

Economic Contribution of Central Arizona College

*Analysis of Investment Effectiveness
and Economic Growth*

Executive Summary

Prepared by:
M. Henry Robison, PhD and
Kjell A. Christophersen, PhD

CCbenefits Inc.

www.ccbenefits.com

HIGHLIGHTS

- Students enjoy an attractive **19%** annual return on their investment of time and money.
- For every \$1 the students invest in CAC, they receive a cumulative **\$4.50** in higher future earnings over the course of their working careers (after discounting).
- Taxpayers see a real money return of **11%** on their annual investments in CAC.
- The State of Arizona benefits from improved health and reduced welfare, unemployment, and crime, saving the public some **\$2.8 million** per year each year that students are in the workforce.
- The Pinal County economy receives roughly **\$418.7 million** in regional income each year due to the actions of CAC and its students. This figure amounts to **17%** of a typical year's economic growth.

3. **Taxpayer Perspective** – Social benefits and avoided costs;
4. **Investment Analysis** – Return to taxpayers for their college support.

The economic impact model has been subjected to peer review and field-tested to generate more than 600 studies for community and technical colleges in the U.S. and Canada. Model results are based on solid economic theory, carefully drawn functional relationships, and a wealth of national and local education-related data.

RESULTS

For a more in-depth discussion of the results, the reader is encouraged to consult the Main Report, "Economic Contribution of Central Arizona College," containing detailed assumptions, context, and computation procedures.

➤ Regional Economic Benefits

CAC affects the local economy in three ways: 1) through its local purchases, including wages paid to faculty and staff, 2) through spending of students who come from outside the region, and 3) through a human capital effect stemming from an increase in the skill base of the local workforce. These effects break down as follows:

- *CAC Operations Spending*

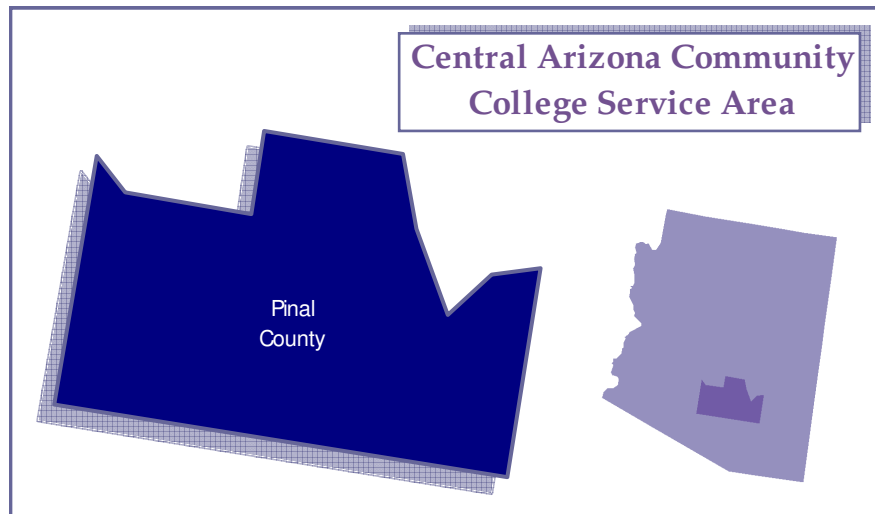
CAC creates regional income through the earnings of its faculty and staff, as well as through its own operating and capital expenditures. Adjusting for taxes and other monies withdrawn from the local economy in support of CAC, it is estimated that the

INTRODUCTION

How do the Pinal County economy and the State of Arizona benefit from the presence of Central Arizona College?

An obvious question often asked, but rarely answered with more than anecdotes. In this study, CCbenefits applies a comprehensive economic model designed to quantify the economic benefits of community and technical colleges and translate these into common sense benefit/cost and investment terms. The study tracks four types of benefits:

1. **Regional Economic Benefits** – Creation of regional income;
2. **Student Perspective** – Higher earnings captured by students;



current enrollment, turnover, and the growth of instruction over time, the regional workforce embodies an estimated 2.9 million credits of past and present instruction. The accumulated contribution of past and present CAC instruction adds some \$391.8 million in regional income to the current economy of Pinal County.

present-day Pinal County economy receives roughly \$21.9 million in labor and non-labor income each year due to CAC operations and capital spending.

- *Student Spending Effect*

About 24% of CAC's students come from outside Pinal County (net of long distance students who are not physically present in the region while attending). While in the region, these students spend money to buy books and supplies, rent apartments, purchase food, pay for transportation, attend sports events, go to movies, and so on. These expenditures create revenues, jobs, and incomes for local businesses. It is estimated that spending of CAC's out-of-region students generates approximately \$5.0 million each year in regional income in Pinal County.

- *Past Student Productivity*

Each year students leave CAC and join or rejoin the local workforce. Their added skills translate to higher income and a more robust Pinal County economy. Based on

In sum, CAC contributes a total of \$418.7 million in regional labor and non-labor income to the Pinal County economy each year.

➤ **Student Perspective**

Benefits of higher education are most obvious from the student perspective: students sacrifice current earnings (as well as money to pay for tuition) in return for a lifetime of higher earnings. For every credit completed, CAC students earn, on average, \$107 more per year each year they are in the workforce. Alternatively, for every full-time year they attend they earn an additional \$3,210 per year. Aggregate higher earnings for all exiting students amount to some \$15.4 million per year for each year they remain in the workforce.

From an investment standpoint, CAC students enjoy a 19% rate of return on their investments of time and money. This compares favorably with returns on other investments, e.g., long-term return on U.S. stocks and bonds. The corresponding benefit/cost ratio is 4.5, i.e., for every \$1

students invest in CAC education, they receive a cumulative of \$4.50 in higher future earnings over their working careers. This is a real return that accounts for any discounting that occurs during the entire period. The time needed to recover all costs is 7 years.

