Independent Assessment of the Economic Impacts of the Florida College System

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Florida TaxWatch

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Senator Pat Neal
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Dear Fellow Taxpayer

Florida's college system has provided an opportunity for generations of Floridians to have a better life, at a cost that is much more reasonable than other forms of higher education. A great many of our law enforcement officers, emergency medical technicians, nurses, and firefighters received their degrees from Florida community colleges. Likewise, a great many of our university graduates started at a community college (myself included).

Thousands of jobs in Florida are unfilled because businesses cannot find employees who have the right skills required to fill them. These are jobs in industries such as carpentry, plumbing, electrical work, and construction, jobs that do not require a baccalaureate degree. Two-year degrees and certificate programs can give people the requisite skills needed to fill these positions, thereby dramatically increasing their earning power. In fact, since past TaxWatch studies on this subject were undertaken, the wages of such 'skilled-labor' careers have increased significantly, which – as this analysis shows – have thus increased the value of the state's investment in the Florida College System.

Florida currently ranks 24th in the US in the number of people age 25–64 with an associate in arts degree or higher, or with a high-quality, workforce-relevant certificate. On January 30th, 2019, Governor DeSantis signed an Executive Order establishing the goal to make Florida number 1 in the U.S. for workforce education by 2030 and to ensure that Florida students are ready for high-demand, high-wage jobs. Building a workforce in health services, transportation, education, computing, trade, utilities, and jobs that require an industry certification or license will require a sizable investment of public and private funds.

In this report, TaxWatch takes a fresh look at the return on investment of the Florida College System. On behalf of the Board of Trustees and the members of Florida TaxWatch, I am pleased to present this report and its findings based on our independent analysis by Florida TaxWatch experts and renowned economist Richard Harper, Ph.D., a senior member of the Florida Council of Economic Advisors at Florida TaxWatch.

Sincerely,

Dominic M. Calabro

Dominic M. Calabro
President & CEO

Introduction

From the *Wall Street Journal* to *Cosmopolitan* magazine, there has been a discussion about the role of higher education and the suitability of the traditional four-year college experience for many students.[1] Many students are unsure about what they want to study, and others are looking for a more affordable college education.

Thought-leaders and researchers, like the *Washington Post Editorial Board* and the *Brookings Institution*, have questioned for years the wisdom of the traditional college system as a one-size-fits-all model. The Florida College System – encompassing 28 institutions that were originally (collectively) called Junior Colleges, and later Community Colleges, and have at various times and in different areas been referred to as 'vocational education' or 'trade schools' – is a key part of this discussion.

The Florida College System (FCS) is the primary access point to undergraduate education for more than 800,000 Floridians, including approximately 63 percent of recent high school graduates and returning adult students. The 28 member colleges of the FCS provide low-cost, high-quality educational programs designed to meet the regional workforce needs of employers. Nearly all (99 percent) FCS students come from within Florida. FCS institutions provide a wide range of classes and programs to fit the busy schedules of its students, who are often caring for dependents and working full time.[2]

In 2001, the Legislature authorized community colleges to offer bachelor's degrees in areas of high demand, and St. Petersburg College was the first college to offer these degrees. By 2014, 24 of the 28 FCS member institutions offered at least one bachelor's degree program. By authorizing FCS member institutions to award baccalaureate degrees, the Legislature has afforded Florida's large population of non-traditional and/or place-bound college students opportunities (which would not otherwise be available) to earn baccalaureate degrees. Governor DeSantis' January 30, 2019 Executive Order challenges Florida policymakers to better prepare our students for college and workforce success.[3]

The FCS offers many benefits to students, including:

- Affordability --- in-state tuition and fees are much more reasonable than tuition and fees at four-year institutions.
- Flexibility --- students, especially those who struggled in high school or who are unsure about making the investment of time and money to go to college, can go at their own pace.
- School-life balance --- affords non-traditional students (e.g., older students, parents, etc.) an opportunity to balance going to college with career or family obligations.
- More personalized attention --- smaller class sizes mean more personal attention and more one-on-one time with instructors.
- Certificates --- FCS institutions offer professional certificates in high-paying fields such as electronic and information technology.
- Transfer agreements --- FCS institutions offer qualified students automatic admittance to a state public university and transfer of their credit hours toward a baccalaureate degree.

1 See, e.g., Oren Cass, "Not Everyone Should Go to College: Vocational education won't succeed so long as society consigns it to second-class status," *The Wall Street Journal*, Opinion/Commentary. May 17, 2018; Anna Lewis, Laura Capron, and Catriona Harvey-Jenner, "Why not going to university was the best decision I ever made" *Cosmopolitan*, August 16, 2018.

2 Florida College System, "2016-2017 Annual Report."

3 Governor Ron DeSantis, "Charting a Course for Florida to Become Number 1 in the Nation in Workforce Education by 2030 and Ensuring Florida Students are Prepared for the Jobs of the Future " https://www.flgov.com/wp-content/uploads/orders/2019/EO_19-31.pdf

The primary mission of FCS institutions is responding to community needs for postsecondary academic education and career degree education. This includes being responsible for:

- Providing lower level undergraduate instruction and awarding associate degrees;
- Preparing students directly for careers requiring less than baccalaureate degrees (e.g., career education);
- Providing student development services, including assessment, student tracking, support for disabled students, advisement, counseling, financial aid, career development, and remedial and tutorial services, to ensure student success;
- Promoting economic development for the state within each Florida College System institution district through the provision of special programs, including, but not limited to, Enterprise Florida-related programs, technology transfer centers, economic development centers, and workforce literacy programs;
- Providing dual enrollment instruction; and
- Providing upper level instruction and awarding baccalaureate degrees as specifically authorized by law.[4]

