



## **Higher Education Trends:**

Rising Costs, Stagnant Outcomes,  
State Initiatives

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# Introduction



Changes in the U.S. labor market have made a college degree more important than ever for achieving a middle-class standard of living and for creating the possibility of life-long financial security. But the price of attaining a college education has risen dramatically in recent years. Moreover, fewer than half of first-time, full-time college students graduate within four years—some never receive their degrees at all. For these reasons, pursuing a post-secondary education poses a poor value proposition for millions of young Americans.

Concern about rapidly rising tuition and relatively poor student outcomes, particularly among students from low-income and minority backgrounds, is prompting a vigorous policy debate about how to keep college affordable while also improving graduation rates. This paper addresses both

parts of that debate by (1) examining recent trends in state support, tuition revenue, and institutional spending at public colleges and universities; and (2) reviewing recent state efforts to improve the performance of these institutions by linking a portion of the public funding that they receive to student outcomes.<sup>1,a</sup>

Specifically, Part I focuses on supply-side factors that may contribute to the ballooning prices at four-year public colleges and universities over the past decade and a half. Since 2000, annual tuition and fees at these institutions have nearly doubled, on average, from around \$4,900 to \$9,700 in inflation-adjusted terms. Meanwhile, the average annual cost of attendance—including room and board as well as tuition and fees—increased by approximately 70 percent in real terms, from around \$11,800 in 2000 to \$20,100 in 2015.<sup>2</sup>

To better understand the drivers behind these trends, we present data on year-to-year changes in state funding for postsecondary education and track corresponding changes in tuition revenue and institutional expenditures. Our analysis is particularly useful for examining the relationship between costs at these public institutions and their state funding. Due to a combination of rising enrollment and state budget constraints, state support declined on a per-student basis in the years during and immediately after the Great Recession and only recently began to rebound. In addition, we provide a brief review of the evidence for faculty wages as a potential source of rising college costs.

Part II of this paper discusses recent efforts by several states to improve educational outcomes at public institutions of

higher education. Specifically, we examine the introduction of performance-based funding mechanisms that seek to tie state funding for particular institutions to outcome measures—typically the number of students who graduate. Although more time is needed to gauge the effectiveness of these funding mechanisms, some advantages and pitfalls of different approaches are already apparent. Of particular concern is the potential for unintended impacts on academic standards and on access to educational opportunities among low-income and minority populations. The paper concludes with case studies of the performance funding systems that have been introduced in Tennessee and Texas, including an analysis of which features seem to offer the most promise for addressing issues of educational efficiency, equity, and quality.

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<sup>a</sup> The bulk of our analysis does not include private colleges and universities, which are not directly affected by changes in state support or by state efforts to introduce performance incentives through public funding mechanisms. As context, more than three-quarters (76.4 percent) of the roughly 17.5 million undergraduate students enrolled in a degree-granting postsecondary institution in 2013 were attending a public two-year or four-year college or university. Of these, roughly half were enrolled in a public four-year institution and half were enrolled in a public two-year institution. In addition, when discussing institutional revenue and state investment, this paper focuses on all public institutions, two-year and four-year. (The State Higher Education Executive Officers Association data does not disaggregate two- and four-year institutions.) Conversely, when the paper discusses the rising cost of attendance and institutional spending trends, it limits the analysis to public four-year institutions.

## *Part I. Drivers of Rising Costs at Public Colleges and Universities*



As noted, the cost of a postsecondary education has increased substantially over the past 15 years. In that period, average annual tuition and fees at public four-year institutions almost doubled in real terms, from around \$4,900 in 2000 to \$9,700 in 2015, and the total cost of attendance (COA)—including tuition, fees, room and board—increased by around 70 percent (from \$11,800 to \$20,100 per year).<sup>3,b</sup>

Explanations for these increases tend to focus on either demand- or supply-side factors (or a combination of the two). On the demand side, basic economic theory predicts that increased demand for a college education and greater willingness to pay for that education leads to an increase in prices, as it would for any other good or service. Demand

for postsecondary education may be influenced by several factors: a change in the college wage premium (that is, the extra earnings potential associated with having a college degree); job-market conditions; and prospective students' ability to pay, which may in turn be affected by the availability of loans and other forms of aid.

