

EXECUTIVE SUMMARY

Demonstrating the Value of the Atlantic Community Colleges

FEBRUARY 2014

Analysis of the Economic Impact and Return on Investment of Education

STUDY HIGHLIGHTS

ECONOMIC IMPACT ANALYSIS

- The Atlantic Provinces Region received approximately **\$465.5 million** in added income in 2012-13 due to the operations of the Atlantic Community Colleges and the spending of students from outside the region.
- Former students of the Atlantic Community Colleges who were active in the regional workforce in 2012-13 generated another **\$4.2 billion** in added income through their higher earnings and increased productivity of their employers.
- Altogether, the Atlantic Community Colleges and their students added **\$4.7 billion** to the Atlantic Provinces Region.

INVESTMENT ANALYSIS

- For every \$1 students invest in the Atlantic Community Colleges, they receive a cumulative **\$4.00** in higher future earnings over the course of their working careers.
- Society as a whole in the Atlantic Provinces receives **\$3.1 billion** in added income and **\$88.6 million** in social savings related to reduced crime, lower unemployment, and improved health across the region.
- Provincial taxpayers receive an internal rate of return of **7.2%** on their investment in the Atlantic Community Colleges.

INTRODUCTION

The Atlantic Community Colleges create value in many ways. This study investigates the economic impacts created by the Atlantic Community Colleges on the Atlantic Provinces Region and the benefits that the colleges generate in return for the investments made by their key stakeholder groups—students, society, and taxpayers.

List of participating colleges

- Collège communautaire du Nouveau-Brunswick (New Brunswick)
- College of the North Atlantic (Newfoundland and Labrador)
- Holland College (Prince Edward Island)
- New Brunswick Community College (New Brunswick)
- Nova Scotia Community College (Nova Scotia)

The Atlantic Community Colleges play a key role in helping students increase their employability and achieve their individual potential. However, the contribution of the Atlantic Community Colleges consists of more than just influencing the lives of students. The colleges serve a range of industries in the region and supply businesses with skilled workers. Society as a whole in the Atlantic Provinces benefits from an expanded economy and improved quality of life. The benefits created by the Atlantic Community Colleges extend as far as the provincial governments, in the form of increased tax revenues and public sector savings.

The following two analyses are presented:

- **Economic impact analysis** measuring the income created by the colleges and their students in the Atlantic Provinces Region.
- **Investment analysis** weighing the benefits to students, society, and taxpayers in return for the costs of supporting the colleges.

The results of the study reflect the 2012-13 analysis year. Data and assumptions are based on academic and financial reports from the colleges, industry and employment data from Statistics Canada, outputs of EMSI's Canadian regional input-output model, and a variety of studies and surveys relating education to social behaviour. The study applies a conservative methodology and follows standard practice using only the most recognized indicators of economic impact and investment effectiveness.

ECONOMIC IMPACT ANALYSIS

Economic impact analysis measures the net added income created by the Atlantic Community Colleges in the regional economy through the spending of the colleges and their students and the enhanced productivity of the workforce. The entire region serves as the backdrop for the analysis.

The Atlantic Community Colleges promote economic growth in the Atlantic Provinces Region in a variety of ways. The colleges are employers and buyers of goods and services, and the living expenses of students from outside the region benefit businesses. In addition, the Atlantic Community Colleges are a primary source of education to residents and a supplier of trained workers to regional industries.

Results of the economic impact analysis are organized according to the following three effects:

1. Impact of college operations;
2. Impact of the spending of students who relocated to the region, and;
3. Impact of the increased productivity of former students employed in the regional workforce during the analysis year.

Added income created by the Atlantic Community Colleges in 2012-13

\$450.2 million
Effect of college operations

\$15.2 million
Effect of student spending

\$4.2 billion
Effect of student productivity

\$4.7 billion
Total effect

Job equivalents based on income

Job equivalents are a measure of the median-wage jobs that a given amount of income can potentially support. They are calculated by dividing income by the median annual wages per worker in the region. Based on the added income created by the Atlantic Community Colleges, the job equivalents are as follows:

Effect of college operations =
10,659 job equivalents

Effect of student spending =
361 job equivalents

Effect of student productivity =
99,988 job equivalents

Overall, the added income created by the Atlantic Community Colleges and their students supported **111,008** median-wage job equivalents.

IMPACT OF COLLEGE OPERATIONS

The Atlantic Community Colleges are important employers in the Atlantic Provinces Region. In 2012-13, the colleges employed faculty and staff equivalent to 5,137 full-time employees. Nearly all of these lived in the region. Total payroll at the Atlantic Community Colleges was \$387 million, much of which was spent in the region for groceries, eating out, clothing, and other household expenses.

The Atlantic Community Colleges are themselves large-scale buyers of goods and services. In 2012-13, the colleges spent \$153.2 million to cover their expenses for facilities, professional services, and supplies.

The total income that the Atlantic Community Colleges created during the analysis year as a result of their day-to-day operations was \$450.2 million. This figure represents the colleges' payroll, the multiplier effects generated by the spending of the colleges and their employees, and a downward adjustment to account for funding that the colleges received from sources within the region.

