If weighting were applied to this subset to reduce the sample graduate student representation of 36 percent to an estimated population level of 18 percent, based on an extrapolation of the MPHEC data, then the overall average annual expenditure for this subset would increase by 1.7 percent, to \$29,784. This difference is within the margin or error for the sample (see Section 4.1). Given the uncertainty as to the level of program distribution for the population, and that survey data provide a conservative estimate of average annual spending, it is considered reasonable to rely on institutional-level weighting as presented in Table 4 of Section 4.1 for the purposes of this study.

Subsequent tables of average annual expenditures report only the results of weighted analyses. Table C.4 presents average annual expenditures for Atlantic Canada, and tables C.5 through c.8 present average annual expenditures for the Provinces.

Table C.3: Difference of means tests, expenditure by undergraduate and graduate students (2009-2010)

	Undergraduate		Graduate		Estimated p-value
	n	Mean, \$	n	Mean, \$	
Education Costs					
Tuition & Fees	807	14,335.45	453	9,795.81	0.000**
Textbooks & Supplies	807	1,031.41	453	662.41	0.000**
Housing Costs					
Residence Fees	272	7,515.00	60	7,391.31	0.258
Rent/Mortgage	535	4,692.57	393	5,521.97	0.000**
Heat and Electricity	535	559.20	393	627.61	0.000**
Meals and Groceries					
Groceries	807	2,555.51	453	3,416.10	0.000**
Residence Meals	272	1,430.34	60	2,011.01	0.000**
Goods and Services					
Communications	807	994.84	453	999.57	0.860
Transportation	807	1,448.24	453	2,060.82	0.000**
Entertainment	807	955.75	453	918.93	0.034*
Childcare	9	1,762.35	46	3,950.18	0.000**
Clothing, Etc.	807	1,025.38	453	1,126.54	0.001**
Medical, Etc.	807	408.72	453	477.61	0.000**
Other Expenditure	807	1,006.57	453	1,007.75	0.977
Average Annual Expenditure	807	30,288.40	453	27,485.56	0.000**

Assuming equal variances:

* Significant difference in average spending at the 95 percent confidence level, $p < 0.050$

** Significant difference in average spending at the 99 percent confidence level, $p < 0.010$

³⁰ Eighteen percent of international students in Maritime universities were post-graduate students over that period (informal communication, Gordon-Nethercote, June 8, 2010).

Table C.4: Average annual expenditure by students (Atlantic Canada 2009-2010)

	Mean \$	Median \$	Mode** \$	Margin of Error* \$
Education Costs	13,417.01	12,592.48	16,500	512 (3.8%)
Tuition & Fees	12,505.97	12,000	15,000	494 (4.0%)
Textbooks & Supplies	911.04	700	1000	45 (4.9%)
Housing Costs	6,064.77	5,280	6,000	196 (3.2%)
Residence Fees	7,402.31	6,750	4,500	474 (6.4%)
Rent/Mortgage	4,987.66	4,500	4,500	170 (3.4%)
Heat and Electricity	580.36	240	0	65 (11.2%)
Meals and Groceries	3,264.61	2,500	2,400	162 (5.0%)
Groceries	2,838.07	2,400	2,400	144 (5.1%)
Residence Meals	1,575.05	0	0	267 (16.9%)
Goods and Services	6,502.60	3,890	2,300	458 (7.0%)
Communications	998.23	600	0	98 (9.8%)
Transportation	1,742.26	600	0	226 (13.0%)
Entertainment	947.36	600	1,200	62 (6.6%)
Childcare	3,852.23	2,400	0	1,000 (26.0%)
Clothing, Etc.	1,130.98	500	500	134 (11.9%)
Medical, Etc.	448.22	200	0	41 (9.1%)
Other Expenditure	1,067.93	200	0	155 (14.5%)
Average Annual Expenditure	29,248.99	26,510	29,600	856 (2.9%)

* Margin of Error at 95% confidence

**Multiple modes exist. The smallest value is shown

Table C.5: Average annual expenditure by students (New Brunswick 2009-2010)

	Mean \$	Median \$	Mode** \$	Margin of Error \$
Education Costs	11,996.12	11,000	11,000	762 (6.4%)
Tuition & Fees	11,064.28	10,500	12,000	362 (3.3%)
Textbooks & Supplies	931.84	675	500	47 (5.0%)
Housing Costs	5,338.56	4,500	4,200	323 (6.1%)
Residence Fees	6,151.47	5,000	4,000	732 (11.9%)
Rent/Mortgage	4,506.49	4,000	4,200	299 (6.7%)
Heat and Electricity	553.32	114	0	107 (19.4%)
Meals and Groceries	3,063.33	2,500	2,400	322 (10.5%)
Groceries	2,777.37	2,400	2,400	149 (5.4%)
Residence Meals	1,119.86	0	0	354 (31.6%)
Goods and Services	7,280.63	4,340	6,100	1,120 (15.4%)
Communications	1,008.41	600	0	131 (12.9%)
Transportation	2,137.82	900	0	255 (11.9%)
Entertainment	876.65	540	1,200	59 (6.8%)
Childcare	6,544.15	6,060	12,000	2,261 (34.6%)
Clothing, Etc.	1,129.70	500	500	111 (9.8%)
Medical, Etc.	512.54	250	0	45 (8.8%)
Other Expenditure	1,359.87	200	0	193 (14.2%)
Average Annual Expenditure	27,678.65	25,120	6,220	1,728 (5.9%)

Table C.6: Average annual expenditure by students (Newfoundland and Labrador 2009-2010)

	Mean \$	Median \$	Mode** \$	Margin of Error \$
Education Costs	7,937.56	6,700	9,800	721 (9.1%)
Tuition & Fees	7,293.48	6,000	12,000	342 (4.7%)
Textbooks & Supplies	644.08	500	300	35 (5.4%)
Housing Costs	5,449.48	4,800	5,400	359 (6.6%)
Residence Fees	5,298.18	4,500	4,500	904 (17.1%)
Rent/Mortgage	4,792.25	4,400	4,800	306 (6.4%)
Heat and Electricity	693.76	180	0	157 (22.7%)
Meals and Groceries	3,143.96	2,400	2,400	272 (8.7%)
Groceries	2,922.06	2,400	2,400	129 (4.4%)
Residence Meals	1,141.01	0	0	430 (37.7%)
Goods and Services	6,306.03	3,770	1,600	778 (12.3%)
Communications	901.49	600	0	77 (8.5%)
Transportation	1,784.36	840	0	174 (9.8%)
Entertainment	762.66	550	0	43 (5.6%)
Childcare	3,808.83	2,200	0	1,635 (42.9%)
Clothing, Etc.	996.99	500	500	114 (11.5%)
Medical, Etc.	421.01	200	0	44 (10.4%)
Other Expenditure	1,108.56	200	0	153 (13.8%)
Average Annual Expenditure	22,837.03	20,290	14,800	1,345 (5.9%)

**Multiple modes exist. The smallest value is shown

Table C.7: Average annual expenditure by students (Nova Scotia 2009-2010)

