LUMINA ISSUE PAPERS

EARLY RESULTS OF OUTCOMES-BASED FUNDING IN TENNESSEE

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Postsecondary Analytics

MARCH, 2016

No state has done more than Tennessee to shift state higher education funding to reflect outcomes rather than inputs. In other states, most of the core funding for higher education, including tuition and state appropriations, flows to colleges based on student enrollment. The more students in seats, the more institutions bring in. But with goals for more students not just to enter college, but to finish, and to raise the proportion of Americans with postsecondary credentials, states and the federal government are implementing or considering policies that would place the emphasis on completion.

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With a goal to reach the national average in higher education attainment by 2025, Tennessee is at the vanguard of this movement and has aligned its budget with its ambitions. It is the first state to base most state appropriations to colleges and universities on outcomes, with emphasis on progress toward and completion of degrees. Initial results are promising, but still preliminary.

What is the policy?

In January 2010, Tennessee passed the Complete College Tennessee Act (CCTA), which mandated a change to outcomes-based funding. In fall 2010, after developing outcomes measures in consultation with institutions and governing boards, the Tennessee Higher Education Commission (THEC) submitted the FY 2011-12 Budget Request, using an outcomes-based formula for the first time. The shift was phased in over three years, a transition that Tennessee officials believe was critical to successful implementation, so that the full impact on budget allocations was in the 2013-14 budget request.

The governor, legislature, and Board of Regents (which is responsible for allocations to individual community colleges) have all followed the outcomes-based recommendations in the THEC budget request when allocating higher education budgets and have indicated an ongoing commitment to the system. The level of funding and the consistency in application now make the state a perfect test case for performance funding. If the strategy works as advocates expect, it should yield strong results when an entire funding system is built around it.

How much money is at stake?

States considering performance funding often wonder how much of the budget to include. The answer may depend on how much institutions' budgets depend on state appropriations rather than other sources of income, such as tuition. Tennessee institutions, like others around the country, have

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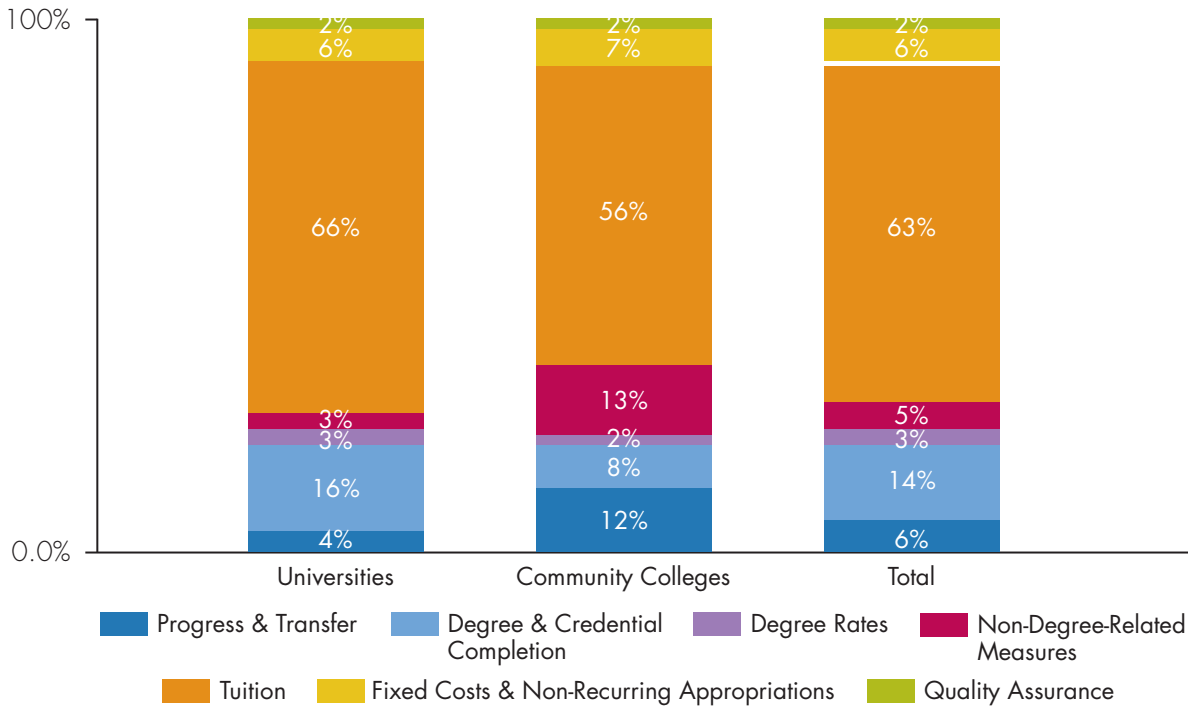
become more dependent on tuition and less on appropriations as state budget cuts have taken hold. As **Figure 1** shows, funding for outcomes in Tennessee's formula in 2014-15, especially progress toward degrees, balances the financial incentive of tuition.

