



OFFICE OF RESEARCH AND EDUCATION ACCOUNTABILITY

**AN EXPLANATION OF THE OUTCOMES-BASED  
FUNDING FORMULA (2015-2020)**



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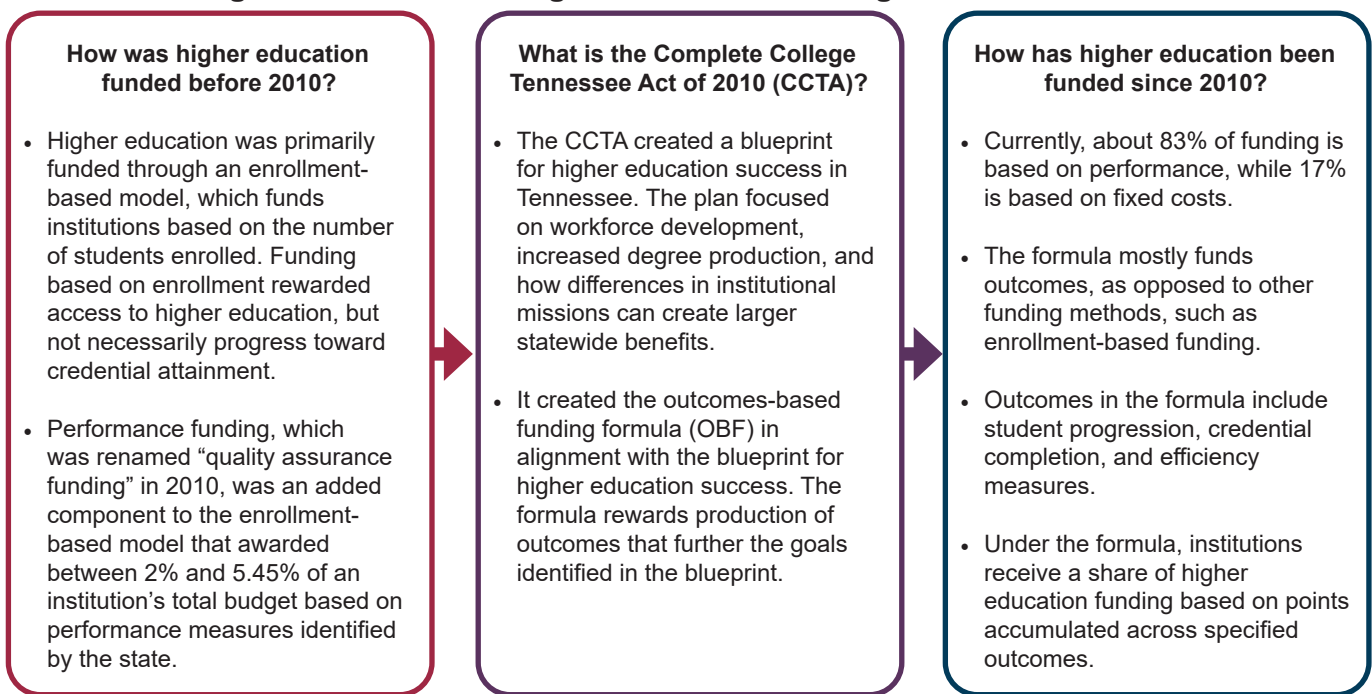
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# Background

The Tennessee outcomes-based funding formula allocates state funds to public colleges and universities based on how well they perform. This funding tool uses performance outcomes, fixed costs, and measures of quality to determine the share of state funding each institution receives. Performance outcomes are the largest component of the formula and include measures of student progress, credential attainment, and other outcomes (e.g., workforce training, research, and public service). Currently, the outcomes-based funding formula governs all operating appropriations for Tennessee’s public colleges and universities.

Tennessee has not always used an outcomes-based funding formula to create funding recommendations for higher education. Historically, the formula for higher education funding was based on the number of students enrolled at each institution, with a small portion of funding based on performance. Funding enrollments rewarded access to higher education, but not necessarily student outcomes, such as progress to graduation.

## Exhibit 1: Changes to Tennessee’s Higher Education Funding Models



Source: Graphic was created by the Office of Research and Education Accountability.

State officials began revisiting higher education funding in 2009 when THEC proposed an outcomes-based funding formula. The next year, the Tennessee General Assembly passed the Complete College Tennessee Act of 2010, which mandated that the majority of state funding for public colleges and universities be based on performance outcomes. The outcomes-based funding formula was then created by the Tennessee Higher Education Commission (THEC) and a Formula Review Committee (FRC) that consisted of college and university officials, government officials, and other stakeholders.

All operating funds for public universities and community colleges in Tennessee are now appropriated through the outcomes-based funding formula. Tennessee’s Colleges of Applied Technology (TCATs) are funded through a separate formula based on cost and enrollment. This primer focuses on the outcomes-based funding formula used for community colleges and universities.

### What are operating funds?

These funds are used for an institution’s regular operations, including staff salaries, regular building maintenance, and utilities. Currently, the outcomes-based funding formula governs all operating appropriations for Tennessee’s public colleges and universities.

Changes to the formula can be made by THEC in consultation with the FRC on a yearly basis, but THEC has historically presented proposals for more significant changes on a five-year cycle. The outcomes-based funding formula's second five-year cycle, between 2015 and 2020, came to an end with the distribution of the 2020-21 fiscal year appropriations in November 2019. In early 2020, the FRC began reviewing changes or additions for the 2020-2025 model. This review process was postponed due to the coronavirus (COVID-19) outbreak. Due to this delay, THEC plans to use the 2015-2020 formula to make the 2021-22 appropriation request. The FRC plans to restart the review process in late 2020 before presenting proposed changes to THEC members in summer 2021.

#### **What are capital funds?**

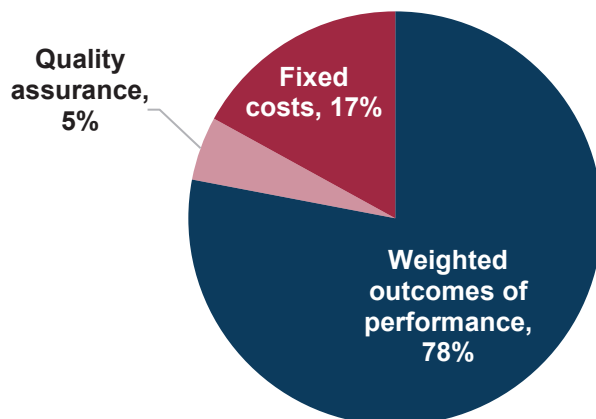
These funds are used for specific, one-time costs associated with large improvements to facilities, construction of buildings, and the purchase of certain equipment. THEC uses a scoring process that accounts for an institution's master plan, current need for new space, alignment with the state's attainment goals, and other factors. Capital outlay for new construction of buildings and major capital maintenance projects are not funded through the outcomes-based funding formula.