	Mean \$	Median \$	Mode** \$	Margin of Error \$
Education Costs	14,658.93	14,000	16,500	661 (4.5%)
Tuition & Fees	13,713.76	13,000	15,000	424 (3.1%)
Textbooks & Supplies	945.17	750	1,500	43 (4.6%)
Housing Costs	6,597.72	5,830	6,000	320 (4.8%)
Residence Fees	8,264.77	7,500	9,000	707 (8.6%)
Rent/Mortgage	5,338.46	4,800	4,800	281 (5.3%)
Heat and Electricity	528.85	240	0	95 (17.9%)
Meals and Groceries	3,455.33	2,700	2,400	259 (7.5%)
Groceries	2,872.51	2,400	2,400	148 (5.2%)
Residence Meals	1,912.96	0	0	433 (22.7%)
Goods and Services	6,244.56	3,720	2,300	656 (10.5%)
Communications	998.91	660	0	82 (8.2%)
Transportation	1,571.18	480	0	232 (14.8%)
Entertainment	1,026.55	600	1,200	67 (6.5%)
Childcare	2,630.56	1,600	0	1,409 (53.6%)
Clothing, Etc.	1,174.18	500	500	150 (12.8%)
Medical, Etc.	432.20	200	0	40 (9.2%)
Other Expenditure	945.87	200	0	138 (14.6%)
Average Annual Expenditure	30,956.53	28,660	29,600	1,206 (3.9%)

**Multiple modes exist. The smallest value is shown

Table C.8: Average annual expenditure by students (Prince Edward Island 2009-2010)

	Mean \$	Median \$	Mode** \$	Margin of Error \$
Education Costs	20,551.18	15,100	10,600	4,248 (20.7%)
Tuition & Fees	19,388.62	12,700	18,000	1,057 (5.5%)
Textbooks & Supplies	1,162.56	850	600	60 (5.22%)
Housing Costs	5,556.36	5,280	6,000	677 (12.2%)
Residence Fees	6,732.04	6,000	0	1,997 (29.7%)
Rent/Mortgage	4,444.82	4,400	4,800	519 (12.0)
Heat and Electricity	788.51	400	0	298 (37.8%)
Meals and Groceries	2,647.38	2,400	2,400	473 (17.9%)
Groceries	2,570.06	2,250	2,400	119 (4.6%)
Residence Meals	358.71	0	0	398 (111.0%)
Goods and Services	6,375.86	3,760	3,860	1,487 (23.3%)
Communications	1,178.34	770	0	121 (10.2%)
Transportation	1,687.82	492	0	152 (9.0%)
Entertainment	954.32	550	1,200	69 (7.3%)
Childcare	4,268.55	4,400	4,400	273 (6.4%)
Clothing, Etc.	1,079.10	500	500	101 (9.3%)
Medical, Etc.	418.14	200	0	28 (6.7%)
Other Expenditure	970.42	160	0	143 (14.7%)
Average Annual Expenditure	35,130.78	28,931.19	2,760	5,078 (14.5%)

**Multiple modes exist. The smallest value is shown

In their 2009 study Siddiq *et al* reported two figures for expenditure by students. One value (\$28,500, p. 38) was based upon the sum of averages for categories of expenditure; this approach required no imputation of missing values, but provided no margin of error. Their second approach, corresponding to that employed herein, required imputation of missing values for certain categories for 400 of the 727 respondents³¹, but provided a margin of error for expenditure by students. The latter approach produced an annual expenditure of \$28,985 with a margin of error of \$795 (2009, p. 62). As indicated in Table C.9, there is no statistically significant difference between the overall results of Siddiq *et al* (2009) and the current study; however, the results for Nova Scotia universities are different at the 99 percent confidence level. The arithmetic difference between the two Nova Scotia University estimates is seven percent, which is beyond the amount that can be explained by the Consumer Price Index alone.

Table C.9: Difference of means tests, Siddiq *et al*, 2009 and 2010 studies

	2010 Study		2009 Study		Estimated p-value
	n	Mean Annual Expenditure	n	Mean Annual Expenditure	
All Respondents	1382	\$29,248.99	727	\$28,985	0.143
Nova Scotia Universities	583	\$31,060.85	727	\$28,985	0.000*

*Statistically significant difference in average spending at the 99 percent confidence level, $p < 0.005$

³¹ Four hundred of the 727 respondents to the 2009 survey failed to provide responses to one or more questions; the other respondents provided responses to all questions.

C.4 Expenditures by Students in Community Colleges

Seventy-six of the 1382 survey respondents addressed by this analysis came from community colleges. Education expenses, especially tuition, are generally lower at community colleges than at universities, so a comparison of annual expenditures by international students at community colleges with those at universities is shown in Table C.10. The numbers of respondents from community colleges is small, so the comparison is made only at the regional level. Differences of means were examined by t-testing. As might be expected, statistically different means were found for institution-related costs such as tuition and fees, residence fees, and residence meals. Significant differences at either the 95 or 99 percent confidence levels are found for other parameters as well, but sample sizes (n) for many of the community college responses bring into question the reliability of this comparison. This comparative analysis is not described in the main body of the report; however, for completeness Table C.11 provides the characteristics of the distributions of expenditures by international students at community colleges. Table C.11 shows large margins of error for this small sample, supporting its exclusion from discussion in the main body of the report.

Table C.10: Differences of means tests, expenditures at community colleges and universities (2009-2010)

	University		College		Estimated p-value
	n	Mean, \$	n	Mean, \$	
Education Costs					
Tuition & Fees	1303	12,677.96	79	7,056.27	0.000**
Textbooks & Supplies	1303	909.42	79	962.34	0.342
Housing Costs					
Residence Fees	342	7,452.55	9	4,261.52	0.000**
Rent/Mortgage	961	5,000.13	70	4,654.68	0.161
Heat and Electricity	961	585.87	70	433.34	0.004**
Meals and Groceries					
Groceries	1303	2,834.99	79	2,935.82	0.410
Residence Meals	342	1,586.47	9	861.29	0.001**
Goods and Services					
Communications	1303	988.47	79	1,307.43	0.117
Transportation	1303	1,726.20	79	2,251.02	0.008**
Entertainment	1303	941.65	79	1,128.35	0.102
Childcare	55	3449.60	9	7276.20	0.000**
Clothing, Etc.	1303	1,104.91	79	1,956.95	0.003**
Medical, Etc.	1303	441.70	79	654.64	0.028*
Other Expenditure	1303	1,031.79	79	2,213.16	0.000**

Assuming equal variances:

* Significant difference in average spending at the 95 percent confidence level, $p < 0.050$

** Significant difference in average spending at the 99 percent confidence level, $p < 0.010$

Table C.11: Average annual expenditure by students (Community Colleges only, 2009-2010)