A separate and secondary role for FCS institutions includes the offering of programs in community services that are not directly related to academic or occupational advancement; adult education services, including adult basic education, adult general education, adult secondary education, and high school equivalency examination instruction; and recreational and leisure services.[5]

Postsecondary academic and career education programs and adult general education programs have first priority in FCS institution funding. Community service programs must be presented to the Legislature for funding consideration, along with the rationale for state funding. The Legislature may identify priority areas for use of these funds.[6]

In partnership with the Association of Florida Colleges and the (then) Chancellor of the Florida College System Madeline Pumariega – and with a grant from The Helios Education Foundation – Florida TaxWatch undertook an independent, evidence-based analysis to:

- Compare the performance of the FCS to community colleges in other states; and,
- Quantify the economic impact of an FCS degree, in terms of both personal earnings and economic value to the state

In addition to the usual methods of comparative analysis (comparing FCS's metrics on key measures to other states, such as tuition and fees, graduation rates, and enrollment), this analysis provides the results of econometric modeling – specifically the Regional Economic Model (REMI) – to project the direct, indirect, and induced economic impacts of the FCS and to calculate the state's return on investment.[7]

4 Subsection 1004.65(5), Florida Statutes.
5 Subsection 1004.65(6), Florida Statutes.
6 Subsection 1004.65(6), Florida Statutes.
7 For more information on REMI, see www.remi.com

How Florida Colleges Compare

How well the Florida College System performs may be best measured in terms of the prestigious *Aspen Prize for Community College Excellence*, which "honors institutions that strive for and achieve exceptional levels of success for all students, while they are in college and after they graduate."[8] Excellent community colleges provide students with a high-quality education that motivates them to excel and equips them with the skills and knowledge they will need to succeed in work and life, and continuously improve and demonstrate strength across four domains:

- Completion and transfer --- High levels of student completion of workforce certificates and two-year degrees, and transfer to four-year colleges resulting in bachelor's degree attainment, as well as institutional practices and policies that promote completion;
- Labor Market --- High rates of employment and earnings for graduates, as well as institutional practices and policies aligned with labor market needs and student labor market success;
- Learning --- Evidence that students learn at high levels, as well as institutional practices and policies that result in strong and improving levels of student learning in courses, within programs, and college-wide; and
- Equity --- High levels of access and success for students who are often underserved, including those from underrepresented racial and ethnic groups and low-income backgrounds, as well as institutional practices and policies aimed at closing achievement gaps.[9]

Among the 150 institutions eligible for the *2019 Aspen Prize* (out of more than 1,100 community colleges nationwide)[10] 14 are members of the Florida College System. The 10 finalists, announced in May 2018, include Broward College, Indian River State College, and Miami-Dade College. Broward College was a Finalist in 2013 and a Finalist-with-Distinction in 2017. Indian River State College was a Finalist in 2015 and a Finalist-with-Distinction in 2017. Miami-Dade College was a Finalist in 2011. Valencia College, in Orlando, won the inaugural *Aspen Prize* in 2011, and Santa Fe College (Gainesville) won the *Aspen Prize* in 2015. Cited as one of the "Top Ten Community Colleges Leading the Way to Excellent Student Outcomes," experts at the *Aspen Institute* note that Broward College's students "have access to well-developed and integrated college transfer and career pathways. The incredibly diverse community college boasts high graduation rates and virtually no gap in those rates between underrepresented minority or other students."[11] Since 2011, 20 of the 28 (71.4 percent) of FCS member institutions have been deemed eligible for the *Aspen Prize for Community College Excellence*.[12]

8 The Aspen Institute, "The 2017 Aspen Prize for Community College Excellence," retrieved from https://assets.aspeninstitute.org/content/uploads/2017/03/2017_Aspen_Prize_Web.pdf, January 14, 2019.

9 Ibid.

10 According to the American Association of Community Colleges (AACC), there are 1,103 community colleges in the United States (Source: AACC website, available at www.aacc.nche.edu/research-trends/fast-facts/); according to the Aspen Institute, "Round 1 of the Aspen Prize for Community College Excellence process is designed to select 155 public two-year institutions (out of 972 potential candidates) as eligible to apply for the Round 2 selection process. The model was developed by the National Center for Higher Education Management Systems (NCHEMS), in consultation with the Aspen Prize's Data and Metrics Advisory Panel, and uses publicly available data from the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS) and the U.S. Census Bureau…to determine the top 155 institutions…The model is based on institutional performance in three general areas: (1) retention, completion, and transfer, (2) improvement in performance over time, and (3) equity, defined as performance outcomes for underrepresented minorities and institutions in low-income service areas." (Source: Aspen Institute, "Aspen Prize for Community College Excellence Round 1 Eligibility Model (2019)," available at http://highered.aspeninstitute.org/wp-content/uploads/2017/09/2019_Round_One_Model_Description.pdf).

