



Analysis of the Economic Impact and Return on Investment of Education

THE ECONOMIC VALUE OF RED DEER COLLEGE
TO THE CENTRAL REGION

February 2018

A photograph of the Red Deer College building, a brick structure with a white metal awning. The "RDC" logo is visible on the awning. In the foreground, several students are walking, some carrying backpacks. One student is sitting on a concrete ledge on the right, and another is sitting on the steps leading to the entrance. The image is overlaid with a large, stylized green and teal wave graphic that curves across the top and middle of the page.

EXECUTIVE SUMMARY

Executive summary

Red Deer College (RDC) creates value in many ways. This study investigates the economic impacts created by RDC on the regional economy and the benefits that the college generates in return for the investments made by its key stakeholder groups—students, society, and taxpayers.

The value of RDC influences both the lives of students and the Central Region economy. The college serves a range of industries in the Central Region and supplies local businesses with skilled workers. Society as a whole in Alberta benefits from an expanded economy and improved quality of life. The benefits created by RDC extend as far as the provincial government, in the form of increased tax revenues and public sector savings.

This study investigates the economic impacts created by RDC on the business community and the benefits that the college generates in return for the investments made by its key stakeholder groups—students, society, and taxpayers. The region the college serves is defined as the Cen-

tral Region and consists of census divisions 7, 8, and 9 in Alberta. The following two analyses are presented:

- **Economic impact analysis**
- **Investment analysis**

All results reflect student and financial data for fiscal year (FY) 2015-16. Impacts on the regional business community are reported under the economic impact analysis. Results are measured in terms of added income. The returns on investment to students, society, and taxpayers are reported under the investment analysis. Both analyses are described more fully in the following sections.



Economic impact analysis

RDC promotes economic growth in the Central Region in a variety of ways. The college is an employer and buyer of goods and services, and the living expenses of students benefit local businesses. In addition, RDC is a primary source of education to regional residents and a supplier of trained workers to regional industries.

OPERATIONS SPENDING IMPACT

RDC is an important employer in the Central Region. In FY 2015-16, the college employed faculty and staff equivalent to 665 full-time employees. Of these, 77% lived in the Central Region. Total payroll at RDC was \$63.2 million, much of which was spent in the region for groceries, eating out, clothing, and other household expenses.

RDC is itself a large-scale buyer of goods and services. In FY 2015-16, the college spent \$32.5 million to cover its expenses for facilities, professional services, and supplies.

The total income that RDC created during the analysis year as a result of its day-to-day operations was \$91.6 million, which is equivalent to supporting 1,062 jobs in the region. 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.

STUDENT SPENDING IMPACT

Approximately 2,088 students relocated to the Central Region to attend school at RDC in FY 2015-16, including international students. In addition, a number of in-region students would have left the area for other education opportunities if not for the existence of RDC. While attending, these relocated and retained students spent \$46.2 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the region, generating \$16.7 million in new income in the economy during the analysis year, equivalent to supporting 427 jobs.

ALUMNI IMPACT

The education and training RDC provides for regional residents results in the greatest impact. As shown in Figure 1, since the college was established, students

TABLE 1: Impacts created by RDC in FY 2015-16

ADDED INCOME	JOBS SUPPORTED
\$91.6 million	1,062
Operations spending impact	
\$16.7 million	427
Student spending impact	
\$431.3 million	5,827
Alumni impact	
\$539.6 million	7,316
Total impact	



have studied at RDC and entered the workforce with newly acquired skills. Today, thousands of former students are employed in the Central Region.

During the analysis year, former students of RDC generated \$431.3 million in added income in the region, equivalent to supporting 5,827 jobs. This figure represents the higher wages that former students earned during the year, the increased output of the businesses that employed the former students, and the multiplier effects that occurred as former students and their employers spent money at other businesses.

TOTAL IMPACT

The total impact of RDC on the regional economy during the analysis year amounted to \$539.6 million, equal to the sum of the operations spending impact, the student spending impact, and the alumni impact. The added income is equal to approximately 4.4% of the region’s gross regional product. By comparison, this contribution that the college provides on its own is slightly larger than the entire Wholesale Trade industry in the region.

The total impact is also expressed in terms of the jobs supported by the added income; they are calculated by jobs-to-sales ratios specific to each industry. RDC’s impact supported 7,316 jobs in the Central Region economy. For perspective, this means that one out of every 19 jobs in the Central Region is supported by the activities of RDC and its students.