	Mean \$	Median \$	Mode** \$	Margin of Error \$
Education Costs	8,018.60	7,449.26	12,000	1,067.08 (13.3%)
Tuition & Fees	7,056.27	7,000.00	7,800	967.29 (13.7%)
Textbooks & Supplies	962.34	800.00	0	193.21 (20.1%)
Housing Costs	4,972.83	4,994.87	0	837.55 (16.8%)
Residence Fees	4,261.52	5,000.00	1,000	1,444.19 (33.9%)
Rent/Mortgage	5,440.76	4,800.00	6,000	838.61 (15.4%)
Heat and Electricity	506.52	0	0	202.94 (40.1%)
Meals and Groceries	3,055.86	3,000.00	6,000	427.49 (14.0%)
Groceries	2,935.82	2,400.00	6,000	424.57 (14.5%)
Residence Meals	287.10	0	0	257.18 (89.6%)
Goods and Services	10,609.81	5,500.00	4,720	2,943.75 (27.8%)
Communications	132.75	56.46	0	77.71 (58.5%)
Transportation	2,251.02	1,026.28	0	678.43 (30.1%)
Entertainment	1,128.35	600.00	0	394.65 (35.0%)
Childcare	5,676.00	4,500.00	12,000	2,849.14 (50.2%)
Clothing, Etc.	1,956.95	500.00	500	972.10 (49.7%)
Medical, Etc.	654.64	279.00	0	334.25 (51.1%)
Other Expenditure	2,213.16	200.00	0	1,077.12 (48.7%)
Average Annual Expenditure	26,657.10	22,926.92	20,692	3,651.31 (13.7%)

**Multiple modes exist. The smallest value is shown

C.5 Expenditures by Students Living in Residence

The survey of international students had a number of branch options ('skip patterns'), one of which referred to accommodations. Respondents selected whether they currently lived in residence or not in residence. To limit the scope of the survey, respondents were not able to indicate that they might live in both types of accommodations over the course of their academic year. The data auditor questioned this simplification, noting that rented accommodation was cheaper than residence, so students who, for example lived in residence for fall and winter term, but sub-let an apartment for the summer, would have their accommodation expenditures over estimated, since rental accommodations were cheaper than residence.

Table C.12 addresses the auditor's concern indirectly by examining those students who indicated they had registered for one, two or three terms, for two groups of respondents: those who indicated that they lived in residence and those who did not. The data in Table C.12 are unweighted since the purpose of the Table is to investigate respondents directly. For each of the six categories of respondent (two types of accommodations x three terms), the average number of months resident in Atlantic Canada (Question 16) and the average annual expenditures related to housing, meals and groceries are recorded. For those respondents living in residence, the average number of months resident in Atlantic Canada approximates the length of one or two terms as appropriate, and even three terms, noting that spring/summer terms are short in many institutions. The results for those not living in residence are different: for those attending one or two terms, the

average number of months resident in Atlantic Canada is longer than the length of term. Thus, on average, it may be deduced that respondents who intend to stay in Atlantic Canada longer than academically required by their course work will stay in accommodations other than university or college residences in the first instance. The auditor's concern is a valid one, but not applicable in this case, at least on an average basis.

Table C.12: Students' housing, meals and groceries expenditures (unweighted)

	Living in Residence		Not Living in Residence	
One term	n	34	n	105
	Average # months	3.62	Average # months	9.08
	Avg ann residence fees	\$2912.29	Avg ann rent	\$4793.57
	Avg ann residence meals	\$247.71*	Avg ann heat electricity	\$735.62
	Avg ann groceries	\$588	Avg ann groceries	\$3061
Two terms	n	140	n	450
	Average # months	7.56	Average # months	9.75
	Avg ann residence fees	\$6391.92	Avg ann rent	\$4604.16
	Avg ann residence meals	\$1341.56	Avg ann heat electricity	\$540.54
	Avg ann groceries	\$1310.30	Avg ann groceries	\$2775.60
Three terms	n	177	n	437
	average # months	10.81	Average # months	10.64
	Avg ann residence fees	\$8351.84	Avg ann rent	\$5630.12
	Avg ann residence meals	\$1933.57	Avg ann heat electricity	\$669.44
	Avg ann groceries	\$2773.23	Avg ann groceries	\$3400.39
Three terms	Avg Annual Total	\$13,058.64	Avg Annual Total	\$9,699.95

* The majority of respondents registered for a single term and living in residence report that their residence fees included a meal plan. This explains why meal plan fees are low for this category.

Annex D Expenditure for Students

This annex describes the calculation of government and post-secondary institution expenditures for this study. A key feature of the calculations for the determination of economic impact is that government contributions to expenditures are only captured when the government funds are expended by institutions. The exception to this is spending on health care, which is addressed separately in the main body of the report.

Expenditure data were taken from annual financial reports for 2008-2009 for the universities and community colleges in Atlantic Canada³². Questions of clarification were addressed to the individual institutions. Once the necessary information was collected, spreadsheets were prepared to calculate overall government and university spending, as well as the proportion of the overall spending that was attributable to international students.

Table D1 summarizes expenditures through institutions *for all students*. The table includes spending related to the institutions' *Operating Accounts*, their *Non-Operating Accounts* and *Capital*. These data are based on calculations from Tables D4 to D8. Table D.1 includes both total spending and per capita spending, based on the total number of full-time equivalent (FTE) students enrolled at each institution. The table also includes total institutional spending by region and province as well as spending per capita for the region and by province. The expenditures do not include those based upon tuition, since tuition is captured as expenditure by students. Similarly, direct payments to students have been excluded from the calculations, since these payments are captured as expenditures by students in the survey. Thus, the figures do not necessarily correspond to budget amounts for either government or institutions.

Table D2 summarizes expenditures through institutions *for international students*. Like Table D1, it is also based on calculations from Tables D4 to D8. This information is presented using the same format as Table D1.

The calculation of government grants for international students in Table D3 includes grants from the provincial government as well as grants from other governments. It is assumed that, unless the annual financial reports stated otherwise, the government grants listed in them originated from the institution's associated provincial government. When stated otherwise, the amount of the grant was included in the "other government grants" column. Table D4 reports only provincial government grants. The calculation of total government grants for international students is based on full-time equivalents (FTEs).

Tables D4 through D8 provide the supporting calculations for each item included in Tables D1 and D2. The *Operating Account* includes spending related to government grants (calculated in Table D3 for *all* governments for completeness; calculations for provincial grants alone are given in Table D4) and the amount of other university or college expenditure excluding direct payments

(text continued on page 113)

³² Annual reports were typically available on-line or occasionally were supplied as paper copies. Information for universities was also available from the Canadian Association of University Business Officers (CAUBO) on-line summary of university annual reports (CAUBO, 2010). Notes to tables indicate where data were obtained from CAUBO.