## Introduction: What does the formula measure?

The formula uses a point system, in which a variety of measures within three main components are used to determine each institution's point total. Those three components are weighted outcomes of performance, fixed costs, and quality assurance. Then, the proportion of state funding that will be appropriated to each institution is determined using point totals. Each component of the formula is discussed in detail in the following sections, and a brief description of each is included.

**(1) Weighted outcomes of performance.** College and university outcomes primarily consist of student progression (e.g., the number of students who earn 90 credits), credential completion, and non-degree outcomes (e.g., workforce training hours). The measures used to determine performance are different for community colleges and four-year universities. Overall, these outcome measures represent 78 percent of the points used in the formula. Outcomes are adjusted, or weighted, by THEC as follows:

**Exhibit 2: Percent of points awarded through the formula | by component**



**Premiums for at-risk populations are applied.** Progression and completion outcomes for certain at-risk student populations receive additional weight through the formula. The focus populations in the 2015-2020 model are adult students, low-income students, and academically underprepared students.<sup>A</sup>

**Outcomes are scaled for comparison across measures.** Scaling provides comparability of all outcomes across all institutions. For example, many more students earn 12 credits, which measures progress, than earn an associate degree, which measures completion. In order to compare these two metrics evenly, scales are used to make sure that metrics with high numbers do not overshadow metrics that have smaller numbers. Scales also help account for measures that may fluctuate significantly from year to year, so institutions have more stable and predictable appropriations.

**Mission weights are added to outcomes based on institutional priorities.** Each outcome's weight depends on how closely it relates to the institution's mission. For example, the University of Tennessee, Knoxville has a 12.5 percent weight on doctoral degrees, while the University of Tennessee, Martin, which does not confer doctoral degrees, has a zero percent mission weight. THEC determines institutional mission weights based on input from college and university officials and the mission statements they submit to THEC each year, as well as using the Basic Carnegie Classification of Institutions of Higher Education, which classifies universities based on the type of degrees they award.

**(2) Fixed costs funding.** The formula also provides appropriation recommendations based on fixed costs, generally related to facility upkeep, incurred by colleges and universities. Fixed costs represent about 17 percent of the points earned by institutions in the formula.<sup>B</sup>

<sup>A</sup> Academically underprepared students are included as a focus population in the community college sector only.

<sup>B</sup> Capital funding, which can be used for construction of new buildings and major renovations on campus, is not funded through the fixed costs component of the formula.

**(3) Quality assurance funding.** Quality assurance funding (QAF) provides additional funding to those institutions that meet certain quality standards. About 5 percent of the points in the formula are based on QAF. The 2015-2020 QAF standards included a student learning and engagement component, which examined student assessment scores, program accreditation, and institutional satisfaction surveys. The 2015-2020 standards also included a student access and success component, under which each institution selected five underserved student populations and was evaluated based on the effectiveness of support provided to those populations.

**(4) Point calculation for allocating shares of state funds.** The outcomes-based funding formula uses point totals (weighted outcomes, fixed costs, and QAF) to calculate each institution's recommended share of the total state appropriation. An institution's share of the total state appropriation increases or decreases based on its performance compared to (1) the previous year, and (2) the performance of other colleges and universities. An institution's performance determines its share of the total appropriation. The amount of funding an institution receives, however, depends on the total state appropriation, which is determined by the General Assembly. An institution with poor performance will receive a smaller share of the total appropriation but may see an increase in funding, nevertheless, if the total appropriation increases enough.

# Weighted outcomes of performance

## Exhibit 3: The steps and components used to determine an institution's share of the state appropriation



Weighted outcomes are the product of these factors.

## Raw outcome data

THEC collects raw data from each public college and university in Tennessee for all outcomes identified in the formula. Data is collected on a range of outcomes, which differ between community colleges and universities. The raw data is then scaled and weighted by THEC.

## Outcomes for community colleges

Community college outcomes for the 2015-2020 model are outlined below.<sup>C</sup>

- **12, 24, and 36 credit-hour accumulation:** the number of full-time and part-time students who reach credit-hour benchmarks of 12, 24, or 36 during a term (i.e., this measures students who had not met that benchmark at the beginning of the term, but had reached it by the end of the term). The count for each term in an academic year is then added together, and this total is used in the formula.
- **Dual enrollment:** the number of high school students who take a dual enrollment course at each community college in an academic year. Dual enrollment courses are college-level classes that are either taught on the college campus, or at the student's high school by a member of the college's faculty. Students enrolled in dual enrollment courses earn college credit upon completion of the course.
- **Associate degrees produced:** the total number of associate degrees conferred during an academic year by each community college. For a student earning multiple degrees, each degree earned in an academic year will count as a separate outcome.
- **Long-term certificates (one- to two-year certificates):** the total number of certificates requiring 24 or more credit hours granted during an academic year. For a student earning multiple certificates, each certificate earned in an academic year will count as a separate outcome.
- **Short-term certificates (less than one-year certificates):** the total number of certificates requiring fewer than 24 credit hours conferred to students during a calendar year. Only certificates identified as technical will be counted (e.g., Emergency Medical Technicians and Mechatronics Technology).<sup>D</sup> For a student earning multiple certificates, each certificate earned in an academic year will count as a separate outcome.
- **Job placements:** the number of graduates that are capable of being placed in the workforce from the spring, summer, and fall terms within a calendar year who obtain employment in a related field through June 30 of the following year.

<sup>C</sup> The model presented in this primer is the model used in the formula's second five-year cycle (2015-2020) which was slotted to end with the distribution of the 2020-21 fiscal year appropriations. The FRC postponed its five-year review due to the COVID-19 outbreak, however, and this model will be used for an additional year (2021-22).

<sup>D</sup> Technical certificates are those awarded upon completion of a C1 academic program. Examples of C1 technical certificates include those awarded for Early Childhood Education, Paramedics, Emergency Medical Technicians, and Mechatronics Technology.