11 The Aspen Institute's College Excellence Program, "Ten Community Colleges Leading the Way to Excellent Student Outcomes," March 8, 2017, available at www.aspeninstitute.org/blog-posts/innovative-community-colleges-america/

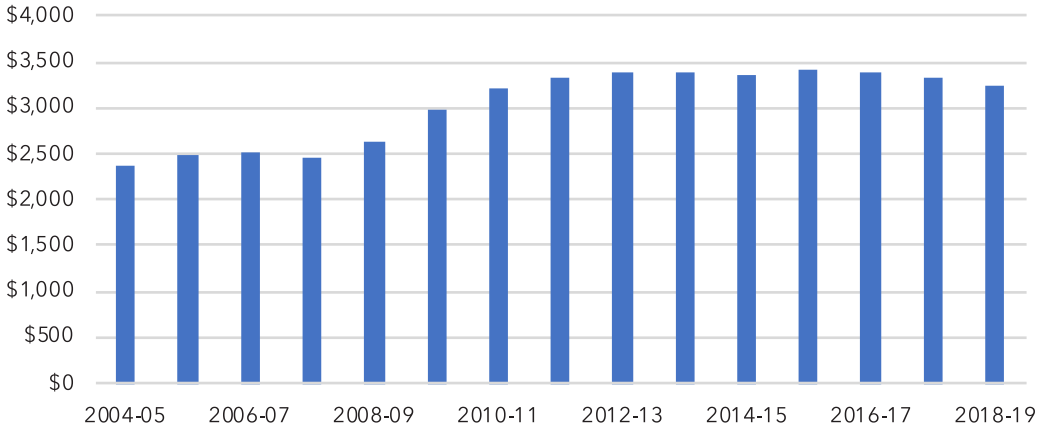
12 Florida College System Foundations, Accessed February 15, 2019 at https://www.floridacollegesystem.com/foundation/florida_college_foundations.aspx ; Aspen Institute College Excellence Program 2017 Finalists, Accessed February 15, 2019 at https://highered.aspeninstitute.org/aspen-prize-program/2017-aspen-prize-finalists-past-winners/

A key measure of a college system's performance is the number of degrees and certificates awarded. In 2014-15, Florida awarded 94,375 associate degrees, trailing only California (133,259). Florida ranked third in the number of sub-bachelor certificates awarded (30,154), trailing on California (71,041) and Texas (44,133).[13]

Tuition and Fees

U. S. News and World Report ranked Florida's higher education system first overall and second among the 50 states in terms of affordable tuition and fees.[14] Among the 16 states comprising the Southern Regional Education Board (SREB), the median tuition and required fees for public two-year colleges was $3,300. Florida had the fourth-lowest tuition and required fees among the 16 SREB member states.[15] Tuition has remained relatively flat over the last eight years, at about $3,200 annually (see Figure 1).[16]

FIGURE 1. 2-YEAR PUBLIC COLLEGE TUITION: 2004-05 THROUGH 2018-19



Two-Year Graduation Rates

U. S. News and World Report ranked Florida's higher education system second among the 50 states in terms of two-year college graduation rate. Almost 49 percent of Florida's full-time students complete a two-year degree within three years, or 150 percent of the normal time. Roughly one-quarter of the students in the top-10-ranked states for education finish two-year programs within three years; the national average is slightly lower, at about 24 percent. Only South Dakota, with about 61 percent of students completing two-year programs in the same time frame (although hardly comparable to Florida in terms of population and demographics), has a higher graduation rate than Florida.[17, 18]

During the 2015-16 school year, the Florida College System conferred 74,502 Associate degrees. Florida trailed only California (129,583) and Texas (80,767) in the number of Associate degrees conferred.[19]

13 Southern Regional Education Board, "Fact Book on Higher Education, U.S. Regions and 50 States in Perspective," 2017.
14 U.S. News and World Report, "Higher Education Rankings," retrieved from www.usnews.com/news/best-states/rankings/education/higher-education, November 12, 2018.
15 Southern Regional Education Board, "Florida Featured Facts from the SREB Fact Book on Higher Education," 2017.
16 The College Board, "Tuition and Fees by Sector and State Over Time," retrieved from https://trends.collegeboard.org/college-pricing/figures-tables/tuition-fees-sector-state-over-time, January 14, 2019.
17 U.S. News and World Report, "Higher Education Rankings," retrieved from www.usnews.com/news/best-states/rankings/education/higher-education, November 12, 2018.
18 For more information on national graduation rates and trends, see, e.g., Juszkiewicz, J. (2017, November). Trends in Community College Enrollment and Completion Data, 2017. Washington, DC: American Association of Community Colleges, available at https://www.aacc.nche.edu/wp-content/uploads/2018/04/CCEnrollment2017.pdf
19 National Center for Education Statistics, "Degrees Conferred by Postsecondary Institutions, by Control of Institution, Level of Degree, and State or Jurisdiction: 2015-16," retrieved from https://nces.ed.gov/programs/digest/d17/tables/dt17_319.10.asp?current=yes, January 17,2019.

Enrollment

Overall, two-year colleges, some of which offer a limited number of four-year degrees, accounted for 43 percent of the public full-time equivalent undergraduate enrollment in 2016. In seven states (including Florida), this share was 50 percent or more. Only Washington (56 percent), California (57 percent), Illinois (58 percent), and Wyoming (59 percent), had a higher percentage than Florida (52 percent).[20]

Return on Investment

America's community colleges have a significant positive impact on the national economy and generate a positive return on investment. A 2014 study[21] found that, in 2012, the total effect of America's community colleges on the U.S. economy was $809 billion, approximately equal to 5.4 percent of the nation's Gross Domestic Product. U.S. taxpayers spent $44.9 billion to support the operations of America's community colleges. The present value of the added revenue stemming from the students' higher lifetime incomes and the increased output of businesses amounts to $285.7 billion in benefits to taxpayers. Savings to the public sector add another $19.2 billion in benefits due to a reduced demand for government-funded social services. Dividing the benefits to the taxpayers by the amount paid to support the colleges yields a benefit-to-cost ratio of 6.8. For every $1 invested, the taxpayers fully recover their original investment and also receive an additional return of $5.80 for every dollar they paid.