Table D1: Expenditures through post-secondary Institutions for all students

	I	II	III	IV	V	VI	VII	VIII
	Total Operating Expenditure for All Students 1	Endowment Expenditure for All Students 2	Scholarly Grants, Applied Research and Grant Expenditure for All Students 3	Total Non-operating Expenditure for All Students (II)+(III)	Total Capital Expenditure for All Students 4	Total Institutional Spending for All Students (I)+(IV)+(V)	Student Population at Institution (ALL FTE)	Institutional Spending for Students per FTE (VI)/(VII)
Acadia University	\$41,067,092.00	\$0.00	\$4,853,191.00	\$4,853,191.00	\$8,271,000.00	\$54,191,283.00	3159.12	\$17,153.92
Atlantic School of Theology	\$2,514,720.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,514,720.00	74.22	\$33,881.97
Cape Breton University	\$23,067,486.29	\$871,173.77	\$3,592,915.14	\$4,464,088.91	\$3,256,206.00	\$30,787,781.20	2486.15	\$12,383.72
College of the North Atlantic	\$90,395,280.75	\$0.00	\$0.00	\$0.00	\$0.00	\$90,395,280.75	8519	\$10,611.02
Dalhousie University	\$181,709,520.00	\$14,594,250.00	\$78,425,350.00	\$93,019,600.00	\$21,104,000.00	\$295,833,120.00	13078.35	\$22,620.06
Holland College	\$44,450,159.75	\$0.00	\$0.00	\$0.00	\$0.00	\$44,450,159.75	2006	\$22,158.60
Memorial University of Newfoundland	\$234,771,612.00	\$5,854,308.00	\$62,773,425.00	\$68,627,733.00	\$37,244,000.00	\$340,643,345.00	17103	\$19,917.17
Mount Allison University	\$20,611,112.37	\$2,957,727.39	\$2,934,561.94	\$5,892,289.33	\$3,140,709.00	\$29,644,110.69	2156.3	\$13,747.67
Mount Saint Vincent University	\$22,309,390.49	\$937,358.04	\$4,769,958.31	\$5,707,316.35	\$2,064,385.00	\$30,081,091.84	2571.84	\$11,696.33
New Brunswick Community College	\$102,547,394.20	\$0.00	\$0.00	\$0.00	\$367,500.00	\$102,914,894.20	5307	\$19,392.29
Nova Scotia Agricultural College	\$21,438,124.00	\$0.00	\$9,992,911.00	\$9,992,911.00	\$298,000.00	\$31,729,035.00	721.92	\$43,950.90
Nova Scotia College of Art and Design	\$9,329,271.34	\$190,099.88	\$0.00	\$190,099.88	\$1,918,832.00	\$11,438,203.22	885	\$12,924.52
Nova Scotia Community College	\$144,138,630.46	\$989,620.70	\$0.00	\$989,620.70	\$2,801,044.00	\$147,929,295.16	10959	\$13,498.43
Saint Mary's University	\$24,862,827.00	\$478,175.00	\$6,639,425.00	\$7,117,600.00	\$7,275,000.00	\$39,255,427.00	6101.4	\$6,433.84
St. Francis Xavier University	\$33,860,070.05	\$0.00	\$6,170,744.24	\$6,170,744.24	\$7,037,903.00	\$47,068,717.29	4490.3	\$10,482.31
St. Thomas University	\$13,336,839.96	\$585,699.00	\$944,747.58	\$1,530,446.58	\$2,099,713.00	\$16,966,999.54	2480.8	\$6,839.33
Université de Moncton	\$93,165,019.83	\$0.00	\$18,116,280.00	\$18,116,280.00	\$1,987,000.00	\$113,268,299.83	5089.98	\$22,253.19
Université Sainte-Anne	\$12,300,528.00	\$0.00	\$249,975.00	\$249,975.00	\$0.00	\$12,550,503.00	432.23	\$29,036.63
University of King's College	\$7,218,683.00	\$4,957,546.80	\$971,267.80	\$5,928,814.60	\$905,364.00	\$14,052,861.60	1075.1	\$13,071.21
University of New Brunswick	\$255,756,872.20	\$4,495,632.00	\$3,691,875.00	\$8,187,507.00	\$2,062,000.00	\$266,006,379.20	9877.35	\$26,930.95
University of Prince Edward Island	\$56,552,326.27	\$0.00	\$9,859,632.75	\$9,859,632.75	\$2,077,135.00	\$68,489,094.02	3506.1	\$19,534.27
					Atlantic	\$1,790,210,601	102080	\$17,537
					New Brunswick	\$528,800,683	24911	\$21,227
					Nova Scotia	\$717,432,038	46035	\$15,585
					Prince Edward Island	\$112,939,254	5512	\$20,489
					Newfoundland and Labrador	\$431,038,626	25622	\$16,823

Notes:

- (1) See Table D5 for details
- (2) See Table D6 for details
- (3) See Table D7 for details
- (4) See Table D8 for details

Source: Institution Accounts for 2008-2009; CAUBO (2010)

Table D2: Expenditures through post-secondary institutions for international students

	I	II	III	IV	V	VI	VII	VIII
	Total Operating Expenditure for International Students ¹	Endowment for International Students ²	Scholarly Grants, Applied Research and Grants for International Students ³	Total Non-operating Expenditure for International Students (II)+(III)	Total Capital Expenditure for International Students ⁴	Total Institutional Spending for International Students (I)+(IV)+(V)	International Student Population at Institution (FTE)	Institutional Spending for International Students per FTE (VI)/(VII)
Acadia University	\$6,106,867.45	\$0.00	\$721,692.06	\$721,692.06	\$1,229,936.14	\$8,058,495.66	501.67	\$16,063.34
Atlantic School of Theology	\$55,303.10	\$0.00	\$0.00	\$0.00	\$0.00	\$55,303.10	1.76	\$31,422.22
Cape Breton University	\$2,436,855.46	\$92,031.03	\$379,556.52	\$471,587.55	\$343,986.48	\$3,252,429.49	286.47	\$11,353.47
College of the North Atlantic	\$742,771.41	\$0.00	\$0.00	\$0.00	\$0.00	\$742,771.41	70	\$10,611.02
Dalhousie University	\$14,141,475.98	\$1,135,792.09	\$6,103,423.77	\$7,239,215.86	\$1,642,410.97	\$23,023,102.81	1090.79	\$21,106.82
Holland College	\$509,647.89	\$0.00	\$0.00	\$0.00	\$0.00	\$509,647.89	23	\$22,158.60
Memorial University of Newfoundland	\$12,409,140.93	\$309,436.62	\$3,317,966.22	\$3,627,402.83	\$1,968,577.21	\$18,005,120.97	904	\$19,917.17
Mount Allison University	\$1,011,074.17	\$145,090.75	\$143,954.37	\$289,045.12	\$154,066.88	\$1,454,186.17	109.3	\$13,304.54
Mount Saint Vincent University	\$1,925,749.24	\$80,912.86	\$411,743.37	\$492,656.23	\$178,197.96	\$2,596,603.42	266.97	\$9,726.20
New Brunswick Community College	\$1,681,104.82	\$0.00	\$0.00	\$0.00	\$6,024.59	\$1,687,129.41	87	\$19,392.29
Nova Scotia Agricultural College	\$1,931,793.97	\$0.00	\$900,463.36	\$900,463.36	\$26,852.84	\$2,859,110.18	66.96	\$42,698.78
Nova Scotia College of Art and Design	\$613,674.58	\$12,504.67	\$0.00	\$12,504.67	\$126,219.76	\$752,399.01	64.06	\$11,745.22
Nova Scotia Community College	\$841,762.24	\$5,779.33	\$0.00	\$5,779.33	\$16,357.95	\$863,899.52	64	\$13,498.43
Saint Mary's University	\$4,394,523.38	\$84,517.79	\$1,173,523.37	\$1,258,041.16	\$1,285,861.72	\$6,938,426.26	1193.11	\$5,815.41
St. Francis Xavier University	\$1,552,152.92	\$0.00	\$282,868.25	\$282,868.25	\$322,618.99	\$2,157,640.16	215.35	\$10,019.23
St. Thomas University	\$595,720.57	\$26,161.59	\$42,199.32	\$68,360.91	\$93,788.50	\$757,869.98	117.5	\$6,449.96
Université de Moncton	\$7,640,628.34	\$0.00	\$1,485,748.22	\$1,485,748.22	\$162,957.39	\$9,289,333.95	454.1	\$20,456.58
Université Sainte-Anne	\$989,253.08	\$0.00	\$20,103.90	\$20,103.90	\$0.00	\$1,009,356.97	36.83	\$27,405.84
University of King's College	\$185,897.23	\$127,667.92	\$25,012.32	\$152,680.24	\$23,315.15	\$361,892.61	28.5	\$12,697.99
University of New Brunswick	\$46,729,502.16	\$821,399.81	\$674,544.85	\$1,495,944.66	\$376,749.34	\$48,602,196.16	2036.29	\$23,868.01
University of Prince Edward Island	\$4,785,484.29	\$0.00	\$834,326.73	\$834,326.73	\$175,768.13	\$5,795,579.16	321.43	\$18,030.61
Notes:					Atlantic	\$138,772,494	7939	\$17,480
					New Brunswick	\$61,790,716	2804	\$22,035
					Nova Scotia	\$51,928,659	3816	\$13,606
(1) See Table D5 for details					Prince Edward Island	\$6,305,227	344	\$18,306
(2) See Table D6 for details					Newfoundland and Labrador	\$18,747,892	974	\$19,248
(3) See Table D7 for details								
(4) See Table D8 for details								

