The Economic Value of the West Virginia Community and Technical College System

EXECUTIVE SUMMARY
The West Virginia Community and Technical College System (CTCS) creates value in many ways. The colleges play a key role in helping students increase their employability and achieve their individual potential. The colleges draw students to the state, generating new dollars and opportunities for West Virginia. The colleges provide students with the education, training, and skills they need to have fulfilling and prosperous careers. Furthermore, the colleges are places for students to meet new people, increase their self-confidence, and promote their overall health and well-being.

CTCS influences both the lives of students and the state economy. The colleges support a variety of industries in West Virginia, serve state businesses, and benefit society as a whole in West Virginia from an expanded economy and improved quality of life. The benefits created by CTCS even extend to the state and local government through increased tax revenues and public sector savings.

This study measures the economic impacts created by CTCS on the business community and the benefits the colleges generate in return for the investments made by their key stakeholder groups—students, taxpayers, and society. The following two analyses are presented:

**Economic impact analysis**

**Investment analysis**

All results reflect employee, student, and financial data, provided by the colleges and the West Virginia Higher Education Policy Commission, for fiscal year (FY) 2016-17. Impacts on the West Virginia economy are reported under the economic impact analysis and are measured in terms of added income. The returns on investment to students, taxpayers, and society in West Virginia are reported under the investment analysis.
CTCS promotes economic growth in West Virginia through the colleges’ direct expenditures and the resulting expenditures of students and state businesses. The colleges serve as employers and buyers of goods and services for their day-to-day operations. By providing affordable and accessible programs, the colleges retain students in West Virginia, whose expenditures benefit state vendors. In addition, the colleges are primary sources of higher education to West Virginia residents and suppliers of trained workers to state industries, enhancing overall productivity in the state workforce.

**Operations Spending Impact**

CTCS colleges add economic value to West Virginia as employers of state residents and large-scale buyers of goods and services. In FY 2016-17, CTCS employed 1,950 full-time and part-time faculty and staff, 87% of whom lived in West Virginia. Total CTCS payroll was $88.3 million, much of which was spent in the state for groceries, mortgage and rent payments, dining out, and other household expenses. In addition, the colleges spent $65.2 million on day-to-day expenses related to facilities, supplies, and professional services. CTCS’s day-to-day operations spending added $98.2 million in income to the state during the analysis year. This figure represents the colleges’ payroll, the multiplier effects generated by the in-state spending of the colleges and their employees, and a downward adjustment to account for funding that the
colleges received from state sources. The $98.2 million in added income is equivalent to supporting 2,186 jobs in the state.

**Student Spending Impact**

Some students relocated to West Virginia to attend CTCS colleges. These students may not have come to the state if the colleges did not exist. In addition, some in-state students, referred to as retained students, would have left West Virginia if not for the existence of CTCS. While attending the colleges, these relocated and retained students spent money on groceries, accommodation, transportation, and other household expenses. This spending generated $8 million in added income for the state economy in FY 2016-17, which supported 285 jobs in West Virginia.

**Alumni Impact**

The education and training the colleges provide for state residents has the greatest impact. Since the colleges were established, students have studied at CTCS colleges and entered the state workforce with greater knowledge and new skills. Today, thousands of former CTCS students are employed in West Virginia. As a result of their educations at CTCS colleges, the students receive higher earnings and increase the productivity of the businesses that employ them. In FY 2016-17, CTCS alumni generated $1.1 billion in added income for the state economy, which is equivalent to supporting 14,530 jobs.

**Total Impact**

CTCS added $1.2 billion in income to the West Virginia economy during the analysis year, equal to the sum of the operations spending impact, the student spending impact, and the alumni impact. For context, the $1.2 billion impact was equal to approximately 1.7% of the total gross state product (GSP) of West Virginia. This contribution that the colleges provided on their own was larger than the entire Agriculture, Forestry, Fishing, & Hunting industry in the state.

CTCS’s total impact can also be expressed in terms of jobs supported. The $1.2 billion impact supported 17,001 state jobs, using the jobs-to-sales ratios specific to each industry in the state. This means that one out of every 52 jobs in West Virginia is supported by the activities of the colleges and their students. In addition, the $1.2 billion, or 17,001 supported jobs, impacted state industries in different ways. Among non-education industry sectors, CTCS supported the most jobs in the Health Care & Social Assistance industry sector – supporting 3,515 jobs in FY 2016-17. These are impacts that would not have been generated without the colleges’ presence in West Virginia.
Investment analysis

An investment analysis evaluates the costs associated with a proposed venture against its expected benefits. If the benefits outweigh the costs, then the investment is financially worthwhile. The analysis presented here considers CTCS as an investment from the perspectives of students, taxpayers, and society in West Virginia.

Student perspective

In FY 2016-17, CTCS colleges served 26,337 credit and 6,548 non-credit students. In order to attend the colleges, the students paid for tuition, fees, books, and supplies. They also took out loans and will incur interest on those loans. Additionally, students gave up money they would have otherwise earned had they been working instead of attending college. The total investment made by CTCS students in FY 2016-17 amounted to a present value of $161.7 million, equal to $46.5 million in out-of-pocket expenses (including future principal and interest on student loans) and $115.2 million in forgone time and money.

In return for their investment, CTCS’s students will receive a stream of higher future earnings that will continue to grow throughout their working lives. For example, the average CTCS associate degree graduate from FY 2016-17 will see an increase in earnings of $9,900 each year compared to a person with a high school diploma or equivalent working in West Virginia. Over a working lifetime, the benefits of the associate degree over a high school diploma will amount to an undiscounted value of $356.4 thousand in higher earnings per graduate. Altogether, CTCS’s FY 2016-17 students will receive $768.7 million in higher future earnings over their working lives, as a result of their education and training at CTCS colleges.

