

Analysis of the Economic Impact and Return on Investment of Education

THE ECONOMIC VALUE OF
MONTGOMERY COLLEGE

December 2016

A photograph of four students in a laboratory setting. A young man in a dark blue t-shirt is on the left, looking down at a project. Next to him is a young woman in a grey blazer over a teal top, also looking down. Then a young woman wearing a grey hijab, looking intently at the project. On the far right is a young woman in a red button-down shirt, looking towards the project. They are gathered around a table where a small robot with a green circuit board is visible. The background shows a workshop with various tools and equipment.

EXECUTIVE SUMMARY

Executive summary

Montgomery College (MC) 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 MC influences both the lives of students and also the county economy. The college serves a range of industries in Montgomery County, supports local businesses, and benefits society as a whole in Maryland from an expanded economy and improved quality of life. The benefits created by MC 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 MC 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 Montgomery County. 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 county 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

MC promotes economic growth in Montgomery County 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, MC is a primary source of education to Montgomery County residents and a supplier of trained workers to Montgomery County industries.

OPERATIONS SPENDING IMPACT

MC is an important employer in Montgomery County. In FY 2015-16, the college employed 3,189 full-time and part-time faculty and staff. Of these, 73% lived in Montgomery County. Total payroll at MC was \$244.6 million, much of which was spent in the county for groceries, rent, dining out, clothing, and other household expenses.

MC is itself a large-scale buyer of goods and services. In FY 2015-16 the college spent \$99.7 million to cover its expenses for facilities, professional services, and supplies.

MC added \$257.7 million in income to the county 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 \$257.7 million in added income is equivalent to supporting 3,423 jobs.

IMPACT OF STUDENT SPENDING

A number of in-county students would have left the area for other education opportunities if not for the existence of MC. While attending the college, these retained students spent \$84.1 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the county, generating \$25.1 million in added income in the county economy during the analysis year, which is equivalent to supporting 750 jobs.

ALUMNI IMPACT

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

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

ADDED INCOME	JOBS
\$257.7 million	3,423
Operations spending impact	
\$25.1 million	750
Student spending impact	
\$1.1 billion	11,955
Alumni impact	
\$1.4 billion	16,128
Total impact	



During the analysis year, past and present students of MC generated \$1.1 billion in added income for the county. 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 \$1.1 billion in added income is equivalent to supporting 11,955 jobs.

TOTAL IMPACT

The overall impact of MC on the local business community during the analysis year amounted to \$1.4 billion in added income, equal to the sum of the operations spending impact, the student spending impact, and the alumni impact. The \$1.4 billion in added income was equal to approximately 1.8% of the gross regional product of Montgomery County. By comparison, this contribution that the college provides on its own is nearly as large as the entire Accommodation & Food Services industry in the county.

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 \$1.4 billion impact supports 16,128 jobs.

A portion of the total \$1.4 billion is broken out into an industry-by-industry impact ordered by added income. Table 2 outlines the top industries impacted by MC. Because industries have different jobs-to-sales ratios, the associated jobs supported by the MC impact differ by industry. Nonetheless, these are impacts that would not have been generated without the college's presence.