Source: Institution Accounts for 2008-2009; CAUBO (2010)

Table D3: Provincial and federal government grants for international students

	I	II	III	IV	V	VI	VII	VIII
	Provincial Grants 2008-2009 (1)	Other Government Grants 2008-2009	Total Government Grants	#FTE All Students	All Grants for All Students per FTE	#FTE International Students	All Grants for International Students per FTE	Total Grants for all International students
Acadia University	\$27,613,000	\$3,952,000	\$31,565,000	3373.6	\$9,356.47	501.67	\$9,356.47	\$4,693,862
Atlantic School of Theology	\$967,000	\$0	\$967,000	80.03	\$12,082.97	1.76	\$12,082.97	\$21,266
Cape Breton University	\$23,208,275	\$0	\$23,208,275	2711.75	\$8,558.41	286.47	\$8,558.41	\$2,451,728
College of the North Atlantic	\$72,040,900	\$0	\$72,040,900	8519	\$8,456.50	70.00	\$8,456.50	\$591,955
Dalhousie University	\$148,896,000	\$69,600,000	\$218,496,000	14016	\$15,589.04	1090.79	\$15,589.04	\$17,004,370
Holland College	\$15,594,603	\$2,046,461	\$17,641,064	2006	\$8,794.15	23.00	\$8,794.15	\$202,265
Memorial University of Newfoundland	\$315,105,000	\$0	\$315,105,000	17103	\$18,423.96	904.00	\$18,423.96	\$16,655,260
Mount Allison University	\$17,972,411	\$2,702,405	\$20,674,816	2228.12	\$9,279.04	109.30	\$9,279.04	\$1,014,199
Mount Saint Vincent University	\$18,086,240	\$4,902,893	\$22,989,133	3092.79	\$7,433.14	266.97	\$7,433.14	\$1,984,425
New Brunswick Community College / CCNB	\$67,783,900	\$0	\$67,783,900	5307	\$12,772.55	87.00	\$12,772.55	\$1,111,211
Nova Scotia Agricultural College	\$20,892,000	\$7,380,000	\$28,272,000	743.09	\$38,046.54	66.96	\$38,046.54	\$2,547,596
NSCAD University	\$7,398,135	\$2,341,451	\$9,739,586	973.86	\$10,001.01	64.06	\$10,001.01	\$640,665
Nova Scotia Community College	\$118,541,266	\$9,100,000	\$127,641,266	10959	\$11,647.16	64.00	\$11,647.16	\$745,418
Saint Mary's University	\$33,554,000	\$10,640,000	\$44,194,000	6750.24	\$6,547.03	1193.11	\$6,547.03	\$7,811,323
St. Francis Xavier University	\$30,406,679	\$893,030	\$31,299,709	4697.84	\$6,662.57	215.35	\$6,662.57	\$1,434,785
St. Thomas University	\$11,149,600	\$1,835,800	\$12,985,400	2630.56	\$4,936.36	117.50	\$4,936.36	\$580,023
Université de Moncton	\$65,268,000	\$17,032,000	\$82,300,000	5537.010	\$14,863.62	454.10	\$14,863.62	\$6,749,569
Université Sainte-Anne	\$7,592,000	\$2,181,000	\$9,773,000	457.95	\$21,340.76	36.83	\$21,340.76	\$785,980
University of King's College	\$4,920,000	\$56,000	\$4,976,000	1106.7	\$4,496.25	28.50	\$4,496.25	\$128,143
University of New Brunswick	\$117,547,000	\$31,412,000	\$148,959,000	11144.890	\$13,365.68	2036.29	\$13,365.68	\$27,216,394
University of Prince Edward Island	\$69,411,870	\$0	\$69,411,870	3798.49	\$18,273.54	321.43	\$18,273.54	\$5,873,665
Atlantic	\$1,193,947,879	\$166,075,040	\$1,360,022,919	107237	\$12,682	7939	\$12,682	\$100,686,819
New Brunswick	\$279,720,911	\$52,982,205	\$332,703,116	26848	\$12,392	2804	\$12,392	\$34,750,348
Nova Scotia	\$442,074,595	\$111,046,374	\$553,120,969	48963	\$11,297	3816	\$11,297	\$43,113,699
Prince Edward Island	\$85,006,473	\$2,046,461	\$87,052,934	5804	\$14,998	344	\$14,998	\$5,165,595
Newfoundland and Labrador	\$387,145,900	\$0	\$387,145,900	25622	\$15,110	974	\$15,110	\$14,717,044

Notes:

(1) It is assumed that government grants are from the provincial governments unless otherwise stated, in which case they are entered in the Other Government Grants column. Includes grants related to all accounts

Source: Institution Accounts for 2008-2009; CAUBO (2010)