IMPACT OF STUDENT SPENDING

Approximately 2,279 students at the Atlantic Community Colleges relocated to the Atlantic Provinces Region to attend the colleges in 2012-13, including international students. While attending, these students spent \$33.1 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the region, generating \$15.2 million in new income in the economy during the analysis year.

IMPACT OF STUDENT PRODUCTIVITY

The greatest impact of the Atlantic Community Colleges results from the education and training they provide for regional residents. Since the colleges were established, students have studied at the Atlantic Community Colleges and entered the workforce with newly acquired skills. Today thousands of former students are employed in the Atlantic Provinces Region.

During the analysis year, former students of the Atlantic Community Colleges generated \$4.2 billion in added income in the region. This figure represents the higher wages that students earned during the year, the increased output of the businesses that employed the students, and the multiplier effects that occurred as students and their employers spent money at other businesses.

TOTAL IMPACT

The overall effect of the Atlantic Community Colleges on the regional economy during the analysis year amounted to \$4.7 billion, equal to the sum of the college operations effect, the student spending effect, and the student productivity effect. This added income was equal to approximately 5.0% of the region's Gross Domestic Product.

INVESTMENT ANALYSIS

Investment analysis is the process of evaluating total costs and measuring these against total benefits to determine whether or not a proposed venture will be profitable. If benefits outweigh costs, then the investment is worthwhile. If costs outweigh benefits, then the investment will lose money and is considered unprofitable. This study considers the Atlantic Community Colleges as an investment from the perspectives of students, society, and taxpayers. The backdrop for the analysis is the entire Atlantic Provinces economy.

STUDENT PERSPECTIVE

In 2012-13, the Atlantic Community Colleges served 39,488 credit students and 29,824 non-credit students. In order to attend the colleges, students paid for tuition, fees, books, and supplies. They also gave up money that they would have otherwise earned had they been working instead of learning. The total investment made by students at the Atlantic Community Colleges in 2012-13 amounted to \$465.3 million, equal to \$110 million in out-of-pocket expenses plus \$355.3 million in forgone time and money.

In return for their investment, students of the Atlantic Community Colleges develop the skills required for an increasingly globalized workplace and receive a stream of higher future wages that will continue to grow throughout their working lives. As shown in Figure 1, mean earnings levels at the midpoint of the average-aged worker's career increase as people achieve higher levels of education. For example, the average two-year diploma completer from the Atlantic Community Colleges will see an increase in earnings of \$12,200 each year compared to someone with a high school diploma or equivalent. Over a working lifetime, this increase in earnings amounts to an undiscounted value of approximately \$432,010 in higher earnings.

The present value of the higher future wages that students at the Atlantic Community Colleges will receive over their working careers is \$1.9 billion. Dividing this value by the \$465.3 million in student costs yields a benefit-cost ratio of 4.0. In other words, for every \$1 students invest in the Atlantic Community Colleges in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$4.00 in higher future wages. The return on investment to students (i.e., the benefit-cost ratio less the cost of the original investment) thus comes to \$3.00 in benefits returned over and above every \$1 in costs.

The average annual internal rate of return for students is 21.3%. This is a favourable return compared, for example, to the less than 1% return per annum that is generally expected from saving money in today's standard bank savings accounts.

STUDENT PERSPECTIVE

\$1,867,570

Benefits (thousands)

\$465,287

Costs (thousands)

\$1,402,283

Net present value (thousands)

4.0

Benefit-cost ratio

21.3%

Rate of return

Figure 1. Annual earnings by education level at career midpoint in the Atlantic Provinces Region

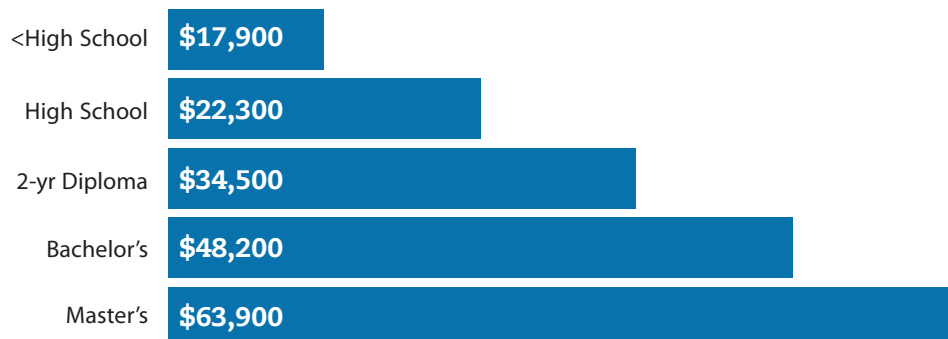
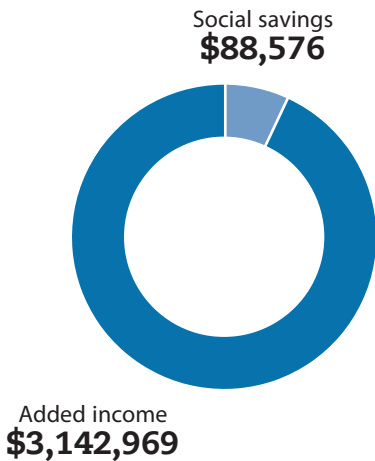


Figure 2. Present value of added income and social savings in the Atlantic Provinces (thousands)



SOCIAL PERSPECTIVE

\$3,231,545 Benefits (thousands)
\$402,024 Costs (thousands)
\$2,829,521 Net present value (thousands)
8.0 Benefit-cost ratio
n/a* Rate of return

*The internal rate of return is not reported for the social perspective because the beneficiaries of the investment are not necessarily the same as the original investors.