A 2015 study by Iowa State University[22] calculated the return-on-investment for community college systems in all 50 states during the 2011-12 academic year. This return-on-investment compares financial and student investment (e.g., state and local funding, grants, tuition and fees, etc.) with how well students succeed in the system (e.g., graduation rates). The study population consists of 934 U.S. public community colleges that had self-reported data to the U.S. Department of Education's National Center for Education Statistics, via the Integrated Postsecondary Education Data Systems (IPEDS).

For each state, the average graduation rate (degree/certificate awarded within 200 percent of normal time) was divided by its investment-per-student (dollars). Return-on-investment is then expressed in terms of graduation rate percentage points for every $1,000 invested.

According to that calculation, Florida invested an average of $4,387 per student and 40 percent of the students received a degree/certificate within 200 percent of the normal time, so Florida demonstrated the highest immediate return-on-investment: for every $1,000 invested per student, $9.02 return was achieved based on the 40 percent graduation rate. The next closest state was Louisiana, with a return-on-investment of $8.91.

Calculation of Impacts of the FCS

The FCS impacts the state's economy in a number of ways. Income is created through the earnings of its faculty and staff, as well as through its operating and capital expenditures. In calculating the system's fiscal and economic impacts, the analysis focuses on the credentials most commonly awarded by the FCS, including AA, AAS, AS, and

20 The College Board, "Percentage of All Public Enrollment in Two-Year Colleges, by State, 2016," retrieved from https://trends.collegeboard.org/college-pricing/figures-tables/percentage-all-public-enrollment-two-year-colleges-state-2016, January 14, 2019.

21 Economic Modeling Specialists, International, "Where Value Meets Values: The Economic Impact of Community Colleges, Analysis of the Economic Impact and Return on Investment of Education," February 2014.

22 Christopher Neary, "Comparative State Community College Return on Investment: State Funding, Local Funding, Tuition and Graduation Rates for Community Colleges," Iowa State University Digital Repository, Graduate Theses and Dissertations, 14592 (2015).

BAS/BS degrees.[23] These account for over 95 percent of the credentials awarded by the FCS. Other types of completers include those earning Applied Technology Diplomas, Career Certificates, College Credit Certificates, Apprenticeships, and Advanced Technical Certificates. While some of these latter credentials are associated with high wages, particularly the Advanced Technical Certificate and the Apprenticeship, because they are not as common as the prior group, the analysis in this report focuses on those types of credentials that cover the vast bulk of the student experience.

Students' ROI

For the analysis, data on 1) enrollments, 2) completions and 3) wages by educational attainment for Florida are used to forecast a wage path for those with Associate degree credentials relative to the wage path for those with a High School credential. These higher wages benefit workers in providing them with more disposable income to be spent on items that we assume would normally be purchased by a household using the additional income. The economic impact which this additional spending power creates is determined through a dynamic, general-equilibrium model of the Florida economy.

Quantifying the student's benefits

The analysis begins with tabular data drawn from the Florida Department of Education's Florida Education & Training Placement Information Program (FETPIP) database to assess the wage experience of completers for the above-mentioned credentials. These calculations enable construction of the completion-benefit profile for FCS graduates for the most recent data year.

The worklife expectancy earnings are shown as increased worklife earnings compared to worklife earning with only a high school credential, minus the educational costs. It should be noted that more highly educated workers also have longer worklife expectancies, which increases overall increased worklife earnings compared to high-school-only graduates.

Furthermore, because better educated workers also are likely to have better health outcomes, and are less likely to impose costs on society via claims for unemployment or other benefits, or on the criminal justice system, society at large benefits from the work of the FCS in ways that go beyond just the additional earning power of graduates and the economic activity that they generate. These benefits are not included in the data provided in this analysis but are clear from other studies and academic literature.

Calculating the students' costs

To determine the student costs of FCS completion, tuition, fees, education-related expenses, and opportunity costs are calculated for the years following enrollment until completion. For any given student, the costs of an FCS degree can be examined directly. Because the FCS is one of the least expensive systems in the nation, as can be seen in Appendix A, tuition, fees, books, and education-related expenses are taken to total about $4,500 per full-time academic year, depending on the institution and course of study.

A much larger cost is typically the opportunity cost of the student's time, as full-time minimum wage employment would have paid $17,160 annually and the median earnings one year after graduation for those who discontinued schooling upon receiving a High School degree was $24,284 in 2017. Adding the higher of these wage values and the direct education costs yields a sum of $28,784. While other analyses of this type sometimes assume some

23 Those degrees are Associate in Arts (AA), Associate of Applied Science (AAS), Associate in Science (AS), and Bachelor of Applied Science/ Bachelor of Science (BAS/BS).

or all of the opportunity cost of working instead of schooling as a cost, or assign value to "lost" leisure time by working and attending school, this analysis assumes that every student has the opportunity to work full-time (at the high school completer wage rate) because so many actually are employed and nearly all students, theoretically, have the opportunity to work.

