



# Analysis of the **Economic Impact and Return on Investment of Education**

THE ECONOMIC VALUE OF  
BALTIMORE CITY COMMUNITY COLLEGE

December 2016

# EXECUTIVE SUMMARY

# Executive summary

Baltimore City Community College (BCCC) creates value in many ways. The college plays a key role in helping students increase their employability and achieve their individual potential. It provides students with the skills they need to have a fulfilling and prosperous career. Further, it supplies an environment for students to meet new people, increase their self-confidence, and promote their overall health and well-being.

The value of BCCC influences both the lives of students and also the City economy. The college serves a range of industries in Baltimore City, supports local businesses, and benefits society as a whole in Maryland from an expanded economy and improved quality of life. The benefits created by BCCC even extend to the state and local government through increased tax revenues and public sector savings.

The purpose of this study is to investigate the economic impacts created by BCCC on the business community and the benefits that the college generates in return for the investments made by its key stakeholder groups—students, taxpayers, and society. The college serves Baltimore City. The following two analyses are presented:

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

All results reflect student and financial data for Fiscal Year (FY) 2016. Impacts on the City business community are reported under the economic impact analysis. Results are measured in terms of added income. The return on investment to students, taxpayers, and society are reported under the investment analysis. Both analyses are described more fully in the following sections.



# Economic impact analysis

BCCC promotes economic growth in Baltimore City 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, BCCC is a primary source of education to Baltimore City residents and a supplier of trained workers to Baltimore City industries.

## OPERATIONS SPENDING IMPACT

BCCC is an important employer in Baltimore City. In FY 2016, the college employed 900 full-time and part-time faculty and staff. Of these, 59% lived in Baltimore City. Total payroll at BCCC was \$47.4 million, much of which was spent in the City for groceries, rent, dining out, clothing, and other household expenses.\*

BCCC is itself a large-scale buyer of goods and services. In FY 2016 the college spent \$26.8 million to cover its expenses for facilities, professional services, and supplies.

BCCC added \$60 million in income to the City during the analysis year as a result of its day-to-day operations. 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 state and local sources. The \$60 million in added income is equivalent to supporting 1,035 jobs.

## IMPACT OF STUDENT SPENDING

Around 9% of students attending BCCC originated from outside the City in FY 2016, and some of these students relocated to Baltimore City to attend BCCC. These students would not have come to the City if the college did not exist. In addition, a number of in-City students would have left the area for other education opportunities if not for the existence of BCCC. While attending the college, these relocator and retained students spent \$23.6 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the City, generating \$4.5 million in added income in the City economy during the analysis year, which is equivalent to supporting 234 jobs.

**TABLE 1:** Impacts created by BCCC in FY 2016

ADDED INCOME	JOBS
<b>\$60 million</b>	<b>1,035</b>
<b>Operations spending impact</b>	
<b>\$4.5 million</b>	<b>234</b>
<b>Student spending impact</b>	
<b>\$205.3 million</b>	<b>2,453</b>
<b>Alumni impact</b>	
<b>\$269.8 million</b>	<b>3,722</b>
<b>Total impact</b>	

\* BCCC FY 2016 financial data is preliminary.

## ALUMNI IMPACT

The education and training BCCC provides for City residents results in the greatest impact. As shown in Figure 1, since the college was established, students have studied at BCCC and entered the City workforce with new skills. Today, thousands of former students are employed in Baltimore City.

During the analysis year, past and present students of BCCC generated \$205.3 million in added income for the City. This figure represents the higher earnings 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. This \$205.3 million in added income is equivalent to supporting 2,453 jobs.

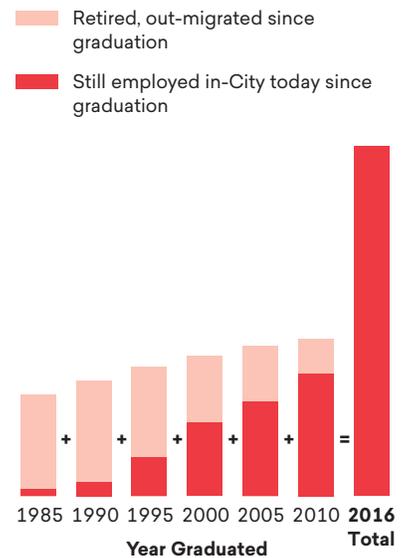
## TOTAL IMPACT

The overall impact of BCCC on the local business community during the analysis year amounted to \$269.8 million in added income, equal to the sum of the operations spending impact, the student spending impact, and the alumni impact. The \$269.8 million in added income was equal to approximately 0.7% of the GRP of Baltimore City. By comparison, this contribution that the college provides on its own is slightly larger than the entire Management of Companies & Enterprises industry in the City.

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. Overall, the \$269.8 million impact supports 3,722 jobs.