Supply-side explanations focus on the role of the producer of the good or service in question—in this case, colleges and universities. Factors that could affect their costs—and hence the amount of tuition and fees needed to cover those costs—include institutional spending on facilities and student services, as well as on salaries for professors and other staff. For example, if faculty salaries rise or if institutions increase

spending on student services and other amenities, then these additional costs could be passed on via student tuition bills. In addition, access to non-tuition revenue, notably state funds in the case of public colleges and universities, can also affect the prices charged to students. A decline in state funding could lead institutions that rely heavily on public support to increase tuition to plug the gap.<sup>4</sup>

Box 1 summarizes some of the oft-cited explanations for the recent rapid growth in the COA. The academic research in this area is ongoing, with studies coming to different conclusions about the relative contribution of various factors. A 2016 study found that labor costs (the focus of Baumol's cost disease) and reduced state investment had little effect on prices, whereas demand-side factors generated a 126 percent increase in net tuition prices between 1987 and 2010.<sup>5</sup> This study included both public and private institutions (the latter of which is far less reliant on state funding as a revenue source).<sup>5</sup> In contrast, an earlier study in 2012 determined that spending by colleges and universities to boost their attractiveness and prestige (the thesis of Bowen's Rule), together with rising labor costs, led to a large increase in these institutions' cost to produce a college degree. The impact of internal decisions about institutional spending was found to be twice that of rising labor costs. Notably, this study

did not look specifically at how the higher cost of producing a degree affected the prices faced by students in terms of tuition and fees.<sup>6</sup>

Our paper seeks to contribute to the current debate by exploring recent trends with respect to three supply-side factors—state support, institutional spending, and faculty wages—that are frequently blamed for driving up tuition rates and COA at public two-year and four-year colleges and universities. Our analysis does not include private colleges and universities, and we do not examine potential demand-side factors, such as the availability of student loans or changes in the college wage premium. Specifically, we look at how state support for postsecondary education has fluctuated—particularly in response to the Great Recession of 2007 to 2009, when many states faced severe budget constraints—and how these swings were correlated with institutional spending and tuition at a time when demand for public higher education (as measured by enrollment) also increased. Based on the evidence presented in later sections, we conclude that declining public funding provides, at most, a limited or partial explanation for the large tuition increases that occurred at public colleges and universities over the last 15 years.

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<sup>4</sup> Unless otherwise noted, all figures in this report have been adjusted for inflation using the Consumer Price Index for All Urban Consumers.

<sup>5</sup> This demand-driven increase more than accounts for the 76 percent rise in actual net tuition during this time period, suggesting that demand-side factors are the primary driver of prices. The net tuition price is defined as the published price minus federal and institutional grant aid and tax benefits offered to students. For more information, please refer to: Big Future, "Focus on Net Price, Not Sticker Price," College Board, 2017. Available at: <https://bigfuture.collegeboard.org/pay-for-college/paying-your-share/focus-on-net-price-not-sticker-price>.

## *Box 1: Leading Theories and Explanations for Rising College Attendance Costs*

**Bowen's Rule**—named after former president of Grinnell College Howard Bowen—posits that an insatiable appetite for higher revenue ultimately drives the costs at institutions of higher education.<sup>7,d</sup> This theory proceeds from the premise that the core goal of any college or university is to gain prestige. To accomplish this, these institutions are incentivized to collect as much revenue as possible and to spend all the revenue they collect, in an effort to raise their profiles and become more attractive to students by providing the best professors, facilities, and student services. Thus, with tuition being a major revenue source for institutions, they have little incentive to rein in those prices.

Proponents of Bowen's Rule claim that the quest for prestige has sparked an “arms race” among institutions, which have steadily increased tuition to pay for spending that is largely unrelated to academics—such as luxury facilities, fitness centers, and high-end dining halls.<sup>8</sup> Bowen placed the fault for rising costs and prices squarely with the decision-making of the institutions themselves.

**Declining State Investment** has also been blamed, particularly by public colleges and universities, for contributing to the higher tuition rates charged by these institutions.<sup>9</sup> They argue that lower per-student support from the state forces public colleges and universities to shift more of the cost burden to students by raising tuition and fees.<sup>10</sup> Indeed, a 2014 report found a significant correlation between declining state funding for postsecondary education and rising tuition rates.

As later sections of this paper point out, however, tuition rates at public institutions rose even in years when public funding per student was steady or increasing.<sup>11,e</sup>

**Baumol's Cost Disease** is another major supply-side explanation for the growth in higher education costs. Originally put forth by the economist William Baumol in a series of papers in the 1960s, this theory blames rising tuition prices on the lack of productivity growth in higher education. Universities are labor-intensive enterprises, relying on highly skilled professors to deliver essentially the same service that colleges have provided for decades. To prevent faculty from moving into industries with higher productivity growth (and thus higher salaries), institutions are forced to match comparable salaries from other sectors, while competing with other schools for the most prestigious professors. This phenomenon results in a perpetually growing cost of labor, and thus, ever-higher tuition prices. In short, Baumol's theory points to external factors as the driving force behind rising costs and prices in the higher education arena.