Despite the likelihood that more than half will work while pursuing their degree,[24] the full amount of lost wages from full-time work is included as a student cost in the analysis.[25]

The time profile of the impacts of the FCS via any given completer thus incorporates a certain amount of front-end costs, as the student incurs the costs of tuition and fees, and other expenses (e.g., books) that would not normally be incurred by high school graduates active in the workforce. Since the benefits of higher wage rates and higher probability of employment come following completion, net benefits to students are negative initially before turning positive for the remainder of the worklife expectancy.

For the econometric analysis, it is assumed that completers with the AA, AAS, or AS degrees incur the equivalent of two years of total student costs. While BAS/BS students must have completed an Associate degree before being admitted to a Bachelor's program at an FCS school, here it is assumed that BAS/BS completers have incurred the equivalent of four years of cost at some point in completing the Bachelor's degree.[26]

Quantifying the student's ROI

The Florida Department of Economic Opportunity provides the median incomes of employed individuals during the year following their graduation. These statistics are broken out by level of educational attainment. Assuming that those who did not complete the AA, the AAS, the AS, or the BAS/BS degrees will work at the wage rate of a High School completer, expected wage growth rates by type of FCS credit program completed between the first and the fifth year of employment are calculated.[27] Finally, national rates of wage growth from the Current Population Survey (CPS) conducted by the U.S. Bureau of Labor Statistics are used to project future wage growth by educational attainment following the fifth year of employment. Worklife expectancies by level of educational attainment and by gender are taken from Gibson.[28] Gender mix of FCS completers by type of credit program completed is taken from the 2015-16 FCS Factbook.[29] Projected future income amounts are discounted to present money value using a 4 percent discount rate. Opportunity costs are taken to be earnings of a Florida High School completer and cash costs reflect FCS tuition, fees, and education-related expenses.

24 OPPAGA reports that BAS/BS students were quite likely to work full-time, so that 57 percent of typical FCS Bachelor's degree students are employed full-time while in school and that 76 percent of students are enrolled part-time. "OPPAGA Research on Florida College System Baccalaureate Degree Programs." Presentation by Emily Sikes, Chief Legislative Analyst, to Senate Committee on Higher Education, March 10, 2015; "Profile of Undergraduate Students: Attendance, Distance and Remedial Education, Degree Program and Field of Study, Demographics, Financial Aid, Financial Literacy, Employment, and Military Status: 2015-16." NCES January 2019.

25 For AA, AAS, and AS degrees, the total student costs are estimated to be $57,568 (total is the opportunity costs per year ($24,284) plus the tuition/fees/books and education-related expenses ($4,500) for a total of $28,284 per year for two years); for BAS/BS degrees, the total student costs are estimated to be $115,136 (total is the opportunity costs per year ($24,284) plus the tuition/fees/books and education-related expenses ($4,500) for a total of $28,284 per year for four years).

26 Ibid. 55 percent of full-time FCS Bachelor's degree students complete in two years, 74 percent in three years, and 78 percent in four years. FCS colleges require students to have completed an Associate degree before being admitted to a Bachelor's degree program. While we do not examine for this study when and where that BAS/BS completer achieved the Associate credential, we assume that both cash and opportunity costs were incurred.

27 "Measuring the Economic Success of Florida's Graduates: Economic Security Report 2018. Florida Department of Economic Opportunity, January 2019 http://www.floridajobs.org/docs/default-source/office-of-workforce-services/state-program-reports/2019-state-program-reports/florida-economic-security-report-final-01-10-2019.pdf. Accessed February 3rd, 2019.

28 "Use of ACS [American Community Survey] to Estimate Lifetime Loss of Earning Capacity as a Result of Disability." David S. Gibson, May 2015.

29 FCS Factbook, Table 5.3T. Florida College System, 2018. Accessed February 3rd, 2019.

The Results

These results for the individual student are summarized in Table 1.

(Note: PMV = Present Money Value. The PMV is the current value of a future sum of money or stream of cash flows given a specified rate of return. Essentially, the PMV accounts for the "time value of money" – in this case using a 4 percent discount rate.)

TABLE 1. PROJECTED LIFETIME NET BENEFIT FOR 2018 FCS PROGRAM COMPLETERS
(PMV of Wage Premium During Worklife Expectancy - Education Cost)

	AA	AAS	AS	BAS/BS
Degree Completer's Increased Worklife Income Expectancy (above HS completion only) + less student costs	$491,777	$498,387	$655,645	$838,023
Payback Period for Student (in years)	4.20	3.80	2.50	3.80
Student's ROI	11.9%	12.0%	13.4%	10.5%

It is important to note that this analysis assumes a two-year and four-year completion track for the two- and four-year degrees, respectively. While some students do not complete within this time period because of their personal and/or professional situations, many other students complete their degrees faster that these time periods because of an FCS program that provides benefits to students and the state in two key ways: duel-enrollment programs, which allow high school students to earn college credits at FCS institutions while in high school. Data show duel-enrollers complete FCS degrees faster,[30] which would mean lower total student costs and longer worklife, thus generating a higher return on investment for both the student and the state.

The ROI for the State

The additional spending generated directly by the higher salaries of graduates will also have indirect effects (i.e., in the supply chains of the businesses receiving the new direct spending), and induced effects (i.e., higher spending driven by the labor income—wages and proprietors' incomes—paid for by the new direct spending).

Methodology – The REMI PI+ Model

The REMI PI+ model is an "input-output" model that forecasts the future of a regional economy and predicts the effects on that same economy (outputs) when the user implements a change (inputs). The first forecast is called the "control forecast;" the second forecast, which incorporates the change, is called the "alternative forecast" or "simulation." The difference between the two represents the effects of the change.

