

EXECUTIVE SUMMARY

Demonstrating the Value of Nova Scotia Community College

FEBRUARY 2014

Analysis of the Economic Impact and Return on Investment of Education

STUDY HIGHLIGHTS

ECONOMIC IMPACT ANALYSIS

- Nova Scotia received approximately **\$166.5 million** in added income in 2012-13 due to the operations of NSCC and the spending of out-of-province students.
- Former NSCC students who were active in the provincial workforce in 2012-13 generated another **\$1.2 billion** in added income through their higher earnings and increased productivity of their employers.
- Altogether, NSCC and its students added **\$1.4 billion** to the Nova Scotia economy.

INVESTMENT ANALYSIS

- For every \$1 students invest in NSCC, they receive a cumulative **\$3.50** in higher future earnings over the course of their working careers.
- Society as a whole in Nova Scotia receives **\$1 billion** in added income and **\$32.2 million** in social savings related to reduced crime, lower unemployment, and improved health across the province.
- Provincial taxpayers receive an internal rate of return of **6.2%** on their investment in NSCC.

INTRODUCTION

Nova Scotia Community College creates value in many ways. This study investigates the economic impacts created by NSCC on the provincial economy and the benefits that the college generates in return for the investments made by its key stakeholder groups—students, society, and taxpayers.

Nova Scotia Community College (NSCC) plays a key role in helping students increase their employability and achieve their individual potential. However, the contribution of NSCC consists of more than just influencing the lives of students. The college serves a range of industries in Nova Scotia and supplies local businesses with skilled workers. Society as a whole in Nova Scotia benefits from an expanded economy and improved quality of life. The benefits created by NSCC extend as far as the provincial government, in the form of increased tax revenues and public sector savings.

The following two analyses are presented:

- **Provincial economic impact analysis** measuring the income created by the college and its students in Nova Scotia.
- **Investment analysis** weighing the benefits to students, society, and taxpayers in return for the costs of supporting the college.

The results of the study reflect the 2012-13 analysis year. Data and assumptions are based on academic and financial reports from the college, 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.

PROVINCIAL ECONOMIC IMPACT ANALYSIS

Provincial economic impact analysis measures the net added income created by NSCC in the provincial economy through the spending of the college and its students and the enhanced productivity of the workforce. The backdrop for the analysis is Nova Scotia.

NSCC promotes economic growth in Nova Scotia in a variety of ways. The college is an employer and a buyer of goods and services, and the living expenses of students from outside of the province benefit local businesses. In addition, NSCC is a primary source of education to local residents and a supplier of trained workers to local industry.

Results of the provincial 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 province, and;
3. Impact of the increased productivity of former students employed in the provincial workforce during the analysis year.

Added income created by NSCC in 2012-13

\$162.7 million
Effect of college operations

\$3.8 million
Effect of student spending

\$1.2 billion
Effect of student productivity

\$1.4 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 province. Based on the added income created by NSCC, the job equivalents are as follows:

Effect of college operations =
3,967 job equivalents

Effect of student spending =
93 job equivalents

Effect of student productivity =
30,223 job equivalents

Overall, the added income created by NSCC and its students supported **34,283** median-wage job equivalents.

IMPACT OF COLLEGE OPERATIONS

NSCC is an important employer in Nova Scotia. In 2012-13, the college employed faculty and staff equivalent to 1,595 full-time employees. Of these, 100% lived in Nova Scotia. Total payroll at NSCC was \$141.3 million, much of which was spent in the province for groceries, eating out, clothing, and other household expenses.

NSCC is itself a large-scale buyer of goods and services. In 2012-13, the college spent \$62.2 million to cover its expenses for facilities, professional services, and supplies.

The total income that NSCC created during the analysis year as a result of its day-to-day operations was \$162.7 million. This figure represents the college's payroll, the multiplier effects generated by the spending of the college and its employees, and a downward adjustment to account for funding that the college received from local sources.

IMPACT OF STUDENT SPENDING

Approximately 673 NSCC students relocated to Nova Scotia to attend college in 2012-13, including international students. While attending, these students spent \$9.8 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the province, generating \$3.8 million in new income in the economy during the analysis year.

IMPACT OF STUDENT PRODUCTIVITY

NSCC's greatest impact results from the education and training it provides for local residents. Since the college was established, students have studied at NSCC and entered the workforce with newly acquired skills. Today thousands of former students are employed in Nova Scotia.

During the analysis year, NSCC's former students generated \$1.2 billion in added income in the province. 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 NSCC on the provincial economy during the analysis year amounted to \$1.4 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 3.7% of the province'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 NSCC as an investment from the perspectives of students, society, and taxpayers. The backdrop for the analysis is the entire Nova Scotia economy.