- Degree and certificate completion: **38 percent** of state funds, **14 percent** with tuition included
- Progress toward degree and transfer: **17 percent** of state funds, **6 percent** with tuition included
- Graduation rates and degrees per FTE: **7 percent** of state funds, **3 percent** with tuition included
- **Total degree-related funding: 63 percent** of state funds, **23 percent** of funds with tuition included
- **Total outcomes-based funding: 28 percent** of funds with tuition included

Figure 1. Proportion of Institutional Funds Allocated by Outcome Category in TN Funding Formula, Including Tuition



In addition to the degree-related measures, the formula includes measures for other important functions not directly related to degrees, such as research at research universities, and workforce development and dual enrollment at community colleges. These account for another 15 percent of formula funds, or 5 percent of institutions' total tuition and appropriations revenues.

Tuition revenue can be seen as a performance incentive for enrollment, and it remains a significant component of institutional budgets. States that depend more heavily on tuition than Tennessee would have to allocate a larger proportion of state appropriation funds to achieve the same relative level of performance funding within institutions' overall budgets. States that depend less on tuition, on the other hand, could allocate a smaller proportion of state funds and achieve the same level of incentive. The state has a policy guideline that 45 percent of four-year college funds and 33 percent of community

college funds should come from tuition; in reality, 66 percent of universities' and 56 percent of community colleges' revenues in recent years came from tuition. When that is factored in, the proportion of funds based on degrees and degree-related outcomes is:

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- Community colleges: 49 percent of state funds, 21 percent with tuition included
- Four-year colleges and universities: 68 percent of state funds, 23 percent of funds with tuition included
- In practice, the amount of actual tuition revenue institutions receive may vary from the guideline, but the essential point would remain that even with appropriations based on outcomes, there is still a substantial amount of institutional revenue not tied to the formula measures.

What's the evidence of success?

If performance funding is an effective strategy, states that employ it should see improvements in the measures used. These improvements should also exceed what would have happened without performance funding. If it has a big impact, the state should expect bigger changes in outcomes after implementation of performance funding than before. States that had not changed their funding, on the other hand, would not experience the same change in their outcomes trends.

Some of the changes resulting from outcomes funding could take time to show up, both because the policies institutions put in place to respond to performance funding require a number of years to reach their full impact, and because there is a lag in data availability that would allow for comparison with other states that do not use performance funding.

There is significant evidence that institutions have responded to the new funding system with revised institutional policies and practices focused on improving student outcomes. As noted, the effect of these changes on actual student outcomes remains to be fully realized. However, it is worth reflecting on initial trends in the key measures, understanding that it may take many years for the full effects to be understood.

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Degrees awarded

Degree-award data from Tennessee are suggestively positive, but it remains early to draw strong conclusions, given the limited time elapsed and the lack of comparable national data. There is an upward movement in some of the trend graphs, but the shape does not map perfectly to formula implementation and is not unlike trends in some states that have not implemented comprehensive outcomes funding. At the very least, it does not seem that the formula has damaged students' chances for success in Tennessee, and there are limited signs that it may be helping.