**The Bennett Hypothesis**, named after former Secretary of Education William Bennett, ties tuition hikes to increasingly generous federal aid policies. According to this demand-side theory, the ready availability of student loans has fueled a growing demand for higher education. Schools—knowing that they can rely on a steady source of tuition revenue—have been able to continually raise tuition and fees.

<sup>d</sup> Bowen's Rule can also be viewed as a demand-side theory, as federal aid expansion has allowed colleges to ramp up spending by increasing students' ability to pay. Higher loan limits enable institutions to charge higher tuition prices, generating revenue that is ultimately spent in the quest for prestige.



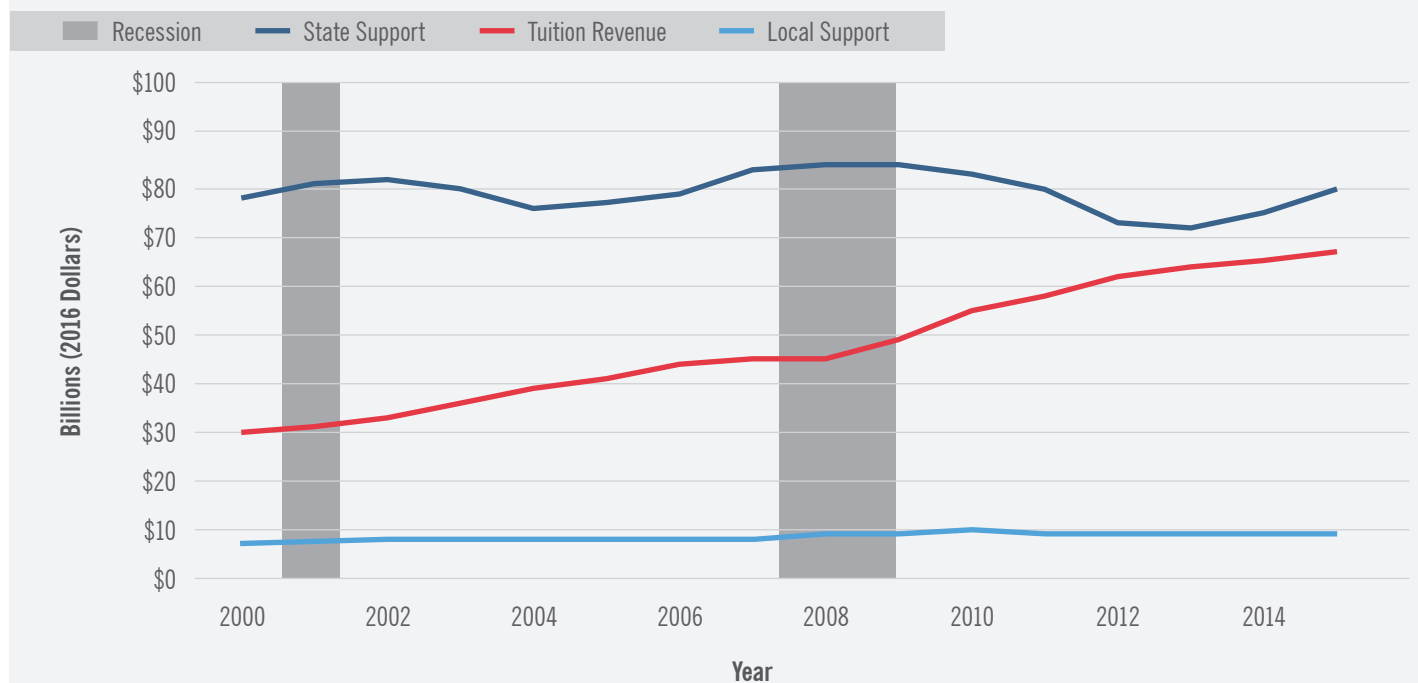
## Trends in State Support for Higher Education

Although state governments have faced criticism for “disinvesting” in higher education, the data show that overall state support for higher education has been relatively stable in absolute terms over the past decade and a half. In 2015, aggregate state appropriations for public colleges totaled \$79.6 billion. Adjusting for inflation, this was actually slightly higher than aggregate appropriations in 2000, which totaled \$77.7 billion. Local appropriations fared even better over this period, growing, in aggregate, by 30 percent in real terms: from \$7.1 billion in 2000 to \$9.2 billion in 2015.<sup>12</sup>

Over this period, there were substantial fluctuations in state support, as changing economic conditions caused states’ budgetary situations to improve or deteriorate. Indeed, aggregate appropriations increased in the early 2000s but declined as a result of the Great Recession. More recently—that is, since 2013—state investment in higher education has begun to rebound, with aggregate funding growing by 5 percent in 2014 and 6 percent in 2015.