The average associate degree graduate from a CTCS college will see an increase in earnings of $9,900 each year compared to a person with a high school diploma or equivalent working in West Virginia.

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Annual Earnings</th>
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<td>&lt; HS</td>
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<tr>
<td>HS</td>
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<tr>
<td>Bachelor's</td>
<td>$51,300</td>
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</table>

Source: Emsi complete employment data.
The students’ benefit-cost ratio is 4.8. In other words, for every dollar students invest in an education at CTCS colleges, in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative value of $4.80 in higher future earnings. Annually, the students’ investment in CTCS has an average annual internal rate of return of 21.7%, which is impressive compared to the U.S. stock market’s 30-year average rate of return of 10.1%.

Taxpayer perspective

CTCS 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 CTCS students will earn more, they will make higher tax payments throughout their working lives. Students’ employers will also make higher tax payments as they increase their output and purchases of goods and services. By the end of the FY 2016-17 students’ working lives, the state and local government will have collected a present value of $220.8 million in added taxes.

Benefits to taxpayers will also consist of savings generated by the improved lifestyles of CTCS students and the corresponding reduced government services. Education is statistically correlated with a variety of lifestyle changes. Students’ CTCS educations will generate savings in three main categories: 1) healthcare, 2) crime, and 3) income assistance. Improved health will lower students’ demand for national health care services. In addition, students will less likely to interact with the criminal justice system, resulting in a reduced demand for law enforcement and victim costs. CTCS students will be more employable, so their reduced demand for income assistance such as welfare and unemployment benefits will benefit taxpayers. For a list of study references, contact CTCS for a copy of the main report. Altogether, the present value of the benefits associated with a CTCS education will generate $13.8 million in savings to state and local taxpayers.

Total taxpayer benefits amount to $234.6 million, the present value sum of the added taxes and public sector savings. Taxpayer costs are $78.8 million, equal to the amount of state and local government funding CTCS received in FY 2016-17. These benefits and costs yield a benefit-cost ratio of 3.0. This means that for every dollar of public money invested in CTCS in FY 2016-17, taxpayers will receive a cumulative value of $3.00 over the

For every dollar of public money invested in CTCS, taxpayers will receive a cumulative value of $3.00 over the course of the students’ working lives.

STUDENT PERSPECTIVE

<table>
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<tr>
<th>Benefit-cost Ratio</th>
<th>Rate of Return</th>
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<tr>
<td>4.8</td>
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TAXPAYER PERSPECTIVE

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<th>Benefit-cost Ratio</th>
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SOCIAL PERSPECTIVE

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<tr>
<td>8.3</td>
<td>n/a*</td>
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</table>

* 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.
Investment analysis

The average annual internal rate of return for taxpayers is 8.3%, which compares favorably to other long-term investments in the public and private sectors.

Social perspective

Society as a whole in West Virginia benefits from the presence of CTCS in two major ways. Primarily, society benefits from an increased economic base in the state. This is attributed to higher student earnings and increased business output, which raise economic prosperity in West Virginia.

Benefits to society also consist of the savings generated by the improved lifestyles of CTCS students. As discussed in the previous section, education is statistically correlated with a variety of lifestyle changes that generate social savings. Note that these costs are avoided by the consumers but are distinct from the costs avoided by the taxpayers outlined above. Healthcare savings include avoided medical costs associated with smoking, alcohol dependence, obesity, drug abuse, and depression. Savings related to crime include reduced security expenditures and insurance administration, lower victim costs, and reduced expenditures by the criminal justice system. Income assistance savings include reduced welfare and unemployment claims. For a list of study references, contact CTCS for a copy of the main report.

Altogether, the social benefits of CTCS equal a present value of $2.5 billion. These benefits include $2.4 billion in added income through students’ increased lifetime earnings and increased business output, as well as $51.1 million in social savings related to health, crime, and income assistance in West Virginia. People in West Virginia invested a present value total of $298.9 million in CTCS in FY 2016-17. The cost includes all of the colleges’ expenditures and student costs.

The benefit-cost ratio for society is 8.3, equal to the $2.5 billion in benefits divided by the $298.9 million in costs. In other words, for every dollar invested in CTCS, people in West Virginia will receive a cumulative value of $8.30 in benefits. The benefits of this investment will occur for as long as CTCS’s FY 2016-17 students remain employed in the state workforce.

Summary of investment analysis results

The results of the analysis demonstrate that CTCS is a strong investment for all three major stakeholder groups—students, taxpayers, and society. As shown, students receive a great return for their investments in a CTCS education. At the same time, taxpayers’ investment in CTCS returns more to government budgets than it costs and creates a wide range of social benefits throughout West Virginia.
Conclusion

The results of this study demonstrate that CTCS creates value from multiple perspectives. The colleges benefit state businesses by increasing consumer spending in the state and supplying a steady flow of qualified, trained workers to the workforce. CTCS colleges enrich the lives of students by raising their lifetime earnings and helping them achieve their individual potential. The colleges benefit state and local taxpayers through increased tax receipts and a reduced demand for government-supported social services. Finally, CTCS benefits society as a whole in West Virginia 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 2016-17 academic and financial reports from CTCS colleges and the West Virginia Higher Education Policy Commission, 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 economic impact and investment effectiveness. For a full description of the data and approach used in the study, please contact CTCS for a copy of the main report.

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