- **Transfers out with 12 hours:** the number of students in an academic year who transferred to an in-state public or qualifying private institution, and had accumulated at least 12 credit hours from the community college before transferring.<sup>E</sup> The student must have been enrolled at the originating community college at any time one academic year prior to transferring.
- **Workforce training:** the total number of non-credit contact hours in an academic year. Contact hours are defined as a minimum of 50 minutes of learning activity for courses or activities that provide individuals with skills for the workplace but carry no institutional credit applicable toward a degree, diploma, or certificate (e.g., introduction to Quickbooks, Paramedic Refresher Course).
- **Degrees and certificates per 100 FTE students:** the combined total of associate degrees and long-term certificates conferred during an academic year per 100 full-time equivalent (FTE) students. The number of FTE students at a community college is calculated using the total number of credit hours taken by all degree-seeking full-time and part-time students over an academic year divided by a full-time course load.

Data used to make funding decisions is based on a three-year average of the most recent academic years for which all data is compiled. This means that data used in the 2020-21 formula is from the 2016-17, 2017-18 and 2018-19 academic years. Data from the 2019-20 academic year cannot be included in the 2020-21 model because funding decisions for the 2020-21 academic year need to be made before the 2019-20 academic year is finished. Before the three-year average is calculated, the raw data for the most recent year must be compiled, and focus population premiums must be added. Because of this, exhibits in this section and the section on focus populations show only the most recent data, from 2018-19. Exhibit 8 shows how the 2018-19 data is then incorporated into the three-year average. See the section titled “Three-year averages of combined outcomes (raw data + premiums).”

**Exhibit 4: Raw data from 2018-19 used in the 2020-21 funding formula | totals for all community colleges | by outcome**

<b>Outcomes</b>	<b>Total outcomes for all community colleges (2018-19)</b>
<b>Accumulating 12 hours</b>	24,111
<b>Accumulating 24 hours</b>	18,676
<b>Accumulating 36 hours</b>	15,784
<b>Dual enrollment</b>	19,804
<b>Associate degrees*</b>	10,690*
<b>1-2 yr. certificates</b>	876
<b>&lt;1 yr. certificates</b>	2,579
<b>Job placements</b>	4,043
<b>Transfers out with 12 hours</b>	6,561
<b>Workforce training</b>	926,133
<b>Awards per 100 FTE</b>	23.2

Note: \*In the final formula, the associate degrees outcome includes a reverse transfer component, which is not included in this exhibit. This component allows community colleges and universities to share credit for students who complete an associate degree after transferring from a community college to a university. This component is added to the associate degree outcome after the focus population premiums are calculated for both. (See page 11 for more information about the reverse transfer component.)

<sup>E</sup>Qualifying private institutions are those that are eligible under the Tennessee Education Lottery Scholarship (TELS) program.

## Outcomes for universities

The outcomes for universities in the 2015-2020 model are outlined below.

- **30, 60, and 90 credit hour accumulation:** the number of full-time and part-time students who reach credit-hour benchmarks of 30, 60, or 90 during a term (i.e., this measures students who had not met that benchmark at the beginning of the term, but had reached it by the end of the term). The count for each term in an academic year is then added together, and this total is used in the formula.
- **Bachelor's and associate degrees:** the combined total of bachelor's and associate degrees conferred to undergraduate students during an academic year. For a student earning multiple degrees, each degree earned in an academic year will count as a separate outcome. Those who earn a degree as a double major do not count as two outcomes. Austin Peay State University and Tennessee State University are the only public universities in Tennessee that currently grant associate degrees without relying on a partnership with a community college.
- **Master's/education specialist degrees:** the combined total of master's and education specialist degrees and certificates conferred to students during an academic year. For a student earning multiple degrees, each degree earned in an academic year will count as a separate outcome. Double majors with the same degree do not count as two outcomes.
- **Doctoral/law degrees:** the combined total of doctoral and law degrees conferred to students during an academic year. The outcome does not include medical or pharmacy degrees. For a student earning multiple degrees, each degree earned in an academic year will count as a separate outcome. Double majors with the same degree do not count as two outcomes.
- **Research, service, and sponsored programs:** expenditures on activities for research, service, or instruction. Financial aid, capital funding, state appropriations, donations from foundations, and practice income are excluded from this outcome.
- **Degrees per 100 FTE students:** the combined total of associate and bachelor's degrees conferred during an academic year per 100 full-time equivalent (FTE) students. The number of FTE students at a university is calculated using the combined total credit hours taken by all degree-seeking full-time and part-time students over an academic year divided by a full-time course load.
- **Six-year graduation rate:** the percent of freshmen who enroll as a first-time, full-time student in a summer or fall term and then earn a bachelor's or associate degree within 6 years.

Exhibit 5 shows the 2018-19 raw data for universities that was used in the 2020-21 funding formula. As with the community colleges, the data is based on the three most recent academic years for which all data is compiled. For the 2020-21 model, data is generally from the 2016-17, 2017-18, and 2018-19 academic years. The exception is the research, service, and sponsored programs outcome. That data takes an additional year to process, and the most recent year available for the 2020-21 formula is 2017-18.



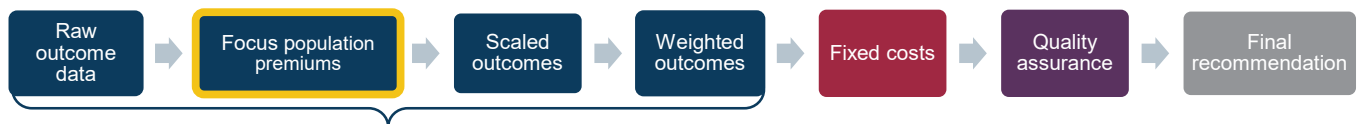
**Exhibit 5: Raw data from 2018-19 used in the 2020-21 funding formula | totals for all universities | by outcome**

Outcomes	Total outcomes for all universities (2018-19)
Accumulating 30 hours	18,102
Accumulating 60 hours	18,501
Accumulating 90 hours	21,110
Bachelor’s and associate degrees <sup>+</sup>	23,006 <sup>+</sup>
Master’s/ed specialist degrees	5,609
Doctoral/law degrees	1,158
Research, service, and sponsored programs	\$ 374,836,074*
Degrees per 100 FTE	23.6
Six-year graduation rate	58.4%

Note: <sup>+</sup>In the final formula, the bachelor’s and associate degrees outcome includes a reverse transfer component, which is not included in this exhibit. (See page 11 for more information about the reverse transfer component.) \*Data used for the research, service, and sponsored programs outcome is one year behind the other outcomes. The data shown in this exhibit represents the 2017-18 data.