Figure 1 displays these trends, showing a lag in states’ response to changing economic conditions—thus, for example, aggregate appropriations did not begin declining until 2009, after the recession was already well underway.

**Figure 1. Aggregate State Support, Local Support, and Tuition Revenue for Public Institutions of Higher Education**

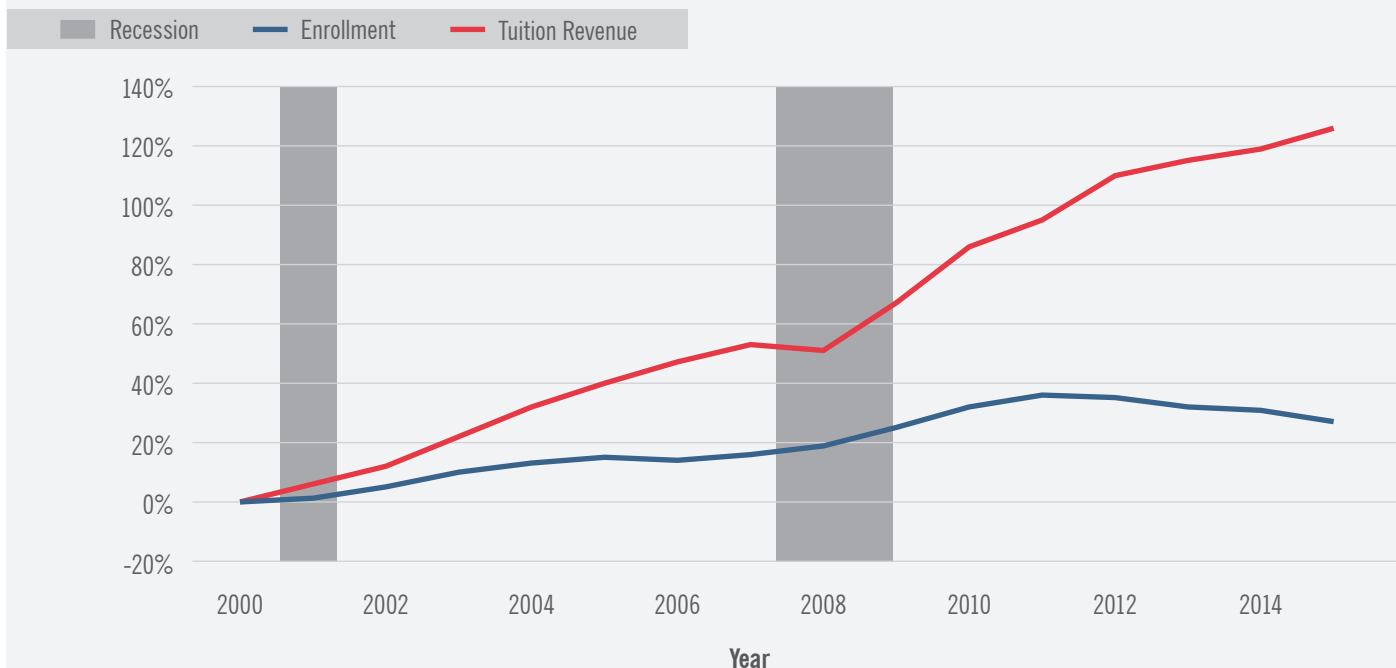


**Note:** Tuition revenue is defined as the total revenue brought in by schools from tuition. This metric does not include tuition waivers and discounts offered by institutions, and it also excludes the portion of tuition used for capital or debt service. Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Percentage change is measured from 2000, using dollars that were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** State Higher Education Executive Officers Association.<sup>13</sup>

<sup>12</sup> State disinvestment can also be viewed as a subset of Bowen’s Rule, as institutions would be incentivized to hike tuition (rather than cut costs) in response to declining state appropriations.