Table D4: Provincial grants for international students

	I	II	III	IV	VI	VII
	Provincial Grants 2008-2009 ¹	#FTE All Students	Grants for All Students per FTE (I/II)	#FTE International Students	Provincial Grants for all International Students (I/V)	Total Provincial Grants for International Students per FTE (VI/IV)
Acadia University	\$27,613,000	3373.6	\$8,185.02	501.67	\$4,106,181	\$8,185.02
Atlantic School of Theology	\$967,000	80.03	\$12,082.97	1.76	\$21,266	\$12,082.97
Cape Breton University	\$23,208,275	2711.75	\$8,558.41	286.47	\$2,451,728	\$8,558.41
College of the North Atlantic	\$72,040,900	8519	\$8,456.50	70.00	\$591,955	\$8,456.50
Dalhousie University	\$148,896,000	14016	\$10,623.29	1090.79	\$11,587,776	\$10,623.29
Holland College	\$15,594,603	2006	\$7,773.98	23.00	\$178,802	\$7,773.98
Memorial University of Newfoundla	\$315,105,000	17103	\$18,423.96	904.00	\$16,655,260	\$18,423.96
Mount Allison University	\$17,972,411	2228.12	\$8,066.18	109.30	\$881,633	\$8,066.18
Mount Saint Vincent University	\$18,086,240	3092.79	\$5,847.87	266.97	\$1,561,206	\$5,847.87
New Brunswick Community College	\$67,783,900	5307	\$12,772.55	87.00	\$1,111,211	\$12,772.55
Nova Scotia Agricultural College	\$20,892,000	743.09	\$28,115.03	66.96	\$1,882,583	\$28,115.03
NSCAD University	\$7,398,135	973.86	\$7,596.71	64.06	\$486,645	\$7,596.71
Nova Scotia Community College	\$118,541,266	10959	\$10,816.80	64.00	\$692,275	\$10,816.80
Saint Mary's University	\$33,554,000	6750.24	\$4,970.79	1193.11	\$5,930,695	\$4,970.79
St. Francis Xavier University	\$30,406,679	4697.84	\$6,472.48	215.35	\$1,393,849	\$6,472.48
St. Thomas University	\$11,149,600	2630.56	\$4,238.49	117.50	\$498,022	\$4,238.49
Université de Moncton	\$65,268,000	5537.010	\$11,787.59	454.10	\$5,352,744	\$11,787.59
Université Sainte-Anne	\$7,592,000	457.95	\$16,578.23	36.83	\$610,576	\$16,578.23
University of King's College	\$4,920,000	1106.7	\$4,445.65	28.50	\$126,701	\$4,445.65
University of New Brunswick	\$117,547,000	11144.890	\$10,547.17	2036.29	\$21,477,088	\$10,547.17
University of Prince Edward Island	\$69,411,870	3798.49	\$18,273.54	321.43	\$5,873,665	\$18,273.54
Atlantic	\$1,193,947,879	107237	\$11,134	7939	\$88,391,756	\$11,134
New Brunswick	\$279,720,911	26848	\$10,419	2804	\$29,216,435	\$10,419
Nova Scotia	\$442,074,595	48963	\$9,029	3816	\$34,458,052	\$9,029
Prince Edward Island	\$85,006,473	5804	\$14,645	344	\$5,044,161	\$14,645
Newfoundland and Labrador	\$387,145,900	25622	\$15,110	974	\$14,717,044	\$15,110

Notes:

(1) It is assumed that government grants are from the provincial governments unless otherwise stated, in which case they are entered in the Other Government Grants column. Includes grants related to all accounts

Source: Institution Accounts for 2008-2009; CAUBO (2010)

Table D5: Operating expenditure by institutions for international students

	I	II	III	IV	V	VI	VII
	Operating Expenses 1	Student Fees Related to Operating Accounts	Actual Operating Expenditure (I)- (II)	Proportion of Operating Expenditure as Direct Payments to Students ^{2,3}	Operating Expenditure for All Students (III)*[1 (IV)]	FTEint/FTEall	Operating Expenditure for International Students (V)*(VI)
Acadia University	\$70,776,000	\$28,828,000	\$41,948,000	0.021	\$41,067,092.00	0.149	\$6,106,867.45
Atlantic School of Theology	\$2,894,000	\$359,000	\$2,535,000	0.008	\$2,514,720.00	0.022	\$55,303.10
Cape Breton University	\$42,740,468	\$17,775,656	\$24,964,812	0.076	\$23,067,486.29	0.106	\$2,436,855.46
College of the North Atlantic	\$124,103,338	\$29,547,605	\$94,555,733	0.044 *	\$90,395,280.75	0.008	\$742,771.41
Dalhousie University	\$346,874,000	\$153,566,000	\$193,308,000	0.060	\$181,709,520.00	0.078	\$14,141,475.98
Holland College	\$46,495,983	\$0	\$46,495,983	0.044 *	\$44,450,159.75	0.011	\$509,647.89
Memorial University of Newfoundland	\$319,725,000	\$74,148,000	\$245,577,000	0.044 *	\$234,771,612.00	0.053	\$12,409,140.93
Mount Allison University	\$46,495,226	\$25,377,283	\$21,117,943	0.024	\$20,611,112.37	0.049	\$1,011,074.17
Mount Saint Vincent University	\$44,440,989	\$20,296,627	\$24,144,362	0.076	\$22,309,390.49	0.086	\$1,925,749.24
New Brunswick Community College	\$116,368,900	\$13,616,000	\$102,752,900	0.002	\$102,547,394.20	0.016	\$1,681,104.82
Nova Scotia Agricultural College	\$27,213,000	\$4,835,000	\$22,378,000	0.042	\$21,438,124.00	0.090	\$1,931,793.97
Nova Scotia College of Art and Design	\$16,181,062	\$6,084,448	\$10,096,614	0.076	\$9,329,271.34	0.066	\$613,674.58
Nova Scotia Community College	\$185,145,191	\$34,372,565	\$150,772,626	0.044 *	\$144,138,630.46	0.006	\$841,762.24
Saint Mary's University	\$93,739,000	\$66,976,000	\$26,763,000	0.071	\$24,862,827.00	0.177	\$4,394,523.38
St. Francis Xavier University	\$89,076,965	\$53,434,786	\$35,642,179	0.050	\$33,860,070.05	0.046	\$1,552,152.92
St. Thomas University	\$31,906,431	\$18,042,772	\$13,863,659	0.038	\$13,336,839.96	0.045	\$595,720.57
Université de Moncton	\$130,497,885	\$33,953,823	\$96,544,062	0.035	\$93,165,019.83	0.082	\$7,640,628.34
Université Sainte-Anne	\$18,130,000	\$5,527,000	\$12,603,000	0.024	\$12,300,528.00	0.080	\$989,253.08
University of King's College	\$17,121,102	\$9,441,652	\$7,679,450	0.060	\$7,218,683.00	0.026	\$185,897.23
University of New Brunswick	\$267,615,000	\$86,891	\$267,528,109	0.044 *	\$255,756,872.20	0.183	\$46,729,502.16
University of Prince Edward Island	\$90,296,458	\$31,141,305	\$59,155,153	0.044 *	\$56,552,326.27	0.085	\$4,785,484.29

Notes:

- (1) Other operating expenditure includes, but is not limited to, revenue spent from external cost recoveries, corporations and foundations and gifts; also includes ancillary accounts if listed separately.
- (2) Proportion of operating expenditure as direct payments to students was identified by each institution through email correspondence. In absence of a response from an institution, an average from the institutions who provided information was taken. Imputed mean values are signified by *
- (3) Includes scholarship, awards, bursaries from operating accounts