➤ Taxpayer Perspective

State and local government spent \$38.8 million in support of CAC during the analysis year. Is this a good use of taxpayer money? Our analysis indicates that the answer is a resounding yes: Returns far outweigh costs, and the attractiveness of the taxpayer investment is even stronger when a collection of incidental social savings is included in the assessment.

For example, persons with higher education are less likely to smoke or abuse alcohol, draw welfare or unemployment benefits, or commit crimes. This translates into associated dollar savings (avoided costs) amounting to some \$20 per credit per year, counted as an indirect benefit of CAC education. **When aggregated across all exiting students, the State of Arizona benefits from \$2.8 million worth of avoided costs per year, each year that students are in the workforce.** Social savings, commonly known as externalities, break down as follows:

- *Improved Health*

Employers in the State of Arizona see health-related absenteeism decline by 3,400 days per year, with a corresponding annual dollar savings of approximately \$308,900. The state benefits from health-related

savings of roughly 180 fewer smokers and 40 fewer alcohol abusers. Corresponding dollar savings are \$527,700 and \$291,000 per year, now and into the future (these savings include insurance premiums, co-payments and deductibles, and withholding for Medicare and Medicaid).

- *Reduced Crime*

Incarceration drops with each year of higher education. In the State of Arizona, about 100 fewer individuals will be incarcerated, resulting in annual savings of \$803,900 (combined savings from reduced arrest, prosecution, jail, and reform costs). Reductions in victim costs (e.g., property damage, legal expenses, lost workdays, etc.) result in savings of \$257,900 per year. Finally, that people are employed rather than incarcerated adds \$375,900 of earnings per year to the economy.

- *Reduced Welfare/Unemployment*

There will be around 170 fewer people on welfare, and 60 fewer drawing unemployment benefits, saving taxpayers some \$223,200 and \$56,500 per year, respectively.

➤ Investment Analysis

The return on a year's worth of state and local government investment in CAC is obtained by projecting associated educational benefits into the future, discounting them back to the present, and weighing these against the \$38.8 million state and local taxpayers spent during the analysis year to support the college. The analysis is based on the portion of CAC operations that is wholly dependent on

state and local government support. Two investment perspectives are possible, one broad and one narrow.

- *Broad Perspective*

Taxpayers expect their annual investment in CAC to result in higher lifetime earnings for students and social savings from lifestyle changes (reduced crime, welfare and unemployment, and improvements in health). From a broad investment perspective, the value of all future income and associated social savings is compared to the year's worth of state and local taxpayer support that made the benefits possible. Following this procedure, it is estimated that CAC provides a benefit/cost ratio of 14, i.e., every dollar of state and local tax money invested in CAC today returns a cumulative of \$14 over the course of the students' working career. As above, this is a real return, accounting for any discounting that may occur during the established time horizon. The *nominal* return would be significantly higher.

- *Narrow Perspective*

The narrow perspective limits the benefit stream to state and local government budgets, namely, increased tax collections and expenditure savings. For example, in place of total increased income, the narrow perspective includes only increased state and local tax receipts from those higher incomes. Similarly, in place of overall crime, welfare, unemployment and health savings, the narrow perspective includes only those portions that translate to actual reductions in state and local government expenditures.

Note here that it is normal for the state government to undertake activities wanted by the public, but which are unprofitable in the marketplace. This means that positive economic returns are generally not expected from government investments. From the narrow taxpayer perspective, therefore, even a small positive return (a benefit/cost ratio equal to or just greater than 1, or a rate of return equal to or just greater than the 4% discount rate used in this analysis) would be a favorable outcome, certainly one that justifies continued taxpayer support of the college. For CAC, narrow perspective results greatly exceed minimum expectations.

Results indicate strong and positive returns: a rate of return of 11%, and a benefit/cost ratio of 2.1 (every dollar of state and local tax money invested in CAC today returns \$2.10).

CONCLUSION

The results of this study demonstrate that CAC is a sound investment from multiple perspectives. The college enriches the lives of students and increases their lifetime incomes. It benefits taxpayers by generating

increased tax revenues from an enlarged economy and reducing the demand for taxpayer-supported social services. Finally, it contributes to the vitality of both the local and state economies.

Benefits at a Glance

Regional Analysis			
Regional Economic Growth			
College operations effect			\$21,866,300
Student spending effect			\$4,965,800
Past student productivity effect			\$391,818,400
TOTAL			\$418,650,500
Annual Benefits			
<i>Higher earnings</i>			
Aggregate (all students)			\$15,423,300
Per credit hour equivalent (CHE)			\$107
Per full time student			\$3,210
<i>Social savings</i>			
Aggregate (all students)			\$2,845,000
Per credit hour equivalent (CHE)			\$20
Per full time student			\$592
Investment Analysis	Rate of Return	Benefit/Cost	Payback (Years)
Students	19.3%	4.5	7.1
Taxpayers: Broad Perspective	NA	14.1	NA
Taxpayers: Narrow Perspective	10.5%	2.1	11.3

Source: See Volume 1: Main Report and Volume 2: Detailed Results.

This short summary report is one of six products generated for this impact study. In addition, one long report intended for economists and college institutional researchers lays out detailed assumptions and analysis. Another report provides detailed tabular results by gender, ethnicity, and entry level of education, and a fact sheet contains highlights of study results at a glance. The study also includes a write-up in layman's terms about differences between broad and narrow taxpayer perspectives. Lastly, a PowerPoint presentation shows main results for college presidents to adapt and use in speeches before state legislators and other education stakeholders.