**Focus population premiums**

**Exhibit 6: The steps and components used to determine an institution’s share of the state appropriation**



Weighted outcomes are the product of these factors.

The formula recognizes that some traditionally underserved and at-risk students require more time and resources to progress through college and graduate. Focus population premiums generate additional funding for institutions that are successful at serving such underserved and at-risk students. Exhibit 7 provides a summary of how focus populations are defined and operationalized for community colleges and universities.

The focus populations in the 2015-20 formula differ between universities and community colleges. For universities, adult students and low-income students are the only focus populations. At community colleges, there are three focus populations: adult students, low-income students, and academically underprepared students. Academically underprepared students are those students who do not achieve certain ACT score thresholds, or any student who is identified by the community college as requiring a remedial or developmental course.<sup>F</sup>

Students who fall into one focus population generate an 80 percent premium for the progression and undergraduate award outcomes (e.g., an associate degree earned by a student who is not in a focus population is worth one associate degree, while an associate degree earned by a student in one focus population is worth 0.8 more, or 1.8 associate degrees). Students who fall into two focus populations generate a 100 percent premium for the progression and undergraduate award outcomes (e.g., an associate degree earned by a student who falls into two focus populations is worth two associate degrees). Students who fall into all three focus

<sup>F</sup> The ACT-related thresholds for designating a student as academically underprepared are below a 19 on ACT Math, ACT Reading, or the ACT Composite, or below an 18 on ACT Writing. This premium is only for the progression metrics and the degree and certificate outcomes at community colleges.

populations generate a 120 percent premium for the progression and undergraduate award outcomes (e.g., an associate degree earned by a student who falls into three focus populations is worth 1.20 more, or 2.2 associate degrees).

**Exhibit 7: How focus populations work | total of all community college students accumulating 36 hours | 2018-19 academic year**

<b>How focus populations work:</b>		
Across all community colleges, 15,784 students earned 36 credits in 2018-19		
Below, premiums are calculated for all community college students		
Students in one focus population: 5,117 students x 80% = 4,094 student premium	Students in two focus populations: 5,639 students x 100% = 5,639 student premium	Students in three focus populations: 2,536 students x 120% = 3,043 student premium
Then, the focus population premiums are added to the total number of students		
<b>15,784 students earned 36 credits in 2018-19</b> + <b>4,094 student premium</b> ◇ <b>5,639 student premium</b> ◇◇ <b>3,043 student premium</b> ◇◇◇ = <b>28,560 combined outcomes</b>		

Source: OREA analysis of the THEC 2020-21 Outcomes-Based Funding Formula.

As shown in Exhibit 7, students who fall into all three focus population categories at community colleges carry a larger weight (120 percent) than students who fall into two categories (100 percent) or one category (80 percent).

**Reverse articulated (reverse transfer) associate degrees**

The outcomes-based funding formula has included a reverse transfer component for the past several years. This component allows community colleges and universities to share credit for students who complete an associate degree after transferring from a community college to a university. Students must complete more than 25 percent of the required credits for an associate degree at the community college before transferring to a university.<sup>6</sup>

Community colleges and universities that partner together to award an associate degree through reverse transfer each receive a half credit for the outcome. Half of the shared credit is applied to the associate degree outcome for community colleges, while the other half applies to the bachelor’s and associate degree outcome for universities.

**Three-year averages of combined outcomes (raw data + premiums)**

After accounting for focus population premiums for progression and completion outcomes, each combined outcome is averaged, using the three most recent years. For the 2020-21 funding formula recommendation, weighted outcome data for every outcome is calculated using 2016-17, 2017-18, and 2018-19 data, with the exception of the research, service, and sponsored programs outcome, for which the most recent year available is 2017-18.

<sup>6</sup> Community colleges can partner with private universities to provide reverse transfer associate degrees. In this situation, the community college receives half-credit for each reverse associate degree, while the other half is unclaimed because private universities are not included in the outcomes-based funding formula. In the 2018-19 academic year, 95 reverse transfer associate degrees were awarded through a partnership between a community college and private university.

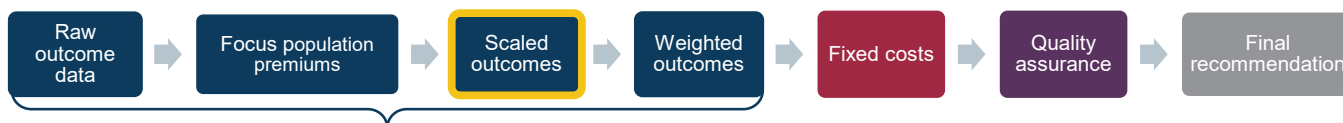
**Exhibit 8: Three-year average used in the 2020-21 formula for the 36-hour accumulation outcome at community colleges**

All community colleges	2016-17	2017-18	2018-19	3-year average used in the 2020-21 formula
Students accumulating 36 hours	27,800	27,807	28,560	28,056

Source: Tennessee Higher Education Commission, 2020-21 Outcomes-Based Funding Formula.

**Scaled outcomes**

**Exhibit 9: The steps and components used to determine an institution’s share of the state appropriation**



Weighted outcomes are the product of these factors.

After the three-year averages of each combined outcome (raw data + premiums) are calculated, the formula scales each outcome. Scaling occurs for two reasons: to allow for comparisons across outcomes, and to account for outcomes that are prone to more variation and volatility (described in more detail below). The scales for the 2015-2020 model were initially determined based on an outcome’s standard deviation. Outcomes with higher standard deviations showed more variation over time and/or represented outcomes with larger numbers, while outcomes with lower standard deviations showed less variation over time and/or represented outcomes with smaller numbers. Using the standard deviations as a starting point, THEC then adjusted the scales as necessary to provide colleges and universities with more stable funding levels year to year.