REMI Results

Relative to state Fiscal Year 2017-18[31] appropriated General Revenue (GR) of $965,245,757, some ratios are (all in discounted dollars):

- On average the additional spending done with the higher salaries earned by each year of FCS completers is responsible for 9,860 new sustainable full-time jobs across Florida (these are above and beyond the jobs held by the completers themselves);
- Over a ten-year window, every $1 of GR generated between $4.80 and $6.80 of additional Florida Gross Domestic Project (GDP);

30 See, e.g., Florida College System, "Accelerating College Completion: Students at Florida College System institutions complete college faster when earning dual enrollment credits," (updated April 2018), available at https://www.floridacollegesystem.com/sites/www/Uploads/Publications/DataSnapshots/2018/FCS_Data_Snapshot_Dual_Enrollment_Time_to_Degree_04.06.2018.pdf ("For students who enter with credits earned through dual enrollment acceleration avenues, their time to degree is nearly half of that for students who enter without any college credits earned.")

31 State Fiscal Year 17-18 is July 1, 2017 through June 30, 2018.

- Over a ten-year window, every $1 of GR generated between $9.20 and $13.08 of additional Florida personal income;
- Over a ten-year window, every $1 of GR generated between $9.30 and $13.25 in additional Florida output;
- Over the expected worklife of FCS completers, every $1 of GR will generate between $10.80 and $15.42 of additional Florida GDP;[32]
- Over the expected worklife of FCS completers, every $1 of GR will generate between $31.40 and $44.88 of additional Florida personal income;[33]
- Over the expected worklife of FCS completers, every $1 of GR will generate between $33.00 and $47.18 of additional Florida output.[34]

Appendix B compares the results from a 2013 impact study done by Economic Modeling Specialists, International with the results of this analysis.

Conclusion

The Florida College System compares very favorably to colleges nationally, especially in terms of the key indications: enrollment and graduation rates. Of course, the value of graduation rates is clear, but the value of high enrollment is important for three reasons:

1. Students are 'voting with their feet' to attend these institutions.
2. In an ever increasingly technological world, the value of an FCS degree for individuals and the FCS system for the state is significant and increasing.
3. It is likely, although herein unproven, that students chose FCS institutions because they view higher education as an opportunity to be attractive in the workforce and earn a good wage. Based on post-graduation data and considering course offerings – especially those in fields like nursing – it is clear that many students are choosing to attend FCS institutions because the degrees they provide are related to high wage jobs in high need industries.

It is also clear that Florida institutions are highly ranked by national associations and organizations that focus on ensuring high quality in such institutions. The number of *Aspen Institute* award winners and finalists as well as the top ranking (2nd nationally) by *U.S. News and World Report*, show that the Florida College System compares very favorably with similar systems in other states.

The specific Return on Investment (ROI) numbers are even stronger evidence of the value of the FCS to the students and the state. With increased expected worklife earnings of $491,777 to $838,023 (depending on degree attained) and a repayment of total cost time of only 2.50 to 3.80 years (again depending on degree attained), the value for students – and the ROI of between 10.5% and 12.0% (depending on degree attained) – is clear. Similarly, the return on the state's investment is significant. Overall, the higher worklife salaries earned by degree holders compared to high-school completers compared with the public investment in the system translates to a return of $10.80 to $15.42 in increased Florida Gross Domestic Product for every $1 invested and generates nearly 10,000 new jobs (above and beyond the jobs held by the graduates themselves).

From every perspective, the Florida College System is a good investment for students and the state, which is likely because the system itself is a national leader compared to other state systems.

32 The low number assumes that 30% of FSC completers will either move out of state or not be employed, the high numbers assume all FCS completers will be employed in Florida.
33 Ibid.
34 Ibid.

Appendix A

Public 2-Year College In-State Tuition and Fees (2018-19)		
Rank	State	Cost
1	California	$1,430
2	New Mexico	$1,840
3	North Carolina	$2,470
4	Arizona	$2,580
5	Texas	$2,620
6	Kansas	$3,130
7	Nebraska	$3,180
8	Mississippi	$3,190
9	Wyoming	$3,240
10	**Florida**	**$3,250**
11	Nevada	$3,400
12	Missouri	$3,580
13	Arkansas	$3,700
14	Montana	$3,730
15	Maine	$3,750
16	Georgia	$3,810
16	Utah	$3,810
18	Michigan	$3,860
19	Hawaii	$3,920
20	Illinois	$4,140
21	Idaho	$4,190
21	Louisiana	$4,190
23	West Virginia	$4,320
24	Oklahoma	$4,380
25	Connecticut	$4,400
26	Washington	$4,440
27	Colorado	$4,510
28	Wisconsin	$4,550
29	Rhode Island	$4,560
29	Tennessee	$4,560
31	Maryland	$4,680
32	Indiana	$4,710
33	Ohio	$4,720
34	Alabama	$4,760
35	North Dakota	$4,830
36	Delaware	$4,850
37	New Jersey	$5,040
38	Virginia	$5,260
39	Kentucky	$5,310
39	Oregon	$5,310
41	Iowa	$5,320
42	Minnesota	$5,440
43	Pennsylvania	$5,480
44	New York	$5,490
45	South Carolina	$5,640
46	Massachusetts	$6,300
47	South Dakota	$6,700
48	New Hampshire	$7,090
49	Vermont	$8,190
	Alaska	N/A
	District of Columbia	N/A
	Puerto Rico	N/A