A portion of the total \$539.6 million is broken out into an industry-by-industry impact ordered by added income. Table 2 outlines the top industries impacted by RDC. Because industries have different jobs-to-sales ratios, the associated jobs supported by RDC differ by impact. Nonetheless, these are impacts that would not have been generated without the college’s presence.



FIGURE 1: RDC alumni working in-region today

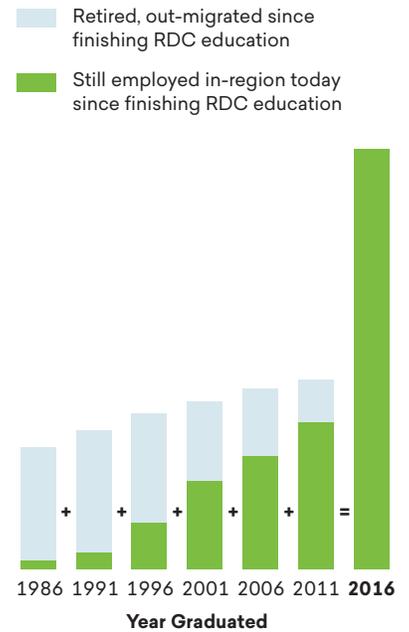


TABLE 2: Top industries impacted by RDC

TOTAL INCOME (MILLIONS)	JOBS SUPPORTED
\$207.6	3,010
Health Care & Social Assistance	
\$50.1	490
Public Administration	
\$41.2	438
Professional, Scientific, & Technical Services	
\$11.9	441
Accommodation & Food Services	
\$11.6	92
Finance & Insurance	
\$217.2	2,846
All other industries	
\$539.6	7,316
Total impact	



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 RDC as an investment from the perspectives of students, society, and taxpayers. The backdrop for the analysis is the entire Alberta economy.

STUDENT PERSPECTIVE

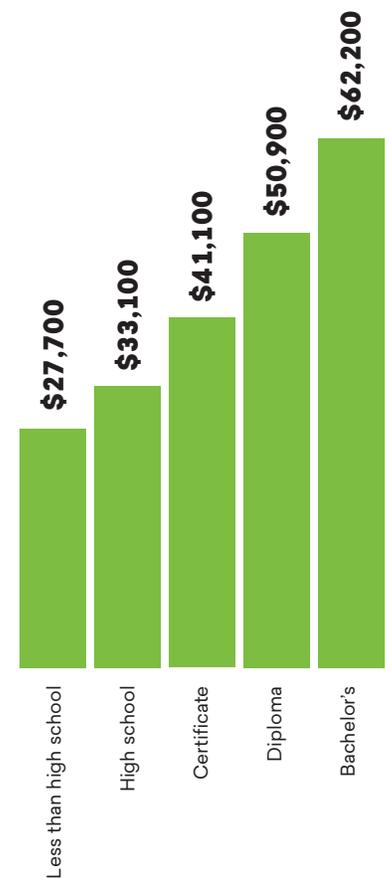
In FY 2015-16, RDC served 7,649 credit students and 14,824 non-credit students. In order to attend school, students paid for tuition, fees, books, and supplies. They also gave up money that they would have otherwise earned had they been working instead of attending school. The total investment made by RDC's students in FY 2015-16 amounted to \$85.6 million, equal to \$24.6 million in out-of-pocket expenses plus \$61 million in forgone time and money.

In return for their investment, RDC's students develop the skills required for an increasingly globalised workplace and receive a stream of higher future wages that will continue to grow throughout their working lives. As shown in Figure 2, 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 diploma graduate from RDC will see increased earnings of \$17,800 per year at their career midpoint in Alberta 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 \$709,330 in higher earnings.

The present value of the higher future wages that RDC's students will receive over their working careers is \$479.7 million. Dividing this value by the \$85.6 million in student costs yields a benefit-cost ratio of 5.6. In other words, for every \$1 students invest in RDC in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative of \$5.60 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 \$4.60 in benefits returned over and above every \$1 in costs.

Students receive an average annual rate of return of 24.0% on their investment in RDC. 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.

FIGURE 2: Average earnings by education level for RDC students at career midpoint in Alberta



Source: Derived from data supplied by Statistics Canada and the Emsi CRIO model.