**Figure 2. Cumulative Change in Tuition Revenue and Enrollment at Public Institutions of Higher Education**



**Note:** Tuition revenue is defined as the total revenue brought in by schools from tuition. This metric does not include tuition waivers and discounts offered by institutions, and it also excludes the portion of tuition used for capital or debt service. Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Percentage change is measured from 2000, using dollars that were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** State Higher Education Executive Officers Association.<sup>14</sup>

Similarly, Figure 2 highlights fluctuations in tuition revenue and enrollment over this time period in percentage terms.<sup>f</sup> Tuition revenue is defined as the total amount of revenue that institutions raise via tuition and fees. It does not include tuition discounts offered by institutions, but does include federal grant aid provided to students (such as Pell). In other words, published tuition and fees are the prices that institutions advertise, whereas tuition revenue is what schools actually bring in.<sup>g</sup>

Tuition revenue has increased markedly over the past 15

years. Between 2000 and 2015, it grew more than 120 percent in real terms. Moreover, this growth was steady and pronounced over the entire period, with the exception of a brief pause in 2007–2008. Student enrollment also increased over this period, though not as dramatically as tuition revenue. Between 2000 and 2011, enrollment increased by more than 30 percent, with the largest year-to-year increases occurring during and immediately after the Great Recession (between 2007 and 2010). More recently, enrollment has begun to decline slightly, presumably reflecting an improved job market as the economy continues to recover.<sup>15</sup>

<sup>f</sup> This paper uses the definition of full-time equivalent (FTE) enrollment, which is a way of measuring enrollment in higher education that appropriately calibrates students with different course loads. For example, one FTE can equal one full-time student or two half-time students.

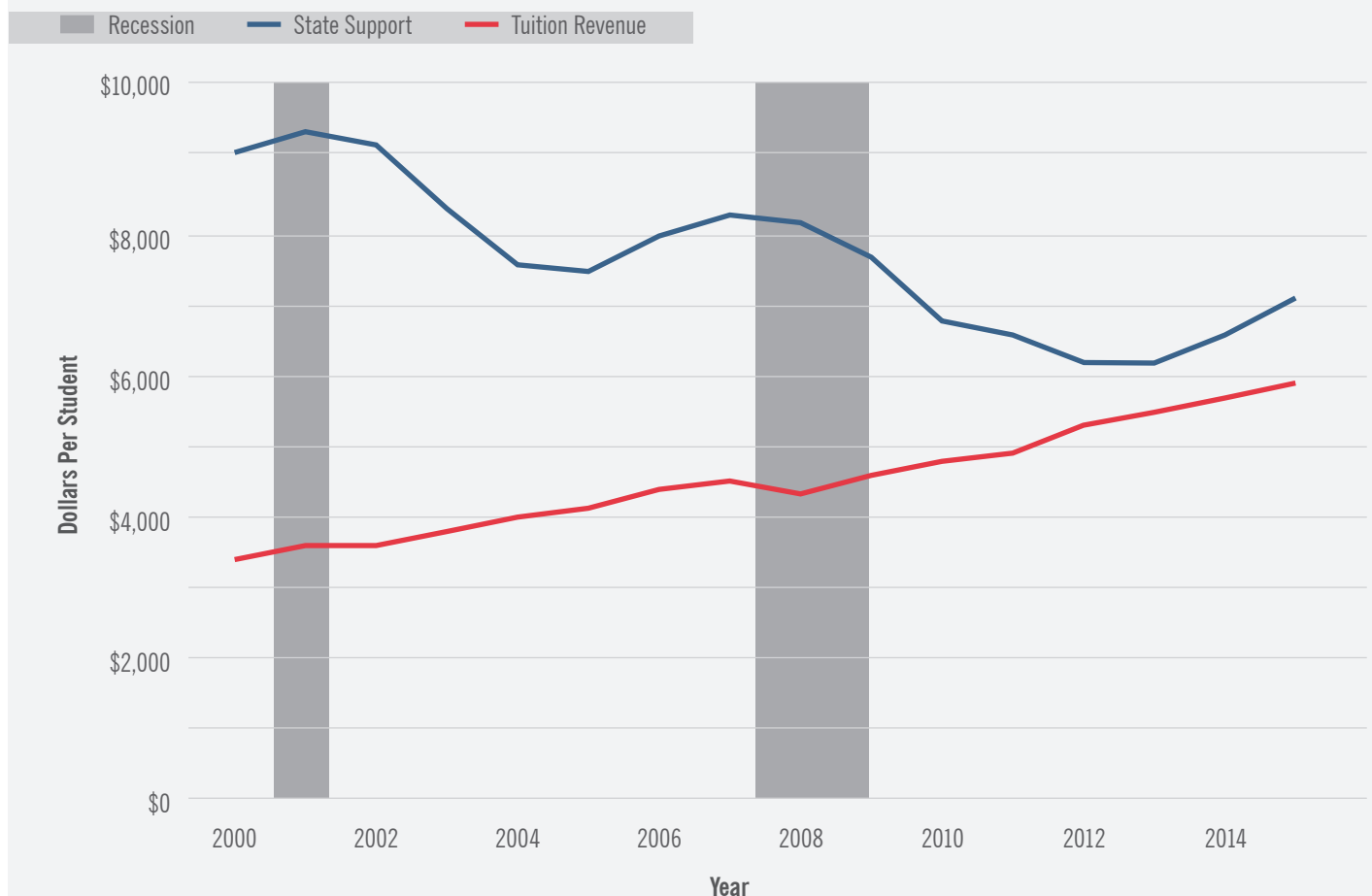
<sup>g</sup> Tuition revenue brought in from medical students is not included in this metric. When this paper refers to “tuition revenue,” it follows the definition of “net tuition revenue” from the State Higher Education Executive Officers Association.