A portion of the total \$269.8 million is broken out into an industry-by-industry impact ordered by added income. Table 2 outlines the top industries impacted by BCCC. Because industries have different jobs-to-sales ratios, the associated jobs supported by the BCCC impact differ by industry. Nonetheless, these are impacts that would not have been generated without the college's presence.

**FIGURE 1:** BCCC alumni working in-City today



**TABLE 2:** Top industries impacted by BCCC

TOTAL INCOME (MILLIONS)	JOBS
<b>\$70.5</b>	<b>1,129</b>
Health Care & Social Assistance	
<b>\$40.4</b>	<b>372</b>
Government, Non-Education	
<b>\$15.2</b>	<b>149</b>
Professional & Technical Services	
<b>\$11.9</b>	<b>46</b>
Finance & Insurance	
<b>\$9.2</b>	<b>14</b>
Utilities	
<b>\$122.7</b>	<b>2,012</b>
All other industries	
<b>\$269.8</b>	<b>3,722</b>
<b>Total impact</b>	

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

## STUDENT PERSPECTIVE

In FY 2016, BCCC served 6,679 credit students and 8,764 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 BCCC's students in FY 2016 amounted to \$121.2 million, equal to \$12 million in out-of-pocket expenses plus \$109.2 million in forgone time and money.

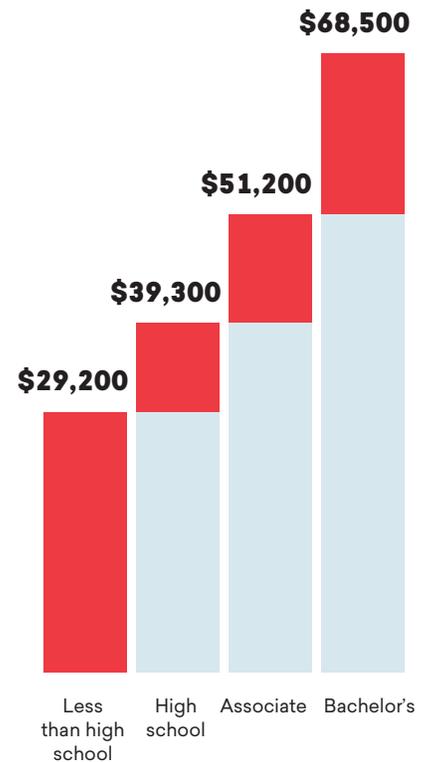
In return for their investment, BCCC's students will receive a stream of higher future earnings that will continue to grow through their working lives. As shown in Figure 2, mean earnings levels at the midpoint of the average-aged worker's career increase as people achieve higher levels of education. For example, the average associate degree completer from BCCC will see an increase in earnings of \$11,900 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 \$357,000 in higher earnings.

The present value of the higher future earnings that BCCC's students will receive over their working careers is \$169.2 million. Dividing this value by the \$121.2 million in student costs yields a benefit-cost ratio of 1.4. In other words, for every \$1 students invest in BCCC in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$1.40 in higher future earnings. The average annual rate of return for students is 7.2%.

## TAXPAYER PERSPECTIVE

BCCC generates more in tax revenue than it takes. These benefits to taxpayers consist primarily of taxes that the state and local government will collect from the added revenue created in the state. As BCCC students earn more, they will make higher tax payments. Employers will also make higher tax payments as they increase

**FIGURE 2:** Average earnings by education level at career midpoint in Maryland



Source: Emsi complete employment data.

their output and purchase more supplies and services. By the end of the FY 2016 students' working careers, the state and local government will have collected a present value of \$41.6 million in added taxes.

Benefits to taxpayers consist of the savings generated by the improved lifestyles of students and the proportionally reduced government expenditures. Education is statistically correlated with a variety of lifestyle changes that generate taxpayer savings across three main categories: 1) health, 2) crime, and 3) unemployment. Improved health habits lower the students' demand for national health care services. Students are also less likely to commit crimes, so the demand for law enforcement and criminal justice services is reduced (study references are available in the main report). Students are also more employable, so the demand for welfare and unemployment benefits, such as earnings assistance and welfare benefits, is reduced. For a list of study references to these statistical benefits, please contact the college for a copy of the main report. All of these benefits will generate a present value of \$14.3 million in savings to state and local taxpayers.

Total benefits to taxpayers equal \$55.8 million, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$43 million—equal to the funding that BCCC received from the state and local government during the analysis year—yields a benefit-cost ratio of 1.3. This means that for every \$1 of public money invested in BCCC, taxpayers receive a cumulative value of \$1.30 over the course of the students' working lives. The average annual rate of return is 3.6%, a solid investment that compares favorably with other long-term investments in both the private and public sectors (Figure 3).

