

Tennessee Higher Education Commission Outcomes-Based Funding Formula

States have long sought to find an equitable way to fund institutions of higher education in a manner that is stable and yet also prompts institutions to be more productive and efficient. For many years, funding to higher education institutions in Tennessee and across the nation was distributed based primarily on enrollments. This meant that the main policy objective incentivized was increased enrollment rather than efficiency in or production of degrees. In an attempt to increase degree completion, Tennessee incorporated a small, but robust performance funding piece to the enrollment-based formula in 1979 to reward institutions for success in meeting certain state goals for higher education. These goals included higher graduation and job placement rates, student satisfaction levels, and other variables.

This “enrollment-plus” funding formula produced moderate results over its years of use. As institutions achieved certain benchmarks or surpassed peer averages, they earned more state funding through this performance metric. But changes in institutional behavior did not come as expected. State officials wanted to develop a more efficient funding formula, one that included outcomes measures that allowed the state to leverage its ability to promote policy outcomes and moved away from inputs as the main funding metric.

As part of the Complete College Tennessee Act (CCTA) of 2010, Tennessee introduced an **outcomes-based funding formula** model that does just that, rewarding institutions for the production of outcomes that further the educational attainment and productivity goals of the state Master Plan. The outcomes chosen represent broad activities across various types of institutions from research-heavy four-year universities to community colleges filling workforce development needs. These outcomes measures are grouped into the categories of student progression, degree production, efficiency, and other important institutional functions. The outcomes are weighted according to institutional mission, reflecting an institution’s Basic Carnegie classification. Institutions with similar missions have the same weights applied, providing a framework for grouping similar institutions together. Metrics that play a larger role in institutional mission are weighted more heavily in that institution’s formula.

The outcomes based model no longer includes student enrollment data. Instead, two sets of outcomes were identified — those for four-year universities and those for two-year community colleges — that best reflected the purposes of each type of institution. Outcomes for universities include progression (at 24, 48 and 72 hours), bachelors’, associates’, masters’ and doctoral degrees, research and service, student transfer, degrees per 100 full-time enrolled student and graduation rate. Outcomes for community colleges include progression (at 12, 24 and 36 hours), dual enrollment, associate and certificate degrees, job placement, remedial and developmental education, student transfer and workforce training. Student progression measures the accumulation of credit hours, thereby incorporating course completions. For the purposes of this narrative, the examples provided focus on outcomes for four-year colleges and universities only.

Outcomes Included in the University Formula

Students Accumulating 24hrs	Bachelor and Associate Degrees
Students Accumulating 48hrs	Masters and Ed Specialist Degrees
Students Accumulating 72hrs	Doctoral and Law Degrees
Research and Service Expenditures	Degrees per 100 FTE
Transfers Out with at Least 12 Credit Hours	Six-Year Graduation Rate

Outcomes Included in Community College Formula

Students Accumulating 12hrs	Dual Enrollment Students	Job Placements
Students Accumulating 24hrs	Associates Granted	Transfers out with 12 Credits
Students Accumulating 36hrs	Certificates Granted	Remedial and Developmental
Work Force Training	Awards per 100 FTE	Success

**Institutional Outcome Example for
UT Martin (Masters Medium)
& UT Knoxville (Research Very High)**

Utilizing these outcomes, data is collected for each metric. For universities, all data except for Research and Service is pulled from THEC’s Student Information System. Individual institutions report these data files to their respective system that then submits a file for all institutions to THEC. The three most recent years

Example of Outcome Measures	UTM	UTK
Students Accumulating 24 hrs	1,532	4,150
Students Accumulating 48 hrs	1,356	4,530
Students Accumulating 72 hrs	1,292	4,734
Bachelors and Associates	1,024	4,182
Masters/Ed Specialist Degrees	125	1,578
Doctoral / Law Degrees	0	483
Research and Service	4,114,767	141,663,538
Transfers Out with 12 hrs	273	774
Degrees per 100 FTE	15.6	20.7
Six-Year Graduation Rate	56.1	67.6

of data are analyzed and a three-year average for each outcome for each institution is calculated. For instance, in this example, UT Martin conferred an average of 1,024 Bachelor’s degrees each academic year over the period of 2008-09 to 2010-11. During the same period, UT, Knoxville conferred an average of 4,182 bachelor’s degrees a year.

Premium for Sub-Populations	UTM	UTK
<i>Students Accumulating 24 hrs</i>	1,895	4,566
<i>Students Accumulating 48 hrs</i>	1,689	5,018
<i>Students Accumulating 72 hrs</i>	1,625	5,320
<i>Bachelors and Associates</i>	1,332	4,934
Masters/Ed Specialist Degrees	125	1,578
Doctoral / Law Degrees	0	483
Research and Service	4,114,767	141,663,538
Transfers Out with 12 hrs	273	774
Degrees per 100 FTE	15.6	20.7
Six-Year Graduation Rate	56.1	67.6

**Institutional Outcome Premium Example for
UT Martin (Masters Medium)
& UT Knoxville (Research Very High)**

Next, a premium is awarded to institutions for success on several outcomes for certain sub-populations. Institutions report the number of adults and students from low-income families — identified as sub-populations of focus for the state — who meet the progression and undergraduate degree completion

metrics during the academic year. A 40 percent premium is applied to these outcomes as a way to recognize the added assistance provided to these populations and the importance of success for these populations to state goals. This means that if 100 degrees were awarded to adults at UTK, those degrees are actually reflected in the model as if 140 undergraduate degrees were conferred over that time period. In this example, the successes of adults and low-income students increases the average number of undergraduate degrees conferred at UTK to 4,934 and at UTM to 1,332 over the three-year period.