One important takeaway from all of these trends is that **tuition revenue increased even in years when state support was stable or increasing. It also increased in years when enrollment was flat or declining.**

The combination of stagnant state appropriations and rising enrollment meant that public support *per student* decreased far more significantly than total appropriations. This decline was largely due to enrollment gains, and is evident in Figure 3, which depicts state support and tuition revenue on a per-student basis since 2000. It shows that state support per student fell by 20

percent in real terms between 2000 and 2015—from around \$9,000 to \$7,200. By contrast, local support (which is not shown in Figure 3) remained essentially flat on a per-student basis, at \$820 per student. This is because local funding, unlike state funding, grew in absolute terms over this period at a rate that roughly kept pace with rising enrollment.<sup>16</sup>

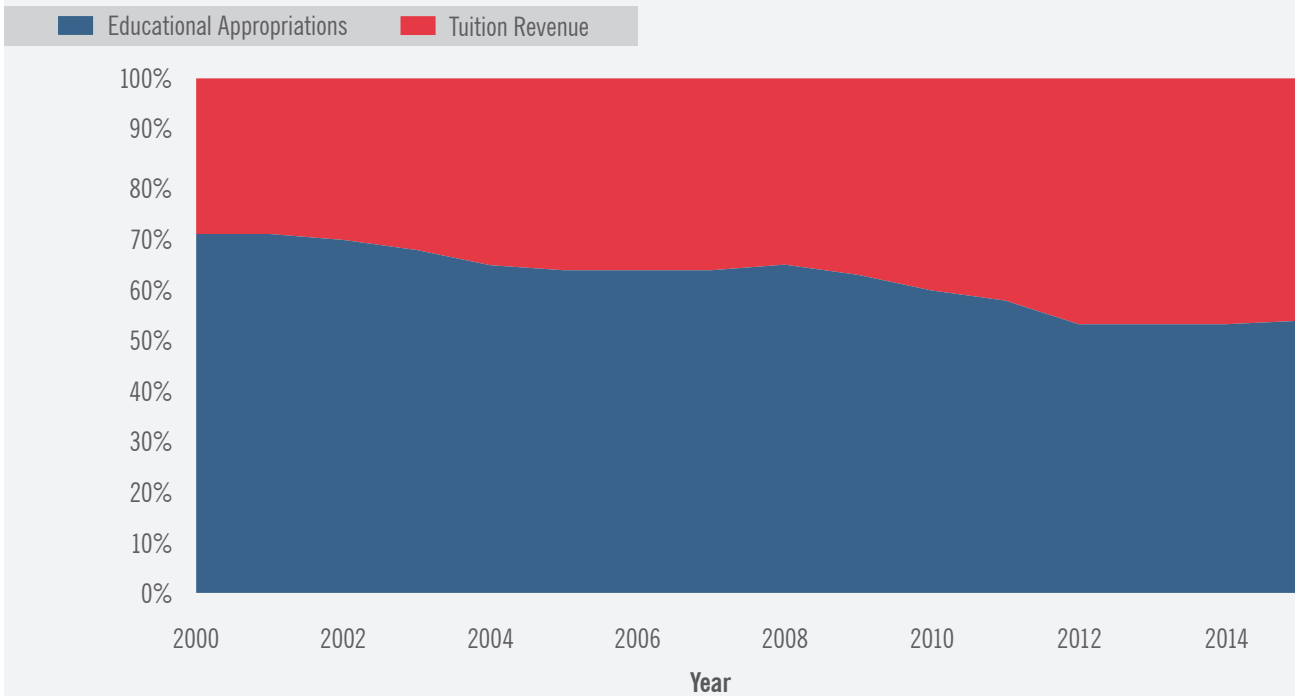
**Figure 3. Tuition Revenue and State Support Per Student at Public Institutions of Higher Education**