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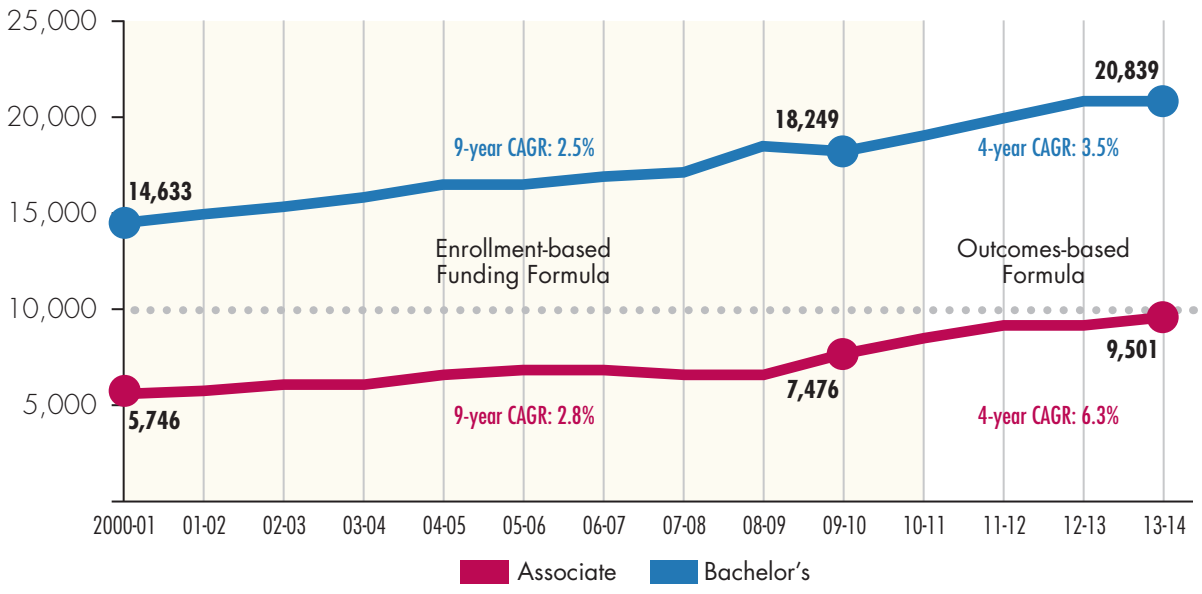
Bachelor's degrees awarded have increased by 3.4 percent annually since initial formula implementation, compared to 2.5 percent annual growth prior to formula implementation. Other states have also had faster growth in bachelor's degree completion in recent years, consistent with underlying demographic trends, so it is too early to confidently attribute the results to the formula (**Table 1**) alone. Many other states have also implemented significant higher education reforms and set attainment goals similar to Tennessee's, although without the funding component.

Associate degrees have increased by 6.3 percent annually since initial formula implementation, significantly faster than the 2.8 percent average growth rate prior to implementation. **Figure 2** shows a definite upward trend. Again, however, other states

Associate degrees have increased by 6.3 percent annually since initial formula implementation, significantly faster than the 2.8 percent average growth rate prior to implementation. However, other states have also experienced significantly faster growth.

Figure 2. Associate and Bachelor's Degree Awards at Tennessee Public Institutions



have also experienced significantly faster growth, partly due to rapid enrollment increases in the recession in 2008 and 2009 leading to higher completions two and three years afterward. The year immediately prior to formula adoption in Tennessee also showed strong increases in associate degree awards. To the extent this has anything to do with the formula, the lag time between student admission and degree completion means it would have to be in anticipation of the new formula, rather than based on actual implementation.