**(1) Scales are used to place outcomes into similar units of measurement to allow for comparisons.** As shown in Exhibit 4 on page 8, about 24,000 students accumulated 12 credits, while around 11,000 students earned an associate degree. Earning an associate degree is more difficult to accomplish than accumulating 12 credits, however, and there will be fewer degrees earned than the number of students earning 12 credits. And once focus population premiums are added, the disparity between these two outcomes becomes even larger. THEC uses the scales to adjust the three-year averages so that outcomes with higher numbers (which, like the accumulation of 12 credits, are generally easier to accomplish) are scaled down and outcomes with lower numbers (which are generally harder to accomplish) are scaled up.

**(2) Scales are used to account for volatility in outcome measures that show variation over time.** For example, the workforce training outcome can vary significantly from year to year as community colleges gain and lose training contracts with companies in their area. Workforce training programs can spring up quickly in response to business demands, and a community college may begin earning hours for this outcome immediately after the training program is up and running. This can cause big swings, year to year, in workforce training outcomes. The scales moderate the volatility of such outcomes so that appropriation share recommendations for institutions are more stable.

### Exhibit 10: How scales are used to adjust for variation in outcome measures and volatility

Workforce training	Accumulating 36 hours	Associate degrees
High numbers High volatility <b>High scale</b>	Moderate numbers Low volatility <b>Moderate scale</b>	Low numbers Low volatility <b>Low scale</b>
3-year average: 767,974 ÷ <b>Scale: 157.0</b> = 4,892 scaled outcomes	3-year average: 28,056 ÷ <b>Scale: 2.3</b> = 12,198 scaled outcomes	3-year average: 20,045 ÷ <b>Scale: 1.5</b> = 13,363 scaled outcomes

Source: OREA analysis of the THEC 2020-21 Outcomes-Based Funding Formula.

As shown in the example, associate degrees have smaller numbers and less volatility than workforce training hours and students accumulating 36 hours. They are also the hardest to obtain of the three outcomes presented in the exhibit. To reflect that, the scales for associate degrees are lower and the scaled outcomes, therefore, are higher. The higher scaled outcomes of associate degrees ensure that improvements in this area have a larger effect on the formula than performance metrics with smaller scaled outcomes.

### Weighting outcomes based on institutional mission

#### Exhibit 11: The steps and components used to determine an institution's share of the state appropriation



Outcomes used in the outcomes-based funding formula are weighted to reflect mission differences among higher education institutions. THEC determines institutional mission weights based on input from college and university officials and the mission statements they submit to THEC each year, as well as in accordance with the Basic Carnegie Classification of Institutions of Higher Education, which classifies universities based on the type of degrees they award. Scaled outcomes for every institution are then weighted based on institutional mission to produce a final weighted outcome. Each institution's mission weights add up to 100 percent, but the weight assigned to each outcome varies by institution.

Exhibit 12 shows the weighting structures for community colleges under the 2015-2020 outcomes-based formula. Within each cell are the weights applied to each outcome based on each institution's mission. Several outcomes in the community college sector have standardized weights, determined by the Tennessee Board of Regents (TBR), to reflect the goals of statewide completion initiatives, including the Drive to 55. Associate degrees are weighted at 22.5 percent across all community colleges; progression metrics (students accumulating 12, 24, and 36 credit hours) and degrees per 100 FTE are also the same for all community colleges. Long-term and short-term certificates sum to 20 percent, with variation between the two types of certificates depending on each institution's priority. The remaining 37.5 percent in mission weighting is split among dual enrollment, job placements, transfers out with 12 hours, and workforce training based on the institution's mission.

**Exhibit 12: 2015-20 Weighted percentages for outcomes | by community college**

	Chattanooga	Cleveland	Columbia	Dyersburg	Jackson	Motlow	Nashville	Northeast	Pellissippi	Roane	Southwest	Volunteer	Walters	Average for all CC
Accumulating 12 hours	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Accumulating 24 hours	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Accumulating 36 hours	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dual enrollment	5.0	5.0*	7.5	10.0*	7.5	7.5	15.0	10.0	10.0	15.0	7.5*	5.0*	10.0	8.8
Associate degrees	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5
1-2 year certificates	10.0	2.5	17.5	10.0	10.0	0.0	10.0	12.5	0.0	10.0	2.5	5.0	2.5	7.1
<1 year certificates	10.0	17.5	2.5	10.0	10.0	20.0	10.0	7.5	20.0	10.0	17.5	15.0	17.5	12.9
Job placements	15.0	15.0	5.0	12.5*	15.0	7.5	7.5	15.0	7.5	5.0	5.0	7.5	7.5	9.6
Transfers out with 12 hours	10.0	5.0	15.0	10.0	5.0	12.5	10.0	5.0	15.0	10.0	12.5*	15.0	15.0	10.8
Workforce training	7.5	12.5*	10.0	5.0	10.0	10.0	5.0	7.5	5.0	7.5	12.5	10.0*	5.0	8.3
Awards per 100 FTE	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

Note: \*Between the 2018-19 and 2019-20 funding formulas, the Dual Enrollment Taskforce recommended that THEC allow community colleges to adjust their dual enrollment mission weights. Four institutions chose to decrease their dual enrollment mission weights (Cleveland State, Dyersburg State, Southwest Tennessee, and Volunteer State community colleges) and increased their job placements, transfers out with 12 hours, or workforce training mission weight to account for the change. Source: Tennessee Higher Education Commission, 2020-21 Outcomes-Based Funding Formula.

**Exhibit 13: How weights are applied to scaled outcomes to produce weighted outcomes**

Accumulating 36 hours	Workforce training
<b>All community colleges</b>	
Scaled outcomes: 12,198 x <b>Mission weight (average): 7.0%</b> = 853.9 weighted outcomes	Scaled outcomes: 4,892 x <b>Mission weight (average): 8.4%</b> = 411.2 weighed outcomes
<b>Southwest Tennessee Community College</b>	
Scaled outcomes: 1,335 x <b>Mission weight: 7.0%</b> = 93.5 weighted outcomes	Scaled outcomes: 306 x <b>Mission weight: 12.5%</b> = 38.2 weighted outcomes
<b>Northeast State Community College</b>	
Scaled outcomes: 945 x <b>Mission weight: 7.0%</b> = 66.2 weighted outcomes	Scaled outcomes: 303 x <b>Mission weight: 7.5%</b> = 22.8 weighted outcomes

Note: Scaled outcomes and weighted outcomes are rounded in this exhibit. Multiplying them could result in rounding errors.  
 Source: OREA analysis of the THEC 2020-21 Outcomes-Based Funding Formula.