Source: Institution Accounts for 2008-2009; CAUBO (2010)

Table D6: Endowment expenditure of institutions

	I	II	III	IV	V	VI	VII
	Endowment Expenditure	Student Fees Related to Endowment Accounts	Total Endowment Expenditure (I)-(II)	Proportion of Non-operating Expenditure for Students as Direct Payment to Students 1,2	Endowment Expenditure for All Students (III)*[1-(IV)]	FTEint/ FTEall	Endowment Expenditure for International Students (V) * (VI)
Acadia University	\$0	\$0	\$0	0.111	\$0.00	0.149	\$0.00
Atlantic School of Theology	\$0	\$0	\$0	0.000	\$0.00	0.022	\$0.00
Cape Breton University	\$979,948	\$0	\$979,948	0.111	\$871,173.77	0.106	\$92,031.03
College of the North Atlantic	\$0	\$0	\$0	0.124 *	\$0.00	0.008	\$0.00
Dalhousie University	\$17,690,000	\$0	\$17,690,000	0.175	\$14,594,250.00	0.078	\$1,135,792.09
Holland College	\$0	\$0	\$0	0.124 *	\$0.00	0.011	\$0.00
Memorial University of Newfoundland	\$6,683,000	\$0	\$6,683,000	0.124 *	\$5,854,308.00	0.053	\$309,436.62
Mount Allison University	\$3,492,004	\$0	\$3,492,004	0.153	\$2,957,727.39	0.049	\$145,090.75
Mount Saint Vincent University	\$1,054,396	\$0	\$1,054,396	0.111	\$937,358.04	0.086	\$80,912.86
New Brunswick Community College	\$0	\$0	\$0	0.000	\$0.00	0.016	\$0.00
Nova Scotia Agricultural College	\$0	\$0	\$0	0.117	\$0.00	0.090	\$0.00
Nova Scotia College of Art and Design	\$217,009	\$0	\$217,009	0.124 *	\$190,099.88	0.066	\$12,504.67
Nova Scotia Community College	\$1,129,704	\$0	\$1,129,704	0.124 *	\$989,620.70	0.006	\$5,779.33
Saint Mary's University	\$617,000	\$0	\$617,000	0.225	\$478,175.00	0.177	\$84,517.79
St. Francis Xavier University	\$0	\$0	\$0	0.040	\$0.00	0.046	\$0.00
St. Thomas University	\$730,298	\$0	\$730,298	0.198	\$585,699.00	0.045	\$26,161.59
Université de Moncton	\$0	\$0	\$0	0.220	\$0.00	0.082	\$0.00
Université Sainte-Anne	\$0	\$0	\$0	0.124 *	\$0.00	0.080	\$0.00
University of King's College	\$5,832,408	\$0	\$5,832,408	0.150	\$4,957,546.80	0.026	\$127,667.92
University of New Brunswick	\$5,132,000	\$0	\$5,132,000	0.124 *	\$4,495,632.00	0.183	\$821,399.81
University of Prince Edward Island	\$0	\$0	\$0	0.124 *	\$0.00	0.085	\$0.00

Notes:

- (1) Proportion of non-operating expenditure as direct payments to students was identified by each institution through email correspondence. In absence of a response from an institution, an average from the institutions who provided information was taken. Imputed mean values are signified by *
- (2) Includes scholarship, awards, bursaries from endowment accounts

Source: Institution Accounts for 2008-2009; CAUBO (2010)

Table D7: Institutional scholarly grants and applied research/contract expenditure for international students

	I	II	III	IV	V	VI	VII	VIII	XI
	Scholarly Grants and Applied Research Contracts Expenditure 1	Student Fees Related to Research Accounts	Total Scholarly Grants and Applied Research Contracts (I)-(II)	Proportion of Non-operating Expenditure for Students 2	Proportion of Non-operating Expenditure for Students as Direct Payment to Students 3, 4	Proportion of Non-operating Expenditure for Students Excluding Direct Payments to Students (IV) - (V)	Total Scholarly Grants and Applied Research and Contract Expenditure for All Students (III)*(VI)	FTEint/ FTEall	Total Scholarly Grants and Applied Research and Contract Expenditure for International Students (VII) * (VIII)
Acadia University	\$5,999,000	\$0	\$5,999,000	0.920	0.111	0.809	\$4,853,191.00	0.149	\$721,692.06
Atlantic School of Theology	\$0	\$0	\$0	0.909	0.000	0.909	\$0.00	0.022	\$0.00
Cape Breton University	\$4,466,629	\$184,251	\$4,282,378	0.950	0.111	0.839	\$3,592,915.14	0.106	\$379,556.52
College of the North Atlantic	\$0	\$0	\$0	0.949*	0.124*	0.825	\$0.00	0.008	\$0.00
Dalhousie University	\$101,194,000	\$0	\$101,194,000	0.950	0.175	0.775	\$78,425,350.00	0.078	\$6,103,423.77
Holland College	\$0	\$0	\$0	0.949*	0.124*	0.825	\$0.00	0.011	\$0.00
Memorial University of Newfoundland	\$76,246,000	\$157,000	\$76,089,000	0.949*	0.124*	0.825	\$62,773,425.00	0.053	\$3,317,966.22
Mount Allison University	\$3,464,654	\$0	\$3,464,654	1.000	0.153	0.847	\$2,934,561.94	0.049	\$143,954.37
Mount Saint Vincent University	\$5,685,290	\$0	\$5,685,290	0.950	0.111	0.839	\$4,769,958.31	0.086	\$411,743.37
New Brunswick Community College	\$0	\$0	\$0	1.000	0.000	1	\$0.00	0.016	\$0.00
Nova Scotia Agricultural College	\$11,792,000	\$475,000	\$11,317,000	1.000	0.117	0.883	\$9,992,911.00	0.090	\$900,463.36
Nova Scotia College of Art and Design	\$0	\$0	\$0	0.949*	0.124*	0.825	\$0.00	0.066	\$0.00
Nova Scotia Community College	\$0	\$0	\$0	0.949*	0.124*	0.825	\$0.00	0.006	\$0.00
Saint Mary's University	\$8,567,000	\$0	\$8,567,000	1.000	0.225	0.775	\$6,639,425.00	0.177	\$1,173,523.37
St. Francis Xavier University	\$7,175,284	\$0	\$7,175,284	0.900	0.040	0.86	\$6,170,744.24	0.046	\$282,868.25
St. Thomas University	\$1,341,971	\$0	\$1,341,971	0.902	0.198	0.704	\$944,747.58	0.045	\$42,199.32
Université de Moncton	\$28,931,000	\$175,000	\$28,756,000	0.850	0.220	0.63	\$18,116,280.00	0.082	\$1,485,748.22
Université Sainte-Anne	\$303,000	\$0	\$303,000	0.949*	0.124*	0.825	\$249,975.00	0.080	\$20,103.90
University of King's College	\$1,142,668	\$0	\$1,142,668	1.000	0.150	0.85	\$971,267.80	0.026	\$25,012.32
University of New Brunswick	\$4,475,000	\$0	\$4,475,000	0.949*	0.124*	0.825	\$3,691,875.00	0.183	\$674,544.85
University of Prince Edward Island	\$11,951,070	\$0	\$11,951,070	0.949*	0.124*	0.825	\$9,859,632.75	0.085	\$834,326.73