**Note:** Tuition revenue is defined as the total revenue brought in by schools from tuition. This metric does not include tuition waivers and discounts offered by institutions, and it also excludes the portion of tuition used for capital or debt service. Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Dollars were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** State Higher Education Executive Officers Association.<sup>17</sup>

**Figure 4. Composition of Total Educational Revenue at Public Institutions of Higher Education**



**Note:** Total educational revenue is equal to educational appropriations (defined as total state and local appropriations for higher education, plus the federal funding that went to state higher education systems under the American Recovery and Reinvestment Act of 2009, plus tuition revenue (defined as the revenue brought in by schools from tuition, which does not include tuition discounts offered by institutions or the portion of tuition used for capital or debt service).

**Source:** State Higher Education Executive Officers Association.<sup>18</sup>

With state support per student declining, tuition has comprised a growing share of public institutions' total educational revenue (Figure 4). Between 2000 and 2015, tuition revenue as a share of total educational revenue collected by public colleges and universities increased from 29 percent to 46 percent.<sup>h</sup>

Tuition revenue can be increased in several ways. Although one obvious method is by raising tuition and fees, boosting enrollment can also lead to tuition revenue growth—

especially when attracting out-of-state and international students, who are generally charged higher tuition rates than their in-state counterparts. Indeed, international enrollments played a substantial role in recent tuition revenue growth. Between the 2000-2001 and 2015-2016 academic years, international enrollment at U.S. institutions almost doubled, growing from around 550,000 students to over 1 million.<sup>19</sup> International students generally pay the full published price for tuition and fees, and the vast majority do not qualify for federal student aid, such as Pell Grants or federal loans.<sup>i</sup>

<sup>h</sup> Total educational revenue is the sum of state and local appropriations and tuition revenue less the portion of tuition revenue that is used for capital or debt service. This paper's definition of tuition revenue is the same as SHEEO's definition of "net tuition revenue," which includes federal grant aid to students (namely Pell), but does not include tuition discounts offered by institutions.

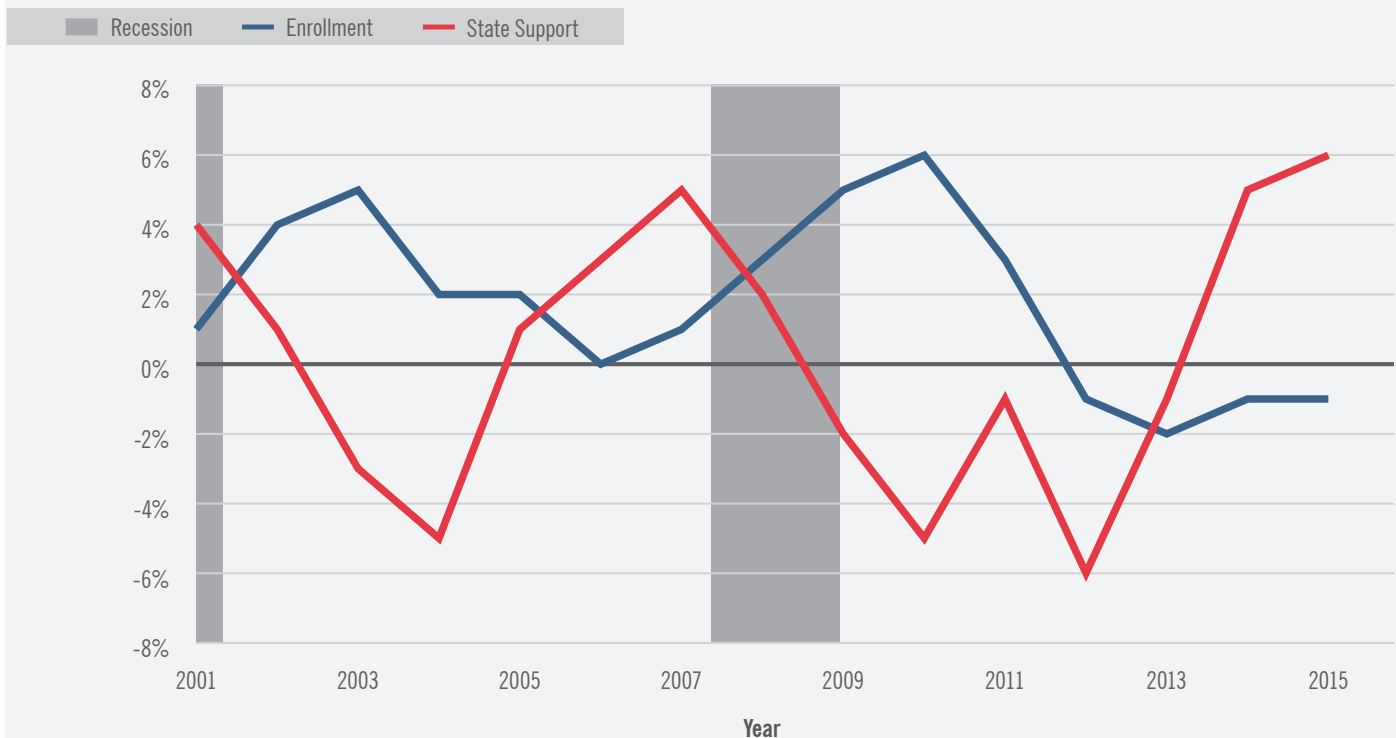
<sup>i</sup> Outside of U.S. citizens, only citizens of the Republic of Palau, the Federal States of Micronesia, and the Republic of the Marshall Islands are eligible for Pell Grants. For more information, please refer to: <https://studentaid.ed.gov/sa/eligibility/non-us-citizens>.