SOCIAL PERSPECTIVE

RDC 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 students. As a result, society as a whole in Alberta benefits from the presence of RDC 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 RDC. 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 Alberta and expanding the economic base for society as a whole.

Benefits to society also consist of the savings generated by the improved lifestyles of former 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.

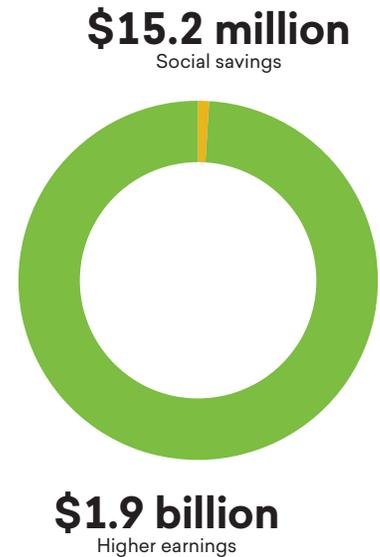
Figure 3 shows the present value of the added income and social savings that will occur in Alberta over the working lifetimes of RDC's FY 2015-16 students. Added income amounts to a present value of \$1.9 billion due to the increased lifetime incomes of students and associated increases in business output. Social savings amount to \$15.2 million, the sum of health, crime, and income assistance savings in Alberta. Altogether, total benefits to society equal \$1.9 billion (in present value terms).

Society invested \$161.6 million in RDC education during the analysis year. This includes all expenditures by RDC, all student expenditures, and all student opportunity costs. Dividing the \$1.9 billion in benefits by these costs yields a benefit-cost ratio of 12.0. In other words, for every \$1 of this investment, society as a whole in Alberta will receive a cumulative value of \$12.00 in benefits. These benefits will occur for as long as RDC's FY 2015-16 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 RDC's FY 2015-16 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 \$325.1 million in added taxes.

FIGURE 3: Present value of higher earnings and social savings in Alberta



A portion of the savings enjoyed by society also accrues to provincial taxpayers. Former students are more employable, so the demand for income assistance reduces. Improved health habits lower the former students' demand for provincial health care services. Former 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 \$6.1 million in savings to provincial taxpayers.

Total benefits to taxpayers are \$331.2 million, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$61.8 million—equal to the funding that RDC received from provincial government during the analysis year—yields a benefit-cost ratio of 5.4. This means that for every \$1 of public money invested in RDC, taxpayers receive a cumulative value of \$5.40 over the course of the former students' working lives. In other words, taxpayers fully recover the cost of the original investment and also receive a return of \$4.40 in addition to every \$1 they paid. The rate of return is 32.1%, a solid investment that compares favourably with other long-term investments in both the private and public sectors.

SUMMARY OF INVESTMENT ANALYSIS RESULTS

Table 3 presents the results of the investment analysis for all three of RDC's major stakeholder groups—students, society, and taxpayers. As shown, students receive great value for their educational investment. At the same time, the investment made by provincial taxpayers to the college creates a wide range of benefits to society and returns more to government budgets than it costs.

TABLE 3: Summary of investment analysis results

	STUDENT PERSPECTIVE	SOCIAL PERSPECTIVE	TAXPAYER PERSPECTIVE
Present value benefits (thousands)	\$479,709	\$1,938,175	\$331,229
Present value costs (thousands)	\$85,598	\$161,639	\$61,767
Net present value (thousands)	\$394,111	\$1,776,536	\$269,462
Benefit-cost ratio	5.6	12.0	5.4
Rate of return	24.0%	N/A*	32.1%

* The 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.

Conclusion

The results of this study demonstrate that RDC creates value from multiple perspectives. The college benefits local businesses by increasing consumer spending in the region 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 Alberta 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.

ABOUT THE STUDY

Data and assumptions used in the study are based on several sources, including the FY 2015-16 academic and financial reports from RDC, industry and employment data from Statistics Canada, outputs of Emsi's 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 recognised indicators of investment effectiveness and economic impact. For a full description of the data and approach used in the study, please contact the college for a copy of the main report.



Emsi, a CareerBuilder company, is a leading provider of economic impact studies and labour market data to educational institutions, workforce planners, and regional developers in the U.S. and internationally. Since 2000, Emsi has completed over 1,800 economic impact studies for educational institutions in four countries. Visit www.economicmodeling.com for more information about Emsi's products and services.