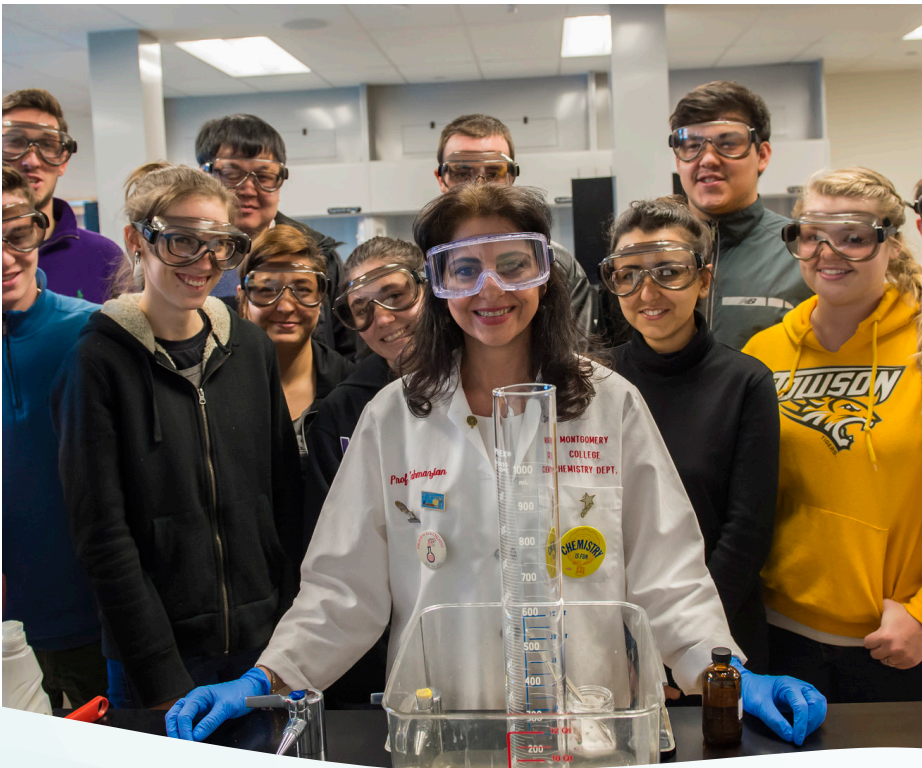


FIGURE 1: MC alumni working in-county today

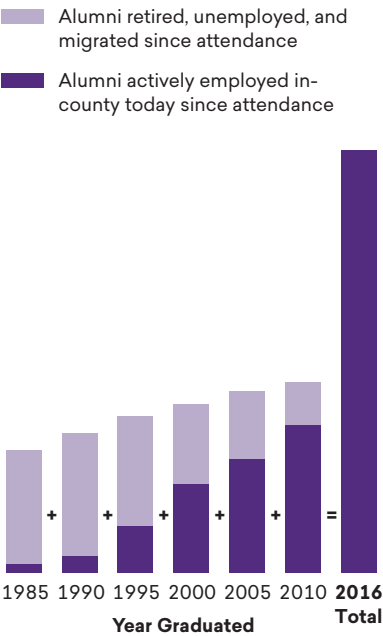


TABLE 2: Top industries impacted by MC

TOTAL INCOME (MILLIONS)	JOBS
\$246.2	3,586
Professional & Technical Services	
\$197.0	1,155
Government, Non-Education	
\$110.8	580
Management of Companies & Enterprises	
\$110.3	1,705
Health Care & Social Assistance	
\$78.4	368
Information	
\$683.0	8,734
All other industries	
\$1,425.7	16,128
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 MC 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 2015-16, MC served 34,410 credit students and 21,591 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 MC's students in FY 2015-16 amounted to \$533.6 million, equal to \$90.2 million in out-of-pocket expenses plus \$443.4 million in forgone time and money.

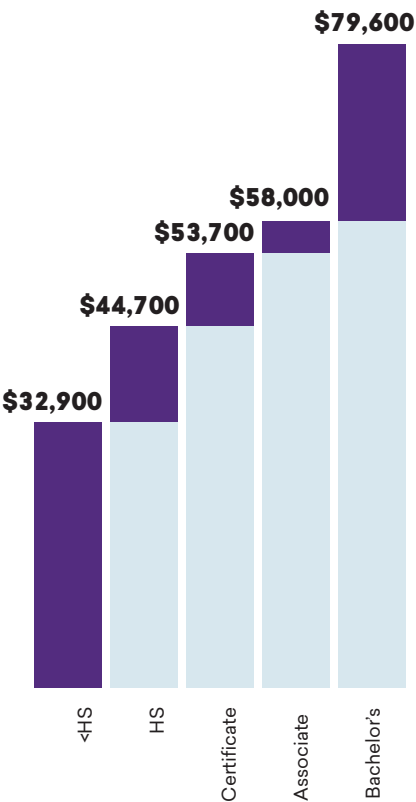
In return for their investment, MC's students will receive a stream of higher future earnings that will continue to grow through their working lives. As shown in Figure 2, mean earnings levels at the midpoint of the average-aged worker's career increase as people achieve higher levels of education. For example, the average associate degree completer from MC will see an increase in earnings of \$13,300 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 \$558,600 in higher earnings.