Notes:

- (1) Research expenditure includes, but is not limited to, special purpose accounts, trust funds, and sponsored research
- (2) Proportion of non-operating expenditure for students was identified by each institution through email correspondence. In absence of a response from an institution, an average from the institutions who provided information was taken. Imputed mean values are signified by *
- (3) Proportion of non-operating expenditure as direct payments to students was identified by each institution through email correspondence. In absence of a response from an institution, an average from the institutions who provided information was taken. Imputed mean values are signified by *
- (4) Includes scholarship, awards, bursaries from endowment accounts

Source: Institution Accounts for 2008-2009; CAUBO (2010)

Table D8: Capital expenditure for international students

	I	II	III	IV	V
	Capital Expenditure ¹	Student Fees Related to Capital Accounts	Capital Expenditure for All Students (I)-(II)	FTEint/FTEall	Capital Expenditure for International Students (III)*(IV)
Acadia University	\$8,271,000	\$0	\$8,271,000.00	0.149	\$1,229,936.14
Atlantic School of Theology	\$0	\$0	\$0.00	0.022	\$0.00
Cape Breton University	\$3,256,206	\$0	\$3,256,206.00	0.106	\$343,986.48
College of the North Atlantic	\$0	\$0	\$0.00	0.008	\$0.00
Dalhousie University	\$21,104,000	\$0	\$21,104,000.00	0.078	\$1,642,410.97
Holland College	\$0	\$0	\$0.00	0.011	\$0.00
Memorial University of Newfoundland	\$37,244,000	\$0	\$37,244,000.00	0.053	\$1,968,577.21
Mount Allison University	\$3,140,709	\$0	\$3,140,709.00	0.049	\$154,066.88
Mount Saint Vincent University	\$2,247,188	\$182,803	\$2,064,385.00	0.086	\$178,197.96
New Brunswick Community College	\$367,500	\$0	\$367,500.00	0.016	\$6,024.59
Nova Scotia Agricultural College	\$298,000	\$0	\$298,000.00	0.090	\$26,852.84
Nova Scotia College of Art and Design	\$1,918,832	\$0	\$1,918,832.00	0.066	\$126,219.76
Nova Scotia Community College	\$2,801,044	\$0	\$2,801,044.00	0.006	\$16,357.95
Saint Mary's University	\$7,275,000	\$0	\$7,275,000.00	0.177	\$1,285,861.72
St. Francis Xavier University	\$7,037,903	\$0	\$7,037,903.00	0.046	\$322,618.99
St. Thomas University	\$2,099,713	\$0	\$2,099,713.00	0.045	\$93,788.50
Université de Moncton	\$1,987,000	\$0	\$1,987,000.00	0.082	\$162,957.39
Université Sainte-Anne	\$0	\$0	\$0.00	0.080	\$0.00
University of King's College	\$905,364	\$0	\$905,364.00	0.026	\$23,315.15
University of New Brunswick	\$2,062,000	\$0	\$2,062,000.00	0.183	\$376,749.34
University of Prince Edward Island	\$2,077,135	\$0	\$2,077,135.00	0.085	\$175,768.13

Notes:

(1) Capital Expenditure represents resources provided to the University for capital purposes and not reported in any other fund

Source: Institution Accounts for 2008-2009; CAUBO (2010)

to students (calculated in Table D5). The *Non-Operating Account* includes endowments (calculated in Table D6) as well as scholarly grants and applied research contracts (calculated in Table D7). The amount of *Capital* spending is calculated in Table D8.

Tables D4 to D8 calculate the proportion of total spending for each category that is attributable to international students. This calculation is done using the proportion of full-time equivalents (FTEs) for international students enrolled at each institution for 2008-2009.

Table D5 calculates the total amount of other institutional operating expenditures excluding both student fees related to operating expenses and direct payments to students. This amount was calculated as total operating expenditure and any ancillary expenses reported in the annual financial reports *less* student fees (which already gets captured through student spending) Next, this amount is reduced by the estimated proportion of operating expenditure that is directly paid to students (e.g. scholarships, teaching assistantships, etc.). Expenditures related to *direct* payment to students are excluded in order to avoid the potential for double-counting these expenditures on *both* the institution and student sides. The estimated proportion included in the spreadsheet was determined using data provided through email correspondence. For institutions that did not provide an estimated proportion, an average was taken from the other institutions. The calculation of other operating expenditure by institutions for international students is based on FTEs.

Table D6 calculates institutional endowment expenditure based on the total amount of endowment expenses in the annual financial reports of the institutions. All associated student fees and any known direct payments to students were then subtracted. Endowment is a restricted fund that accounts for the capitalization of externally and internally restricted amounts, primarily donations, which cannot be spent. Typically this expenditure represents the proportion of earnings on the endowment fund that flows into institutional expenditures in the current year (the rest of which is re-invested in the endowment fund).

In a number of instances endowment spending was not available at the fund level. It is thus assumed that endowment expenditure is either rolled into the operating fund, thus captured in previous Table D5, or no endowment spending occurred in the 2008-09 fiscal year. Finally, the proportion attributable to international students in Table D6 is based on FTEs.

Table D7 calculates total scholarly grant and applied research/contract spending by taking the total amount indicated in the annual financial reports and multiplying it by the proportion of non-operating expenditure for students *excluding* direct payment to students and any associated student fees. This aforementioned proportion was determined based on additional information requested from the institutions. Wherever institutions did not provide this information, an average was taken from the institutions who did provide the estimated proportion. Finally, the proportion attributable to international students is based on FTEs.

Table D8 presents capital expenditure for international students. Capital expenditure represents resources spent by institutions for capital purposes and not reported in any other fund and excludes student fees related to capital expenses. The proportion of capital expenditure attributable to international students is based on FTEs.

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Abstract:

The School of Public Administration, Dalhousie University, carried out an expenditure analysis of the economic impact of international students in Atlantic Canada's universities and colleges. The study used a survey of international students and a combination of the literature, government and university information. The initial economic impact of international students was found to be \$376 million per year, including an initial injection of \$175 million of new money to Atlantic Canada. International students spent \$2.64 (\$1.91 of which is new money injected into the economy) in Atlantic Canada for every dollar spent by Atlantic Province governments for their education and health care. The total economic impact of international students was \$565 million after application of the spending multiplier. Generally, international students had positive impressions of Atlantic Canada, and 40 percent of survey respondents expressed interest in permanent residence, suggesting that this group was a good candidate source of future immigrants who could help to address the region's demographic challenges.

Keywords:

Atlantic Canada; Economic Impact; Education Policy; Expenditure Analysis; Immigration Policy; International Students; Post-secondary Education