Exhibit 13 shows how mission weights are applied to the scaled outcomes. Scaled outcomes are multiplied by the percentage associated with a given mission weight to produce a final weighted outcome. All community colleges have a standard weight for 36-hour accumulation (7 percent) so each community college’s scaled outcome for the number of students who accumulate 36 hours is multiplied by 7 percent to produce the final weighted outcome. Similar steps are taken for each mission weight across all outcome measures.

Exhibit 14 shows the weighting structures for universities under the 2015-2020 outcomes-based funding formula. The values within each cell under a given institution’s name indicate the weighted percentage that institution applies to a given outcome. There is greater variation among the weights for universities than there is for community colleges (whose mission weights are partially determined by TBR) because universities have more independence and flexibility when choosing institutional missions.



**Exhibit 14: 2015-20 University weighting structure | by weighted percentages for outcomes**

	<b>UTM</b>	<b>APSU</b>	<b>TTU</b>	<b>UTC</b>	<b>MTSU</b>	<b>ETSU</b>	<b>TSU</b>	<b>UM</b>	<b>UTK</b>	<b>Avg.</b>
Students accumulating 30 hours	4.0	3.0	4.0	4.0	3.0	6.0	4.0	3.0	2.0	<b>4%</b>
Students accumulating 60 hours	6.0	4.5	6.0	6.0	4.5	7.5	6.0	4.5	4.0	<b>5%</b>
Students accumulating 90 hours	10.0	7.5	10.0	10.0	7.5	9.0	10.0	7.5	6.5	<b>9%</b>
Bachelor's and associate degrees	30.0	27.5	25.0	25.0	22.5	20.0	22.5	22.5	20.0	<b>24%</b>
Master's/ed specialist degrees	15.0	20.0	15.0	10.0	20.0	15.0	12.5	10.0	10.0	<b>14%</b>
Doctoral/law degrees	0.0	0.0	5.0	5.0	7.5	15.0	7.5	15.0	12.5	<b>8%</b>
Research and service	5.0	10.0	10.0	10.0	10.0	10.0	15.0	10.0	12.5	<b>10%</b>
Degrees per 100 FTE	10.0	17.5	10.0	15.0	10.0	7.5	12.5	10.0	17.5	<b>12%</b>
6-year graduation rate	20.0	10.0	15.0	15.0	15.0	10.0	10.0	17.5	15.0	<b>14%</b>

Mission weights for universities are applied in the same manner as for community colleges: scaled outcomes are multiplied by each institution's respective mission weights to produce a weighted outcome.

For all types of institutions, weighted outcomes are the final points used in the formula for each outcome. Thus, all weighted outcomes added together represent an institution's total outcomes-based points. These points represent about 78 percent of all the points used to calculate an institution's share of the total state appropriation.

Throughout this section the number of students accumulating 36 hours was used as an example. Below, all the steps are put together to show how this outcome is adjusted for focus population premiums, averaged, scaled, and weighted. In the end, this weighted outcome is added to the others to produce the total outcomes-based points used in the formula.

**Exhibit 15: How the 36-hour accumulation weighted outcome is produced and added to other outcomes**

<b>Accumulating 36 hours</b>			
<b>Raw data</b>	<u>2016-17</u> 15,254 students	<u>2017-18</u> 15,337 students	<u>2018-19</u> 15,784 students
	+ Premiums for focus populations		
<b>Combined outcomes</b>	<u>2016-17</u> 27,800	<u>2017-18</u> 27,807	<u>2018-19</u> 28,560
	Average the most recent three years		
<b>Three-year average</b>	28,056		
	÷ 2.30 Scale		
<b>Scaled outcome</b>	12,198		
	x 7% Mission weight		
<b>Weighted outcome</b>	<b>854</b>		

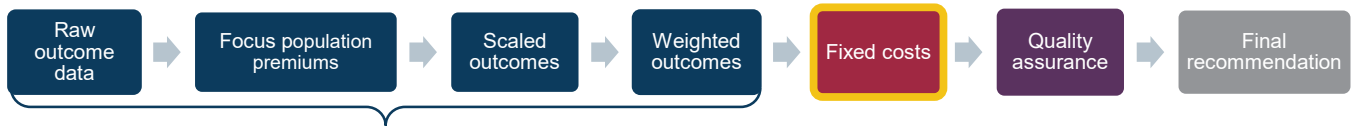
<b>Combining outcomes</b>	
Accumulating 36 hours	<b>854</b>
	+ The other weighted outcomes:
Students accumulating 12 hours	204
Students accumulating 24 hours	498
Dual enrollment	677
Associate degrees	3007
1-2 yr. certificates	57
<1 yr. certificates	248
Job placements	917
Transfers out with 12 hours	504
Workforce training	411
Awards per 100 FTE	306
<b>Total outcomes-based points for community colleges</b>	<b>7,681</b>

Note: Numbers throughout this exhibit are rounded to the nearest whole number. Adding or multiplying them could result in rounding errors.

Weighted-outcome points are not an institution’s final point total in the formula, however. Fixed costs and quality assurance funding are also calculated and turned into points, as discussed in the next section.

# Fixed costs

**Exhibit 16: The steps and components used to determine an institution’s share of the state appropriation**



Weighted outcomes are the product of these factors.

The formula also considers an institution’s fixed costs. Fixed costs include costs incurred by colleges and universities for maintenance and operations, utilities, equipment replacement, and education/general space. Capital funding, which is used for the construction of new buildings, major renovations , and maintenance is not funded through the outcomes-based funding formula.

In the 2015-20 model, the total number of points awarded for fixed costs is calculated using a fixed costs constant of 21.8 percent. THEC calculated the fixed costs constant by dividing the average fixed costs of all institutions over a five-year period by the average annual funding generated by outcomes across all institutions over the same time period, as shown in the box titled “How THEC determined the fixed costs constant.”

How THEC determined the fixed costs constant	
Average fixed costs of all institutions (2011-12 to 2015-16)	\$389,360,261
	÷
Average annual funding generated by outcomes (2011-12 to 2015-16)	\$1,783,716,163
	=
<b>Fixed cost constant</b>	<b>21.8%</b>

The fixed costs constant is multiplied by the number of points generated through weighted outcomes across all institutions. This provides the total amount of fixed costs points that are awarded across all institutions and ensures that the total percent of points awarded based on fixed costs remains constant, year to year.