Comparable national data are available for degree awards through 2012-13 and Kentucky is the only nearby state with easily accessible 2013-14 degree award data. Kentucky experienced 6.6 percent average growth in associate degrees from 2010 to 2014, roughly comparable with its rapid 6.0 percent growth rate prior to 2009-10 (**Table 1**). While it has not implemented performance funding in the same way as Tennessee, Kentucky has been one of the more aggressive states nationally in pursuing higher attainment rates for its citizens. Its policies, including large infusions of state financial aid, a restructured and rapidly-growing community college system, and strong state planning and accountability practices—make for a challenging and imperfect comparison. The contrast, however, does show the risk of interpreting Tennessee trends without adequate comparative data from other states.

Table 1. Public Institution Degree Growth Before and After Outcomes-Based Formula in Tennessee and Neighboring States

	Compound Average Growth Rate					
	Bachelor's Degree			Associate Degree*		
	Pre-Formula	Post-Formula to 2012-13	Post-Formula to 2013-14	Pre-Formula	Post-Formula to 2012-13	Post-Formula to 2013-14
TN	2.5%	4.6%	3.5%	2.8%	8.0%	6.3%
KY	3.0%	2.2%	2.4%	6.0%	6.4%	6.6%
GA	4.8%	4.8%	N/A	7.6%	4.4%	N/A
NC	3.8%	3.8%	N/A	4.8%	8.0%	N/A
US	2.9%	3.5%	N/A	3.8%	5.5%	N/A

Sources: IPEDS completion files

*includes awards conferred through public 4-year institutions.

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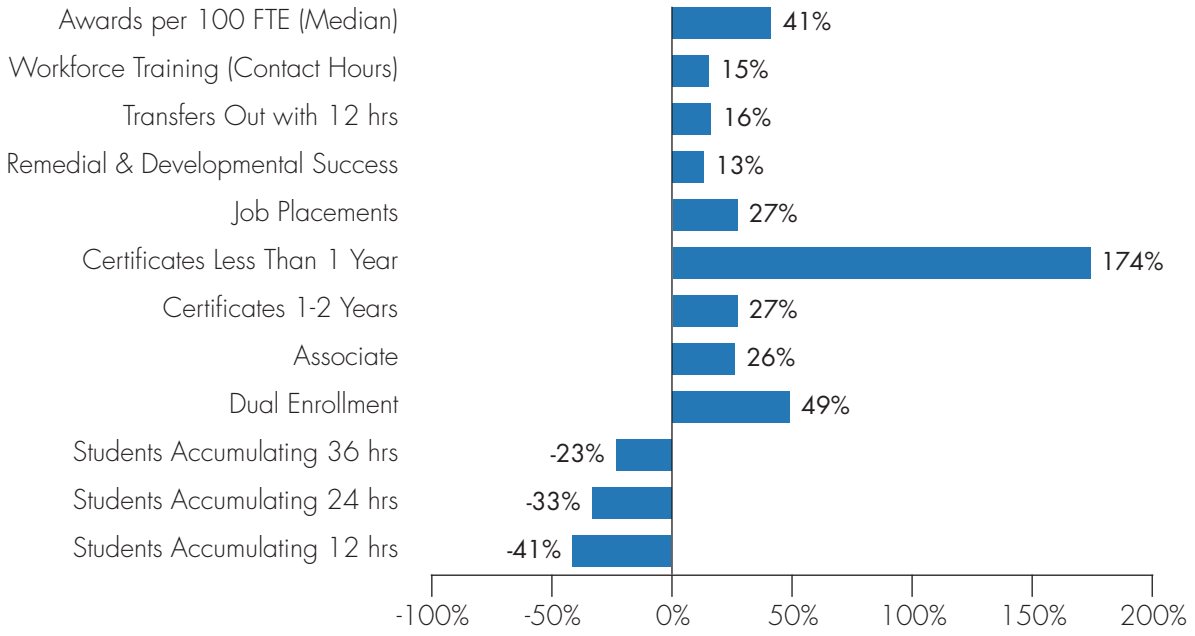
Those growth rates are primarily tied to a small number of institutions that ramped up certificate awards in direct response to the formula. One institution went from 0 to more than 500 short-term certificates in a single year following formula implementation.