Public 4-Year College In-State Tuition and Fees (2018-19)		
Rank	State	Cost
1	Puerto Rico	$3,590
2	Wyoming	$5,400
3	**Florida**	**$6,360**
4	Utah	$6,990
5	Montana	$7,100
6	New Mexico	$7,130
7	North Carolina	$7,220
8	Idaho	$7,590
9	Nevada	$7,660
10	Alaska	$7,820
11	New York	$8,190
12	District of Columbia	$8,250
13	West Virginia	$8,290
14	Mississippi	$8,420
15	Nebraska	$8,510
16	Georgia	$8,580
17	North Dakota	$8,660
18	Missouri	$8,670
19	South Dakota	$8,690
20	Arkansas	$8,710
21	Oklahoma	$8,750
22	Iowa	$9,080
22	Wisconsin	$9,080
24	Kansas	$9,100
25	Indiana	$9,490
26	Louisiana	$9,550
27	Washington	$9,760
28	California	$9,870
29	Maryland	$9,900
30	Tennessee	$9,950
31	Maine	$10,230
32	Texas	$10,300
33	Oregon	$10,610
34	Kentucky	$10,710
35	Ohio	$10,790
36	Hawaii	$10,800
37	Alabama	$10,870
38	Colorado	$11,140
39	Arizona	$11,540
39	Minnesota	$11,540
41	Rhode Island	$12,530
42	Delaware	$12,700
43	Connecticut	$12,760
44	South Carolina	$12,950
45	Massachusetts	$13,200
46	Michigan	$13,420
47	Virginia	$13,490
48	Illinois	$13,970
49	New Jersey	$14,180
50	Pennsylvania	$14,770
51	New Hampshire	$16,460
52	Vermont	$16,610

SOURCES: The College Board, Annual Survey of Colleges; NCES, IPEDS Fall Enrollment data (October 2018).
Calculations based on 30 credit hours.

Appendix B

Comparing the 2013 and 2019 results

A 2013 research report by Economic Modeling Specialists, Intl. (EMSI),[35] estimated that the average annual added income due to the activities and operation of the FCS and its former students equals $26.6 billion, roughly 4 percent of the state's economy. Of this total:

- $1.3 billion will be created through the earnings of FCS faculty and staff, as well as through FCS operating and capital expenditures;
- $24.9 billion will be created through spending by out-of-state students; and
- $25.2 billion will be created through the added skills and higher incomes of former FCS students.

EMSI calculated return-on-investment from the student perspective, the social perspective, and taxpayer perspective. From an investment standpoint, students of the FCS enjoy a 16.8% rate of return (un-discounted) on their investments of time and money. The corresponding benefit/cost ratio is 6.0 --- for every $1.00 students invest in education, they receive a cumulative of $6.00 in higher future income over their working careers. This is a real return that accounts for any discounting that occurs during the entire period. The payback period is 9.1 years.[36]

Societal benefits accrue in the form of an expanded state economic base and avoided social costs. The expanded economic base results from higher skilled workers earning higher incomes, while the businesses that employ them become more productive. EMSI estimated that these benefits, together with the associated ripple effects, contribute an estimated $3.0 billion in taxable income to the Florida economy each year.[37]

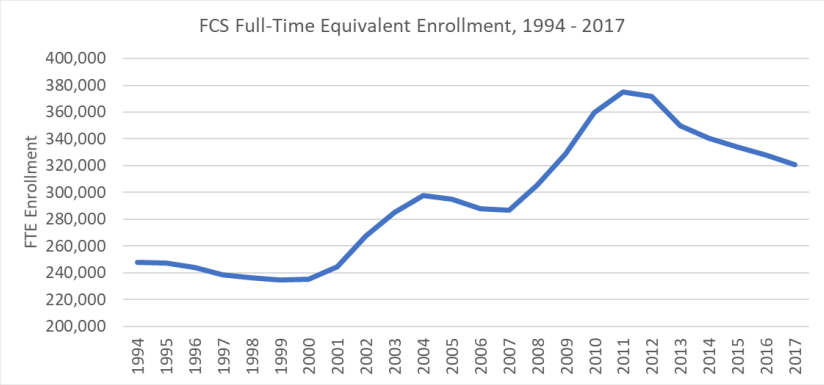
As students achieve higher levels of education, they are less likely to smoke or abuse alcohol, draw welfare or unemployment benefits, or commit crimes. This translates into associated dollar savings (i.e., avoided costs) to the public, which EMSI estimated at approximately $158.6 million annually. By projecting benefits into the future, discounting them back to the present, and weighing them against the $1.2 billion that state taxpayers spent in FY 2011-12 to support the FCS, EMSI estimated that the FCS provides a benefit/cost ratio of 26.2 --- every $1.00 of state tax money invested in the FCS today yields a cumulative of $26.20 in benefits that accrue to all Florida residents, in terms of added taxable income and avoided social costs.[38]

Taxpayer benefits accrue in the form of increased tax collections from the higher incomes and reduced government expenditures from the avoided social costs. EMSI estimated a rate of return of 9.4 percent and a benefit/cost ratio of 2.9 --- every dollar of state tax money invested in FCS returns $2.90. The payback period is 13.8 years.[39]

To update the 2013 study by EMSI, TaxWatch uses a variety of tools, including the leading multi-period dynamic economic forecasting model to calculate the economic impact of the program over the next 10 years (2018 - 2027). Importantly, the economic environment is much changed from that which prevailed in 2011, the data year for the EMSI study.