These data are then scaled to make the effects of the measured outcomes comparable. For instance, Research & Grant funding is reported in millions of dollars at most universities. To make sure this outcome does not

disproportionately impact the formula calculation, it is scaled *down*. Conversely, outcomes with small results, like degrees per 100 FTE, are scaled *up*. Scaling factors are the same for all institutions.

Weights Based on Institutional Mission	UTM	UTK
Students Accumulating 24 hrs	3%	2%
Students Accumulating 48 hrs	5%	3%
Students Accumulating 72 hrs	7%	5%
Bachelors and Associates	30%	15%
Masters/Ed Specialist Degrees	15%	15%
Doctoral / Law Degrees	0%	10%
Research and Service	10%	15%
Transfers Out with 12 hrs	10%	5%
Degrees per 100 FTE	15%	10%
Six-Year Graduation Rate	5%	20%

**Institutional Outcome Weight Example for
UT Martin (Masters Medium)
& UT Knoxville (Research Very High)**

The outcome data is then weighted to reflect institutional mission, indicating both the priority of that outcome at a particular institution and — in the case of universities — an institution’s Carnegie Classification. Higher weights are applied to higher priority outcomes at each institution. In this example, UTK is classified as a

High Research Doctoral university by the Carnegie Foundation. Because of this, degrees conferred, research and graduation rates are weighted high while progression is not. The weights applied to measures for UTM reflect its classification as a Master’s Medium university, with more emphasis on undergraduate and master’s level degrees, but less on graduation rate and no weight on doctoral degrees. Community college weights were developed based on the input from the presidents about institutional mission. Weights for universities and community colleges were developed in consultation with campus leaders through the Formula Review Committee.

**Institutional Final Outcome Example for
UT Martin (Masters Medium)
& UT Knoxville (Research Very High)**

Scaled data is then multiplied by the weights for each institution and final outcomes for each are produced. These data are then summed to produce the “total weighted outcome” for each institution. Here, UTM has an estimated total weighted outcome of 952 while UTK has an estimated total weighted outcome of 4,546.

Example of Final Outcomes Measures	UTM	UTK
Students Accumulating 24 hrs	56.9	91.3
Students Accumulating 48 hrs	84.4	150.5
Students Accumulating 72 hrs	113.7	266.0
Bachelors and Associates	399.7	740.1
Masters/Ed Specialist Degrees	62.5	788.8
Doctoral / Law Degrees	-	966.7
Research and Service	20.6	1,062.2
Transfers Out with 12 hrs	27.3	38.7
Degrees per 100 FTE	116.7	103.3
Six-Year Graduation Rate	70.1	338.1
Total Weighted Outcome	952	4,546

The steps presented — from actual data for each outcome collected by the institution, to applying a premium to certain results for certain subpopulations, to then scaling that data to make the disparate outcomes mathematically comparable — are the same for every institution. The only difference in how the total weighted outcome is calculated is based on the institution-specific weighting structure.

Final Steps of the Outcomes-Based Funding Formula

After a total weighted outcome is calculated for each institution, these values are monetized by multiplying them by the Southern Regional Education Board’s average faculty salary of similar Carnegie Classification institutions. The result is the “Outcome Based Performance” value for each institution. Next, fixed costs are calculated. Fixed costs include funding for maintenance and operation, utilities, rent and equipment replacement for each institution.

Maintenance and operation and utilities are calculated by multiplying the institution's education and general square footage by pre-determined fixed rates. Rent costs are based on actual rent expenditures by each institution, while equipment replacement cost is calculated as 10 percent of total equipment inventory. The sum of the "Outcome Based Performance" value and the "Fixed Costs" for each institution is the "Formula Subtotal."

Lastly, "Quality Assurance" scores for each institution are applied. These scores represent the achievements of institutions in meeting the additional Performance Funding program metrics — including general education course assessments, job placement rates and student satisfaction studies, among others. Through success on these benchmarks, institutions can earn up to an additional 5.45 percent of their formula subtotal. These "Quality Assurance" Subtotals are then summed with the "Formula Subtotal" to reach the "Total Formula Calculation". The "Total Formula Calculation" for each institution is summed to calculate the total appropriation request for all formula units.

Conclusion

The outcomes based model provides several distinct advantages to an enrollment-based methodology. The outcomes model is productivity based and provides more stability by spreading the financial incentives across more variables. Unlike Performance Funding, the outcomes based formula does not have annual targets or benchmarks. Therefore, it does not punish institutions for failure to achieve a predetermined goal. Furthermore, the links to the Master Plan are strengthened by utilizing the formula as a policy tool to encourage increased productivity.

Further information on the funding formula can be found on the THEC homepage. Here, one can find the most recent funding formula containing all the steps discussed above for all universities and community colleges; the "Dynamics Model," a tool meant to allow stakeholders to interact with the model and see the effects of hypothetical outcomes changes on future appropriations; and an extensive PowerPoint providing a deeper discussion of the history of funding in Tennessee and the current outcomes-based funding formula.

Please visit tn.gov/thec/ to download these reference materials and other related files.