The "certificate" category is much more flexible than degrees, so institutions have greater scope to create programs very quickly or to define completion of certain existing groups of courses as a certificate award. In response, the Tennessee Higher Education Commission worked with institutions to refine standards for which certificates can be counted. The new standards will limit opportunities for "gaming" the formula by requiring that only certificate programs approved by the Commission may count.

This trend can be read different ways — it is neither a clear triumph for performance funding nor a clear case of "abuse." There is evidence that at least some types of credentials count more than simple accumulations of credits, so even if the new certificates do nothing more than define coherent blocks of credits that students were already earning, they could be adding value to students' lives and to the Tennessee economy. On the other hand, states that include certificates in their funding formulas should take careful note of Tennessee's experience and ensure that the outcomes they fund are the ones they truly want to happen.

Figure 3. Community Colleges Formula Outcomes Change 2009-10 to 2013-14



Source: THEC Outcomes Formula Data. (FTE=Full-Time Equivalent. R&D=Resesarch and Development. CH=Credit Hour)

Other indicators

Enrollment. It is not yet clear what impact Tennessee's formula will have on enrollment. On one hand, measures such as the graduation rate and degrees per 100 full-time-equivalent enrollments, actually result in more funding for enrolling fewer students, provided that degrees remain constant (or decline at a slower rate). On the other hand, if larger numbers of enrolled students leads to more progress and more completions, institutional funding will increase, and it would remain worthwhile for institutions to increase enrollments. Tuition is also a form of enrollment-based funding and a larger part of many institutional budgets than state appropriations in Tennessee.

The net effect of these incentives might be that enrollments would grow, but degrees would grow faster, especially compared with other states where incentives remain primarily enrollment-based. Now that the state has implemented a "free tuition" policy for high school graduates attending community college, it will be challenging to sort out effects of that policy from those due to the funding formula.

At four-year institutions, Tennessee's degree award growth has in fact accelerated, while enrollment growth rates were similar pre-and post-formula. Neighboring states (KY, GA and NC) have not seen the same acceleration in degree growth, and have actually had lower rates of enrollment growth than in pre-formula years. National data are not yet available that would allow for more comprehensive comparisons, so these must remain preliminary observations.

Further, there is a legitimate concern that outcomes-based funding can provide an incentive to not enroll at-risk students. Properly designed funding policies acknowledge this by creating incentives for institutions to enroll at-risk or underrepresented students. Tennessee initially sought to address this issue by applying a 40 percent premium to students from certain identified focus populations—namely adult and low-income students. In a recent five-year review and modification of the funding formula Tennessee added a third student focus population—academically underprepared—and revised the premium for students in these groups. Based on discussion and input from institutions the premiums will increase—up to 120 percent—to further encourage enrollment of these students and recognize the additional supports necessary to ensure their success. The effects of these premiums on both enrollment and outcomes for the identified populations should continue to be evaluated to ensure the potential unintended consequences are not a result of the funding policy.

Grades and credits earned. Both critics and proponents of outcomes-based funding might expect increases in student GPAs and credits completed. Proponents would expect institutions to do a better job advising students into the right programs and helping them finish, with the result that there would be fewer dropped or failed courses and higher overall grades. Critics worry about the pressure that outcomes-based funding places on institutions to pass students regardless of their academic performance. Either way, an anticipated outcome could be that a higher proportion of courses attempted would be passed.

So far, that does not seem to have happened in Tennessee, though again, the available data are limited. The state only began collecting comprehensive student course completion information after implementation of the formula. Yet for the limited subset of students for whom comparable data are available (fall students who return the following fall), there has been no meaningful change in the proportion of courses completed. On the one hand, this finding suggests that outcomes funding has not yet led to better student performance at the course level (at least for this subset of students). On

the other hand, neither does outcomes-based funding seem to have led to massive "rubber-stamping" of course performance in order to game the system.