SOCIAL PERSPECTIVE

The Atlantic Community Colleges aim to improve the socioeconomic well-being of the local and regional community by increasing students' earning potential and by positively influencing the health and lifestyle habits of their students. As a result, society as a whole in the Atlantic Provinces benefits from the presence of the Atlantic Community Colleges in two major ways. The first and largest benefit to society is the added income created in the region. As discussed in the previous section, students earn more because of the skills they acquire while attending the Atlantic Community Colleges. Businesses also earn more because the enhanced skills of students make them more productive. Together, higher student wages and increased business output stimulate increases in income across the region, thereby raising prosperity in the Atlantic Provinces and expanding the economic base for society as a whole.

Benefits to society also consist of the savings generated by the improved lifestyles of students. Education is statistically correlated with a variety of lifestyle changes that generate social savings across three main categories: 1) health, 2) crime, and 3) income assistance. Health savings include avoided medical costs associated with smoking, alcoholism, obesity, and mental illness. Crime savings include reduced Criminal Justice System expenditures, lower victim costs, and increased productivity of individuals who are working rather than spending time in custody. Income assistance savings include the reduced demand for employment insurance benefits and employment-related social assistance.

Figure 2 shows the present value of the added income and social savings that will occur in the Atlantic Provinces over the working lifetimes of the 2012-13 student population at the Atlantic Community Colleges. Added income amounts to a present value of \$3.1 billion due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to \$88.6 million, the sum of health, crime, and income assistance savings in the Atlantic Provinces. Altogether, total benefits to society equal \$3.2 billion (in present value terms).

Provincial taxpayers invested \$402 million in the Atlantic Community Colleges during the analysis year. For every dollar of this investment, society as a whole in the Atlantic Provinces will receive a cumulative value of \$8.00 in benefits, equal to the \$3.2 billion in benefits divided by the \$402 million in costs. These benefits will occur for as long as the 2012-13 student population at the Atlantic Community Colleges remains employed in the regional workforce.

TAXPAYER PERSPECTIVE

From the taxpayer perspective, benefits consist primarily of the taxes that the provincial governments will collect from the added income created in the region. As students of the Atlantic Community Colleges earn more, they will make higher tax payments. Employers will also make higher tax payments as they increase their output and purchase more supplies and services. By the end of the students' working careers, the provincial governments will have collected a present value of \$588.5 million in added taxes.

TAXPAYER PERSPECTIVE

\$624,160

Benefits (thousands)

\$402,024

Costs (thousands)

\$222,136

Net present value (thousands)

1.6

Benefit-cost ratio

7.2%

Rate of return

A portion of the savings enjoyed by society also accrues to provincial taxpayers. Students are more employable, so the demand for income assistance reduces. Improved health habits lower the students' demand for provincial health care services. Students are also less likely to commit crimes, so the demand for law enforcement services reduces. All of these benefits will generate a present value of \$35.7 million in savings to provincial taxpayers.

Total benefits to taxpayers are \$624.2 million, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$402 million—equal to the funding that the Atlantic Community Colleges received from the provincial governments during the analysis year—yields a benefit-cost ratio of 1.6. This means that for every \$1 of public money invested in the Atlantic Community Colleges, taxpayers receive a cumulative value of \$1.60 over the course of the students' working lives. In other words, taxpayers fully recover the cost of the original investment and also receive a return of \$0.60 in addition to every \$1 they paid. The internal rate of return is 7.2%, a solid investment that compares favourably with other long-term investments in both the private and public sectors.

CONCLUSION

About EMSI

Economic Modeling Specialists International, a CareerBuilder company, is a leading provider of economic impact studies and labour market data to educational institutions, workforce planners, and regional developers in North America and the UK. Since 2000, EMSI has completed over 1,200 economic impact studies for educational institutions in four countries. For more information about EMSI and its products and services, visit www.economic-modeling.com.

The results of this study demonstrate that the Atlantic Community Colleges create value from multiple perspectives. The colleges benefit regional businesses by increasing consumer spending and supplying a steady flow of qualified, trained workers into the workforce. They enrich the lives of students by raising their lifetime earnings and helping them achieve their individual potential. They benefit society as a whole in the Atlantic Provinces by creating a more prosperous economy and generating a variety of savings through the improved lifestyles of students. Finally, they benefit provincial taxpayers through increased tax receipts across the region and a reduced demand for government-supported social services.