STUDENT PERSPECTIVE

In 2012-13, NSCC served 16,388 credit students and 6,804 non-credit students. In order to attend college, 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 attending college. The total investment made by NSCC's students in 2012-13 amounted to \$197.6 million, equal to \$41.7 million in out-of-pocket expenses plus \$156 million in forgone time and money.

In return for their investment, NSCC's students 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 income 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 NSCC will see an increase in earnings of \$12,100 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 \$411,400 in higher income.

The present value of the higher future wages that NSCC's students will receive over their working careers is \$698.8 million. Dividing this value by the \$197.6 million in student costs yields a benefit-cost ratio of 3.5. In other words, for every \$1 students invest in NSCC in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$3.50 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 \$2.50 in benefits returned over and above every \$1 in costs.

The average annual internal rate of return for students is 19.3%. 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

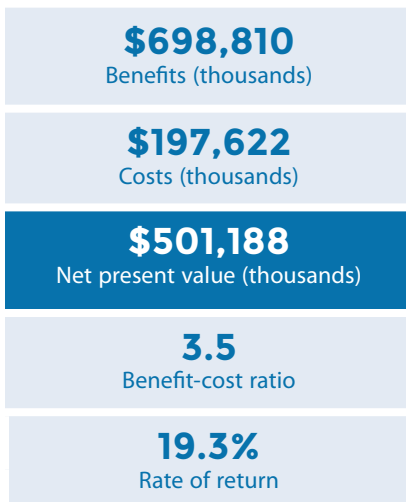
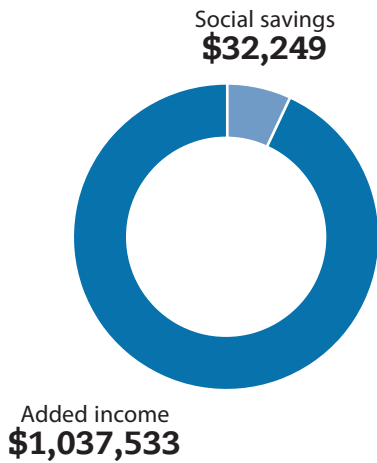


Figure 1. Annual income by education level at career midpoint in Nova Scotia



Figure 2. Present value of added income and social savings in Nova Scotia (thousands)



SOCIAL PERSPECTIVE

\$1,069,782 Benefits (thousands)
\$148,660 Costs (thousands)
\$921,121 Net present value (thousands)
7.2 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

NSCC aims to improve the socioeconomic well-being of the local and provincial community by increasing students' earning potential and by positively influencing the health and lifestyle habits of its students. As a result, society as a whole in Nova Scotia benefits from the presence of NSCC in two major ways. The first and largest benefit to society is the added income created in the province. As discussed in the previous section, students earn more because of the skills they acquire while attending NSCC. 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 province, thereby raising prosperity in Nova Scotia 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 Nova Scotia over the working lifetimes of NSCC's 2012-13 students. Added income amounts to a present value of \$1 billion due to the increased lifetime incomes of students and associated increases in business output. Social savings amount to \$32.2 million, the sum of health, crime, and income assistance savings in Nova Scotia. Altogether, total benefits to society equal \$1.1 billion (in present value terms).

Provincial taxpayers invested \$148.7 million in NSCC during the analysis year. For every dollar of this investment, society as a whole in Nova Scotia will receive a cumulative value of \$7.20 in benefits, equal to the \$1.1 billion in benefits divided by the \$148.7 million in costs. These benefits will occur for as long as NSCC's 2012-13 students remain employed in the provincial workforce.

TAXPAYER PERSPECTIVE

From the taxpayer perspective, benefits consist primarily of the taxes that provincial government will collect from the added income created in the province. As NSCC's 2012-13 students 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, provincial government will have collected a present value of \$196 million in added taxes.

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 national health care services.

TAXPAYER PERSPECTIVE

\$208,621

Benefits (thousands)

\$148,660

Costs (thousands)

\$59,961

Net present value (thousands)

1.4

Benefit-cost ratio

6.2%

Rate of return

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 \$12.7 million in savings to provincial taxpayers.

Total benefits to taxpayers are \$208.6 million, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$148.7 million—equal to the funding that NSCC received from provincial government during the analysis year—yields a benefit-cost ratio of 1.4. This means that for every \$1 of public money invested in NSCC, taxpayers receive a cumulative value of \$1.40 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 \$0.40 in addition to every \$1 they paid. The internal rate of return is 6.2%, 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 NSCC creates value from multiple perspectives. The college benefits local businesses by increasing consumer spending in the province and supplying a steady flow of qualified, trained workers into the workforce. It enriches the lives of students by raising their lifetime incomes and helping them achieve their individual potential. It benefits society as a whole in Nova Scotia by creating a more prosperous economy and generating a variety of savings through the improved lifestyles of students. Finally, it benefits provincial taxpayers through increased tax receipts across the province and a reduced demand for government-supported social services.