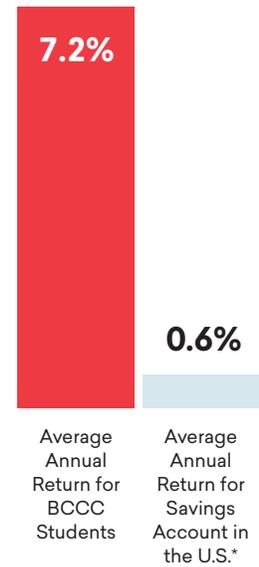
## SOCIAL PERSPECTIVE

Society as a whole within Maryland benefits from the presence of BCCC in two major ways. The first and largest benefit that society receives is an increased state economic base. As discussed in the previous section, the higher student earnings and increased business output occurs across the state. This raises prosperity in Maryland and expands the economic base for society as a whole.

Benefits to society also consist of the savings generated by the improved lifestyles of students. Similar to the taxpayer section above, education is statistically correlated with a variety of lifestyle changes that generate social savings. Note that these costs are avoided by the consumers, and are distinct from the costs avoided by taxpayers outlined above. Health savings include avoided medical costs associated with smoking, alcoholism, obesity, drug abuse, and mental disorders. Crime savings include reduced security expenditures and insurance administration, lower victim costs, and reduced criminal justice system expenditures. Unemployment savings include the reduced employer contributions towards unemployment claims. For a list of study references to these statistical benefits, please contact the college for a copy of the main report.

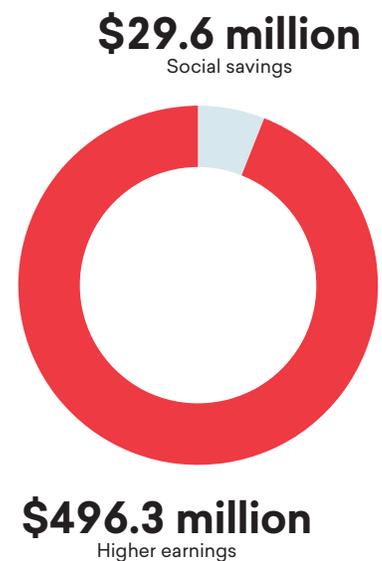
Figure 4 shows the present value of the higher earnings and social savings that will

**FIGURE 3:** Student rate of return



\* FDIC, 2016.

**FIGURE 4:** Present value of higher earnings and social savings in Maryland



occur in Maryland over the working lifetime of the FY 2016 student population at BCCC. Higher earnings amounts to a present value of \$496.3 million due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to \$29.6 million, the sum of health, crime, and unemployment savings in Maryland. Altogether, total benefits to society equal \$526 million (in present value terms).

Society invested \$191.5 million in BCCC educations during the analysis year. This includes all expenditures by BCCC, all student expenditures, and all student opportunity costs. For every dollar of this investment, society as a whole in Maryland will receive a cumulative value of \$2.70 in benefits, equal to the \$526 million in benefits divided by the \$191.5 million in costs. These benefits will occur for as long as BCCC's FY 2016 students remain employed in the state workforce.

### SUMMARY OF INVESTMENT ANALYSIS RESULTS

Table 3 presents the results of the investment analysis for all three of BCCC's major stakeholder groups—students, taxpayers, and society. As shown, students receive great value for their educational investment. At the same time, the investment made by state and local 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	TAXPAYER PERSPECTIVE	SOCIAL PERSPECTIVE
Present value benefits (thousands)	<b>\$169,203</b>	<b>\$55,807</b>	<b>\$525,934</b>
Costs (thousands)	<b>\$121,230</b>	<b>\$42,999</b>	<b>\$191,516</b>
<b>Net present value (thousands)</b>	<b>\$47,973</b>	<b>\$12,808</b>	<b>\$334,418</b>
Benefit-cost ratio	<b>1.4</b>	<b>1.3</b>	<b>2.7</b>
Rate of return	<b>7.2%</b>	<b>3.6%</b>	<b>N/A*</b>

\* 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 BCCC creates value from multiple perspectives. The college benefits local businesses by increasing consumer spending in the City and supplying a steady flow of qualified, trained workers into the workforce. It enriches the lives of students by raising their lifetime earnings and helping them achieve their individual potential. It benefits state and local taxpayers through increased tax receipts across the state and a reduced demand for government-supported social services. Finally, it benefits society as a whole in Maryland by creating a more prosperous economy and generating a variety of savings through the improved lifestyles of students.

## ABOUT THE STUDY

Data and assumptions used in the study are based on several sources, including the FY 2016 academic data and preliminary financial reports from the college, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Emsi's Multi-Regional Social Accounting Matrix model, and a variety of studies and surveys relating education to social behavior. The study applies a conservative methodology and follows standard practice using only the most recognized 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.



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