**Exhibit 17: How the total points awarded based on fixed costs are calculated**

Calculating the total points earned through weighted outcomes	
Points earned through weighted outcomes by community colleges	7,681
	+
Points earned through weighted outcomes by universities	27,535
	=
<b>Total points earned through weighted outcomes</b>	<b>35,216</b>

Calculating the total points awarded based on fixed costs	
Total points earned through weighted outcomes	35,216
	x
Fixed cost constant	21.8%
	=
<b>Total points awarded based on fixed costs</b>	<b>7,687</b>

Note: Numbers throughout this exhibit are rounded. Adding or multiplying them could result in rounding errors.

The share of fixed costs points awarded to each institution is dependent on its share of the total fixed costs. An institution's fixed costs are closely related to the institution's size, with larger institutions receiving more of the fixed costs points and smaller institutions receiving less. For example, the University of Tennessee, Knoxville accounts for 25 percent of the total fixed costs across all institutions, and therefore received 25 percent of the points awarded based on fixed costs (1,927). Motlow State Community College, on the other hand, accounts for about 1 percent of the fixed costs and received 77 points based on fixed costs.

**Exhibit 18: Calculating the share of fixed costs for Motlow State Community College | 2020-21 funding formula**

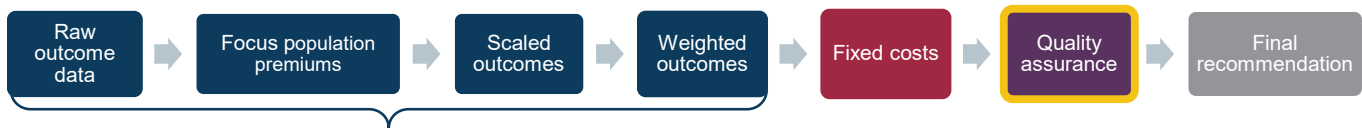
<b>Calculating Motlow State's share of the fixed costs</b>	
Fixed costs at Motlow State	\$4,869,515
	÷
Total fixed costs across all institutions	\$485,416,491
	=
<b>Motlow State's share of the fixed costs</b>	<b>1%</b>

<b>Calculating the total points awarded based on fixed costs</b>	
Motlow State's share of the fixed costs	1%
	x
Total points awarded based on fixed costs	7,687
	=
<b>Points awarded to Motlow State based on fixed costs</b>	<b>77</b>

Note: Numbers throughout this exhibit are rounded. Adding or multiplying them could result in rounding errors.

# Quality assurance funding

**Exhibit 19: The steps and components used to determine an institution’s share of the state appropriation**



Weighted outcomes are the product of these factors.

Each institution can earn additional points for meeting various quality indicators in the quality assurance funding (QAF) component of the outcomes-based funding formula. QAF provides an incentive for institutions to maintain quality while pursuing progression and completion outcomes by offering additional funding above the outcomes-based funding recommendation to those institutions that meet certain quality standards.

Through QAF, institutions can earn up to 5.45 percent more points on top of those earned through the weighted outcomes and fixed costs components. For example, Motlow State earned 629 points through the first two components (551 points through weighted outcomes and 77 based on fixed costs) of the formula. Through the QAF component, Motlow State can earn up to 5.45 percent of the 629 points, for a maximum of 34 additional points.

**Exhibit 20: Calculating the maximum QAF points Motlow State Community College can earn**

Calculating Motlow State’s points from outcomes and fixed costs	
Points earned through weighted outcomes	551
	+
Total fixed costs across all institutions	77
	=
<b>Points received through the first two components</b>	<b>628</b>

Calculating the maximum points Motlow State can earn though QAF	
Points received through the first two components	628
	x
Percent of points that can be awarded based on QAF	5.45%
	=
<b>Maximum points Motlow State can earn through QAF</b>	<b>34</b>

Note: Numbers throughout this exhibit are rounded. Adding or multiplying them could result in rounding errors.

The indicators used to calculate QAF grades are evaluated every five years to ensure alignment with the state’s higher education priorities. For the 2015-2020 funding cycle, 75 percent of an institution’s QAF grade is based on student learning and engagement, with the remaining 25 percent based on student access and success. The specific standards used in the QAF are slightly different for universities versus community colleges based on the different roles of the two types of institutions.

Exhibit 21 shows the standards used for QAF and the points tied to each. In many cases, QAF standards require colleges and universities to document their operating procedures in detail as well as their use of best

practices related to a given QAF standard. Institutions typically perform a self-audit of their student services and institutional support offices. Various rubrics may be used to evaluate institutional performance on QAF measures, including assessment selection forms, program review rubrics, academic audits, institutional satisfaction studies, and comprehensive reports.

If an institution earns a grade of 100 percent, it will receive the full 5.45 percent in QAF points on top of its total weighted outcomes and fixed costs points. Institutions with scores less than 100 percent will receive a proportionate share of the 5.45 percent potential QAF on top of their total outcomes and fixed costs points.

**Exhibit 21: Standards used to calculate the QAF grade in the 2015-20 formula**

<b>Standard</b>	<b>Community colleges</b>	<b>Universities</b>
<b>I. Student learning and engagement</b>	<b>75%</b>	<b>75%</b>
<b>General education assessment:</b> a general education assessment of all undergraduate students who have applied to graduate with an associate or bachelor’s degree.	15%	15%
<b>Major field assessment:</b> an assessment taken by all graduating students about their field of study.	15%	15%
<b>Academic programs:</b> based on program excellence and accreditation. For non-accreditable programs a score is determined by an external evaluator.	15%	25%
<b>Institutional satisfaction study:</b> satisfaction surveys of students, faculty, and alumni. Surveys of each group are given on a cycle (e.g. students one year, faculty the next, etc.)	10%	10%
<b>Adult learner success:</b> self-assessments on adult learners, development of an action plan, and reports on progress. Each of these steps is done on a cycle.	10%	10%
<b>Tennessee job market graduate placement:</b> the number of graduates working full-time during any of the four quarters following their graduation divided by the total number of graduates.	10%	NA
<b>II. Student access and success:</b> assessment of an institution based on the quality of services dedicated to five student focus populations of their choice. Institutions select focus populations based on their missions. <sup>H</sup>	<b>25%</b>	<b>25%</b>
<b>Total</b>	<b>100%</b>	<b>100%</b>

Source: Tennessee Higher Education Commission, Quality Assurance Funding 2015-20 Cycle Standards (accessed July 21, 2017).