35 "Economic Contribution of the Florida College System: Analysis of Investment Effectiveness and Economic Growth," Economic Modeling Specialists, Intl., March 2013.
36 Ibid.
37 Ibid.
38 Ibid.
39 Ibid.

A continually strengthening economy has resulted in a statewide unemployment rate of 3.3 percent on a seasonally adjusted basis during the last two months of 2018. The unemployment rate in 2011, which was the data year for the EMSI study, ranged between 9.1 and 10.7 in the aftermath of the Great Recession. State college enrollment is known to be countercyclical, as workers who might normally have been employed during a strong economy find themselves returning to school to refresh or improve their skills.[40] The following chart shows this to be the case in Florida. Unemployment was between 3.9 and 4.6 percent during 2017, the most recent FCS enrollment data year. Not surprisingly, FCS full-time equivalent headcount was 14.5 percent lower in 2017 than in 2011. This will tend to reduce the measured economic impact of the FCS relative to the 2013 study.



Another factor that will drive differences in economic impact is the increasing premium that is paid for more skilled labor in an increasingly technology-intensive economy. Data for 2018 show that the premium to workers who are in occupations where the typical entry-level credential is an Associate degree has risen to $13,027 relative to workers employed in occupations in which the typical entry level qualification is a High School degree. This calculation uses updated EMSI data to consider median salaries for both types of workers after appropriately weighting for the numbers employed in various occupational classifications. That is the differential used in the present study to represent wage benefits to FCS graduates.[41] Across Florida, workers at the same stage of their career who are in occupations calling for Associate degrees earned 36.8 percent more on average than workers employed in High School degree occupations, and earned 114 percent more on average than workers employed in occupations most often associated with no formal education credentials. This will tend to raise the impact of the FCS as measured in the current assessment relative to the 2013 study.

The share of overall jobs in occupations that in the Florida economy call for a typical entry level credential of Associate degree has risen more rapidly than jobs in occupations requiring lesser educational attainment. Between 2001 and 2018, labor market data for Florida show that the number of jobs in occupations calling for Associate degrees rose by 31.7 percent, versus 10.2 percent for jobs in occupations calling for High School degrees, and 20.2 percent for jobs in occupations calling for no formal education. This increasing labor market penetration tends to raise the economic importance of the FCS over time and relative to the 2013 study.

40 See for example "Education Estimating Conference on Florida College System Enrollment." Florida Revenue Estimating Conference August 7, 2013, p7.

41 The 2013 FCS report produced by EMSI identified an average premium of $10,600 that should be attributed to having obtained an Associate degree relative to a high school degree.

FCS schools also produce substantial numbers of graduates qualified with Bachelor's degrees. Florida's 2019 Economic Security Report published by Department of Economic Opportunity calculates that the FCS delivered Bachelor's degrees to 28,941 completers over the most recent 5-years.[42] This is about 10 percent of the number delivered by the State University System over the same period. Because of the high concentration of FCS Bachelor's degree graduates in high-demand, high-wage fields—particularly nursing and business administration—average salaries for FCS Bachelor's recipients are actually higher than the average salaries for State University System (SUS) graduates. The 2019 Economic Security Report notes that this difference is $13,584 for FCS versus SUS completers for completers in their first year after graduation for the most recent five years of data. That differential shrinks to $1,204 when looking at completers who are in their 5th year in the workforce. The lower cost of completion at FCS schools, combined with higher average salaries have a positive impact on the present money value of the net benefits to graduates resulting from their choice to pursue the FCS Bachelor's degree.

Strikingly, the 2019 Economic Security Report finds that 74 percent of FCS Bachelor's graduates can be identified as working full-time in a job in Florida in their first year following completion, versus only 50 percent of SUS graduates. By the 5th year, the FCS rate has dropped to 71 percent, while the SUS rate has risen to 54 percent. Given that these employment rates are lowest by UF and FSU, it is likely that completers may have enrolled for further education or might have moved out of state. Some 17 percent of SUS Bachelor's completers were engaged in continuing education one year after program completion, versus 10 percent of FCS Bachelor's completers.

Also important is the fact that unemployment rates are lower for workers with higher levels of academic attainment. Workers with better qualifications may be more attractive to employers during periods of economic weakness than workers with lesser qualifications and thus contribute to better job security during turndowns relative to less credentialed coworkers. This lessened likelihood of periods of unemployment represents an additional economic benefit to workers of attaining an FCS degree relative to stopping with the High School degree.

42 For completions in academic years 2011-12 to 2015-16. American Institutes for Research, "Measuring the Economic Success of Florida's Graduates. Economic Security Report 2018," January 10, 2019.

ABOUT FLORIDA TAXWATCH

As an independent, nonpartisan, nonprofit taxpayer research institute and government watchdog, it is the mission of Florida TaxWatch to provide the citizens of Florida and public officials with high quality, independent research and analysis of issues related to state and local government taxation, expenditures, policies, and programs. Florida TaxWatch works to improve the productivity and accountability of Florida government. Its research recommends productivity enhancements and explains the statewide impact of fiscal and economic policies and practices on citizens and businesses.

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This Report and its findings are based on an independent analysis by Florida TaxWatch experts and renowned economist *Richard Harper, Ph.D.*, a senior member of the Florida Council of Economic Advisors at Florida TaxWatch.

The findings in this Report are based on the data and sources referenced. Florida TaxWatch research is conducted with every reasonable attempt to verify the accuracy and reliability of the data, and the calculations and assumptions made herein. Please feel free to contact us if you feel that this paper is factually inaccurate.

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