The present value of the higher future earnings that MC's students will receive over their working careers is \$1.8 billion. Dividing this value by the \$533.6 million in student costs yields a benefit-cost ratio of 3.3. In other words, for every \$1 students invest in MC in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$3.30 in higher future earnings. The average annual rate of return for students is 14.0%. This is an impressive return, especially when compared to the 10-year average 7.2% return to the U.S. stock market (Figure 3).

TAXPAYER PERSPECTIVE

MC 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 MC students earn more, they will make higher tax

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



Source: Emsi complete employment data.



payments. Employers will also make higher tax payments as they increase their output and purchase more supplies and services. By the end of the FY 2015-16 students' working careers, the state and local government will have collected a present value of \$399.7 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 \$34.6 million in savings to state and local taxpayers.

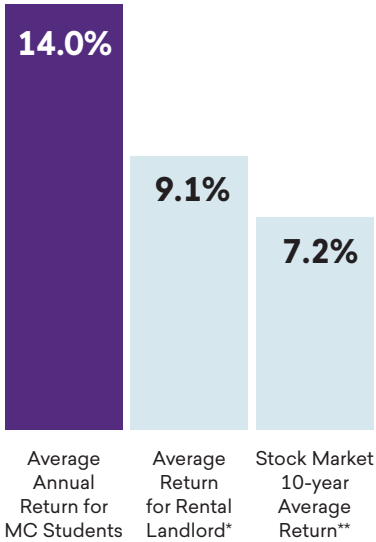
Total benefits to taxpayers equal \$434.3 million, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$238.4 million—equal to the funding that MC received from the state and local government during the analysis year—yields a benefit-cost ratio of 1.8. This means that for every \$1 of public money invested in MC, taxpayers receive a cumulative value of \$1.80 over the course of the students' working lives. The average annual rate of return is 5.2%, 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 MC 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 3: Student rate of return



* RealityTrac's Q3, 2014
** Forbes' S&P 500, 1994-2014.

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

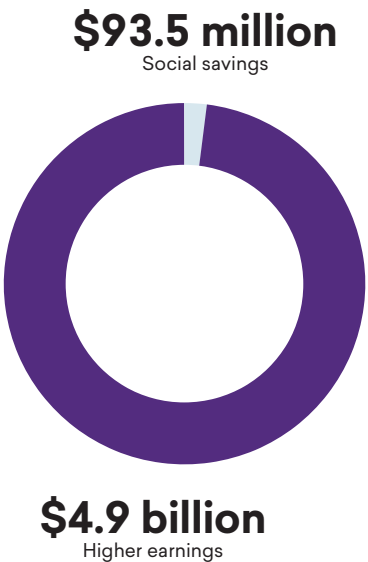


Figure 4 shows the present value of the higher earnings and social savings that will occur in Maryland over the working lifetime of the FY 2015-16 student population at MC. Higher earnings amounts to a present value of \$4.9 billion due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to \$93.5 million, the sum of health, crime, and unemployment savings in Maryland. Altogether, total benefits to society equal \$5.0 billion (in present value terms).

Society invested \$815.4 million in MC educations during the analysis year. This includes all expenditures by MC, 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 \$6.10 in benefits, equal to the \$5.0 billion in benefits divided by the \$815.4 million in costs. These benefits will occur for as long as MC's FY 2015-16 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 MC'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)	\$1,757,788	\$434,315	\$4,963,675
Costs (thousands)	\$533,622	\$238,406	\$815,370
Net present value (thousands)	\$1,224,167	\$195,910	\$4,148,304
Benefit-cost ratio	3.3	1.8	6.1
Rate of return	14.0%	5.2%	N/A

* 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 MC creates value from multiple perspectives. The college benefits local businesses by increasing consumer spending in the county 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 2015-16 academic and 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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