Progress and other performance benchmarks. One worrying trend in Tennessee is the sharp drop in progress measures since 2009-10, at all threshold levels, for both community colleges and universities and for the adult and low-income subpopulations in the formula. Figure 3 shows the changes for the community college sector and additional graphs are available online in the materials that accompany this brief.

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While this downturn in progress measures has not yet affected degree completion — the ultimate goal of outcomes funding — it could mean there are fewer students in the pipeline to complete degrees in coming years. On the other hand, it could also mean that institutions are becoming more efficient with transfer and completion, so that fewer students in the pipeline are needed for the same number of degrees. Or it could be some combination of the two.

The trend is difficult to compare with other states, given the lack of similar national data, but enrollments and first-time admissions have also been flattening or declining nationally, after record recession-era increases, largely because of the improving economy and higher numbers of college-age and adult residents entering or re-entering the workforce. Tennessee's latest policy innovation, offering free community college tuition to all high school graduates, may also increase the size of the population in the pipeline at these institutions.

What to look for next

This brief's appendix table shows how data will become available over the next several years to facilitate review of the impact of formula funding in Tennessee. Many Tennessee graduates have now spent their entire college careers at institutions funded by outcomes. Enough time has also passed for every institution to have adopted policies and practices better geared to the new funding incentives. Even so, it will take additional time for institutions to learn from their initial efforts to adapt to the formula and for the culture of higher education to continue to shift. The full impact of the new system will probably not be fully known until a decade or more of systematic implementation has passed.

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Recommendations

While it is too early to make firm conclusions based on Tennessee's early data alone, initial numbers are at least encouraging. More-specific lessons for other states (and for future evaluators of performance funding) that emerge from this early analysis include:

- Establish clear baseline data as early as possible in the development of funding-formula measures to allow for strong, early evaluation.
- Where possible, use measures and quantities that allow for comparisons with and benchmarking against other states.
- Where possible, use measures that have enough history to allow for analysis of changes in long-term trends.
- Establish clear rules about the types of outcomes (such as the types of certificates) that will be included in the formula and the authority for defining or creating additional outcomes.
- Understand the full range of financial and other incentives that will exist alongside the formula (tuition, research funding, fundraising, executive compensation incentives) and how they are likely to interact.
- Do not expect short-term miracles from a long-term strategy and commit instead to several years of consistent outcomes-based funding to allow the approach a chance to work.
- Continue looking at measures of outcomes each year, while making well-informed comparisons with other states.
- In quantitative or contextual evaluations of the outcomes-based formula, make sure to account for the influence of other policies relevant to degree production. For instance, Tennessee recently created a comprehensive transfer pathway system and has modified its state financial aid system. These policies may also be contributing to improved degree attainment. States without outcomes-based funding may also be improving results because of other innovations in policy or finance.
- Understand how related measures (such as numbers of degrees and production rates) overlap or compete, and the extent to which they encourage similar or different institutional policies and practices
- Use absolute numbers of degrees rather than rates (e.g. graduation rates or degrees/FTE) as outcomes measures in formulas and evaluations of policy outcomes to create the clearest and easiest-to-measure link to increased educational attainment.

Where to learn more

HCM Strategists and Postsecondary Analytics conducted this review with support from Lumina Foundation for Education. Information about developing state performance funding systems is available on Lumina Foundation's Strategy Labs website at:

http://strategylabs.luminafoundation.org/higher-education-state-policy-agenda/core-element-2/adopt-and-sustain-outcomes-based-funding/

The Tennessee Higher Education Commission posts comprehensive information about the outcomes-based formula, including downloadable copies of the Excel workbooks used to generate allocations, on its website at:

http://tn.gov/thec/index.html

Additional Note: Institutions Respond to Performance Funding

For performance funding to work, two things have to happen. First, institutions need to respond by improving policies and practices in different and effective ways. Second, the collective effect of those changes must result in serving more students, rather than just competing more intensely for the same pool. On the second count, data like those discussed in this brief are starting to tell the story. But there is no question that institutions are responding. Some examples include:

- Austin Peay University has overhauled its advising system to ensure that students stay on track to degree completion. See the New York Times infographic on the system at: http://www.nytimes.com/interactive/2012/07/18/education/edlife/student-advising-by-algorithm.html?_r=0
- University of Tennessee at Knoxville changed to block tuition policy so students pay the same to take 15 or 18 credits as they would pay for 12. See: http://web.utk.edu/~bursar/Fall2012FeesUG.pdf
- Pellissippi State Community College has greatly expanded its certificate offerings, providing short-term credentials for both full-time students and working adults. See: http://www.pstcc.edu/academics/certificates.php#.UWnjeLXU-Sr

Author Bios

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Nate Johnson is the founder and principal consultant of Postsecondary Analytics, LLC. He consults with states, institutions, and educational organizations on college costs and affordability, financial analysis, student success measurement, and strategic planning.

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Takeshi Yanagiura was research director for Postsecondary Analytics, LLC from 2013-15 and is currently pursuing a doctorate in education economics at Columbia University and working as a graduate assistant at the Community College Research Center.

Appendix: Availability of Data to Support Quantitative Comparisons of Tennessee Outcomes with Other States

				IPEDS Data Availability							
Current Academic Year	Budget Requested	Budget Requested For	Budget Formula Used	Enrollment	Retention Rate	Completion	Graduation Rate		Adult Student Enrollment	Pell Students	
							3-Year	6-Year		All Students	Freshmen
2008-09	Fall 2008	2009-10	Enrollment Based	Fall 2007	F06 Cohort	2006-07	F04 Cohort	F01 Cohort	N/A	N/A	F06 Cohort
2009-10	Fall 2009	2010-11		Fall 2008	F07 Cohort	2007-08	F05 Cohort	F02 Cohort	Fall 2008	2007-08	F07 Cohort
2010-11	Fall 2010	2011-12	OBF Phase-In	Fall 2009	F08 Cohort	2008-09	F06 Cohort	F03 Cohort	N/A	2008-09	F08 Cohort
2011-12	Fall 2011	2012-13		Fall 2010	F09 Cohort	2009-10	F07 Cohort	F04 Cohort	Fall 2010	2009-10	F09 Cohort
2012-13	Fall 2012	2013-14		Fall 2011	F10 Cohort	2010-11	F08 Cohort	F05 Cohort	N/A	2010-11	F10 Cohort
2013-14	Fall 2013	2014-15		Fall 2012	F11 Cohort	2011-12	F09 Cohort	F06 Cohort	Fall 2012	2011-12	F11 Cohort
2014-15	Fall 2014	2015-16		Fall 2013	F12 Cohort	2012-13	F10 Cohort	F07 Cohort	N/A	2012-13	F12 Cohort
2015-16	Fall 2015	2016-17	OBF Full Implementation	Fall 2014	F13 Cohort	2013-14	F11 Cohort	F08 Cohort	Fall 2014	2013-14	F13 Cohort
2016-17	Fall 2016	2017-18		Fall 2015	F14 Cohort	2014-15	F12 Cohort	F09 Cohort	N/A	2014-15	F14 Cohort
2017-18	Fall 2017	2018-19		Fall 2016	F15 Cohort	2015-16	F13 Cohort	F10 Cohort	Fall 2016	2015-16	F15 Cohort
2018-19	Fall 2018	2019-20		Fall 2017	F16 Cohort	2016-17	F14 Cohort	F11 Cohort	N/A	2016-17	F16 Cohort
2019-20	Fall 2019	2020-21		Fall 2018	F17 Cohort	2017-18	F15 Cohort	F12 Cohort	Fall 2018	2017-18	F17 Cohort
2020-21	Fall 2020	2021-22		Fall 2019	F18 Cohort	2018-19	F16 Cohort	F13 Cohort	N/A	2018-19	F18 Cohort

Outcomes-Based Formula (OBF) Introduced

Where We Are Now (March 2015)