**Exhibit 22: Calculating the points Motlow State earned though QAF**

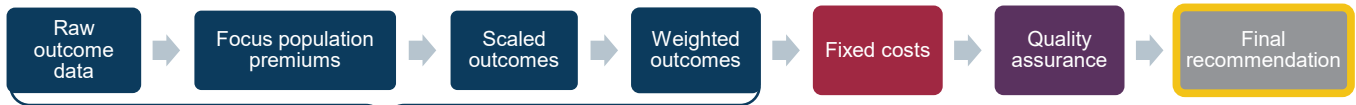
<b>Calculating the points Motlow State earned though QAF</b>	
Maximum points Motlow State can earn though QAF	34
	x
QAF grade	94%
	=
<b>QAF points earned by Motlow State</b>	<b>32</b>

<sup>H</sup>The focus populations from which institutions can choose are low-income students; African-American students; Hispanic students; male students; veterans; students from high-need geographic areas; students in science, technology, engineering, or math (STEM) programs; students in health programs; institutionally developed focus population (i.e., an institution can create a focus population); associate degree graduates enrolled at public universities (for community colleges only); baccalaureate degree graduates who previously earned an associate degree (for universities only); Graduate degrees for African-American students, Hispanic students, or students in STEM fields (for universities only).



# Putting it all together

**Exhibit 23: The steps and components used to determine an institution’s share of the state appropriation**



Weighted outcomes are the product of these factors.

THEC calculates the total higher education funding recommendation based on adding the point subtotals of each component in the formula discussed above:

$$\begin{aligned}
 & (Total\ weighted\ outcome\ points) + (Total\ fixed\ costs\ points) + (Total\ QAF\ points) \\
 & = Point\ total
 \end{aligned}$$

An institution’s share of the appropriation is determined using a two-step process. First, each institution’s share of the appropriation from the previous year is adjusted to reflect its change in points. Then, each institution’s share of the appropriation calculated in the first step is adjusted a second time to account for its performance compared to other institutions.

The General Assembly determines the *amount* of the higher education appropriation based on how much state funding is available. The funding formula is used to determine the share of funding each institution receives.

## Adjusting the appropriation share based on the percent change in total points

An institution’s point total for the current year is compared to its point total from the previous year to determine the total percent change in points. The percent change in total points, whether an increase or decrease, is then multiplied by the institution’s appropriation share for the previous year. In this step of the process, the institution’s share of the appropriation is increased or decreased by the same percentage as the increase or decrease in total points.

**Exhibit 24: Motlow State’s share of the appropriation adjusted based on the percentage increase in total points**

Calculating Motlow State’s change in points	
Total points 2020-21	661
	-
Total points 2019-20	593
	=
<b>Change in the number of total points (2019-20 to 2020-21)</b>	<b>68</b>

Calculating Motlow State’s percent change in points	
Change in the number of total points (2019-20 to 2020-21)	68
	÷
Total points 2019-20	593
	=
<b>Percent change in the number of total points (2019-20 to 2020-21)</b>	<b>11.47%</b>

<b>Calculating Motlow State's share of the appropriation based on the percent change in points</b>	
Percent change in the number of total points (2019-20 to 2020-21)	11.47%
	x
Appropriation share from the previous year (2019-20)	1.63%
	=
<b>Increase in appropriation share based on point growth</b>	<b>0.187%</b>
	+
Appropriation share from the previous year (2019-20)	1.63%
	=
<b>Motlow's adjusted share of the appropriation, based on its percent change in points</b>	<b>1.81%</b>

Note: Numbers throughout this exhibit are rounded. Adding or multiplying them could result in rounding errors.

Exhibit 24 shows how the formula calculates the percent change in points from the 2019-20 to the 2020-21 academic year. For example, Motlow State earned 68 more points, which represented an 11.47 percent increase. Based on that change in points, its share of the state appropriation is also increased by 11.47 percent, from 1.63 percent to 1.81 percent.

### ***Adjusting the appropriation share based on other institutions' performance***

An institution's share of the appropriation is adjusted a second time to account for the performance of all other colleges and universities. This is done by dividing the institution's adjusted appropriation share based on the percent change in points (as explained in the previous section), by the total growth for all colleges and universities. The total growth from all colleges and universities is calculated by adding each institution's adjusted appropriation share based on the percent change in points. For example, Motlow State's appropriation share based on the percent change in points was 1.81 percent. When added to the adjusted shares of all other institutions, the total was 101.8 percent.

### **Exhibit 25: Calculating Motlow State's share of the proposed appropriation | 2020-21**

<b>Calculating Motlow State's final share of the appropriation</b>	
Motlow's adjusted share of the appropriation, based on its percent change in points (calculated above)	1.81%
	÷
Total growth across all institutions	101.8%
	=
<b>Motlow State's final share of the appropriation</b>	<b>1.78%</b>

Note: Numbers throughout this exhibit are rounded. Adding or multiplying them could result in rounding errors.

## Determining each institution's appropriation

After an institution's final share of the appropriation is determined, it is applied to the total appropriation proposal. For example, in the 2020-21 formula, THEC proposed a state appropriation of \$1.1 billion. Motlow State's share of that proposed appropriation is 1.78 percent, or about \$20 million.

### Exhibit 26: Calculating Motlow State's proposed appropriation | 2020-21

Calculating Motlow State's proposed appropriation, 2020-21	
Motlow State's final share of the appropriation	1.78%
	x
Total proposed state appropriation	\$1,114,372,300
	=
<b>Motlow State's share of the proposed appropriation</b>	<b>\$19,866,700</b>

Note: Numbers throughout this exhibit are rounded. Adding or multiplying them could result in rounding errors.

Once the General Assembly determines the state appropriation, which may be more or less than the amount proposed by THEC, each institution's appropriation will be modified. The *share* of funding received by each institution will remain unchanged, regardless of the total appropriation, but the amount of funding that share represents will increase or decrease based on the actual appropriation amount.

OREA has created profiles for each institution that include an analysis of weighted outcomes, fixed costs, quality assurance, and appropriation shares and amounts. The profiles can be found at: [www.comptroller.tn.gov/OREA/](http://www.comptroller.tn.gov/OREA/).



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