Furthermore, some public colleges have even started charging special elevated tuition rates and/or fees for international students, suggesting that international demand has become an increasingly important financial factor for these institutions.<sup>20</sup>

Recent reductions in state support on a per-student basis are largely attributable to macroeconomic forces, as the Great Recession both strained state budgets and led to large enrollment gains. Demand for higher education tends to be counter-cyclical—individuals are more likely to enroll in school during hard economic times, when jobs are scarce and the opportunity cost of leaving the workforce to

pursue higher education is lower. Indeed, between 2007 and 2010, full-time enrollment at public institutions increased by 14 percent, from 9.7 million to 11.4 million.<sup>j</sup> At the same time, the recession caused a steep decline in state tax revenue, leaving state governments unable to increase spending to meet the growing demand for higher education (Box 2).<sup>21</sup> This unfortunate fact—that economic downturns tend to simultaneously increase demand for higher education while also reducing the public resources available to support higher education—is illustrated by Figure 5, which compares year-on-year changes in enrollment and state support at public colleges and universities since 2000.

**Figure 5. Year-on-Year Change in Enrollment and State Support at Public Institutions of Higher Education**



**Note:** Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Dollars were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** State Higher Education Executive Officers Association.<sup>22</sup>

<sup>j</sup> These data do not include medical students.

## Box 2: State Fiscal Strains During the Great Recession

Any discussion of state spending on higher education must be conducted within the context of overall state budgets and other programmatic pressures. Because each state, with the sole exception of Vermont, is required by its constitution or by statute to balance its budget, states—unlike the federal government—cannot run deficits.<sup>23</sup> As a result, state funding for many programs and policy priorities, not just higher education, declined during the Great Recession. For instance, according to the National Association of State Mental Health Program Directors, from 2009 to 2011, total state mental health funding declined by around 6 percent, from \$22 billion to \$20.7 billion.<sup>24</sup> The reductions were the result of decreases in state revenues and the growing demands of Medicaid.<sup>25</sup>

This type of fiscal contraction was on display across the country. According to the National Association of State Budget Officers (NASBO), 43 states reduced their enacted budgets by a total of \$31.3 billion in Fiscal Year 2009, and 36 states cut their Fiscal Year 2010 expenditures by a total of \$55.7 billion.<sup>26</sup>

Higher education funding is particularly vulnerable during economic downturns. State policymakers know that unlike other state-funded programs (such as Medicaid, public safety, public housing, mental health services, and other social service programs) public universities and colleges have a built-in mechanism for raising their own revenues—through tuition and fees—that can be turned to during difficult budget times. Thus, higher education is often one of the first items to get squeezed in state budgets.

As states' economies have recovered from the Great Recession, the revenue base has returned and spending is once again able to expand. According to NASBO's Survey of the States 2016 Report, states increased general fund spending by 5.5 percent over the previous year.<sup>27</sup> In particular, state governments have begun to restore and ultimately boost higher education appropriations.<sup>28</sup>

Figure 6 shows trends in aggregate state support, tuition revenue, and enrollment at public institutions of higher education in absolute numbers, as opposed to percentage terms (as in Figure 2). This comparison helps to underscore the finding that steady growth in tuition revenues at these institutions over the last 15 years does not appear to be strongly correlated with year-to-year fluctuations in state support. In fact, state investment increased in eight of the 15 years spanning 2000 to 2015, but tuition revenue declined in just one of them (2008). Moreover, much of the increase in overall tuition revenues came from institutions raising tuition rates and fees, not only

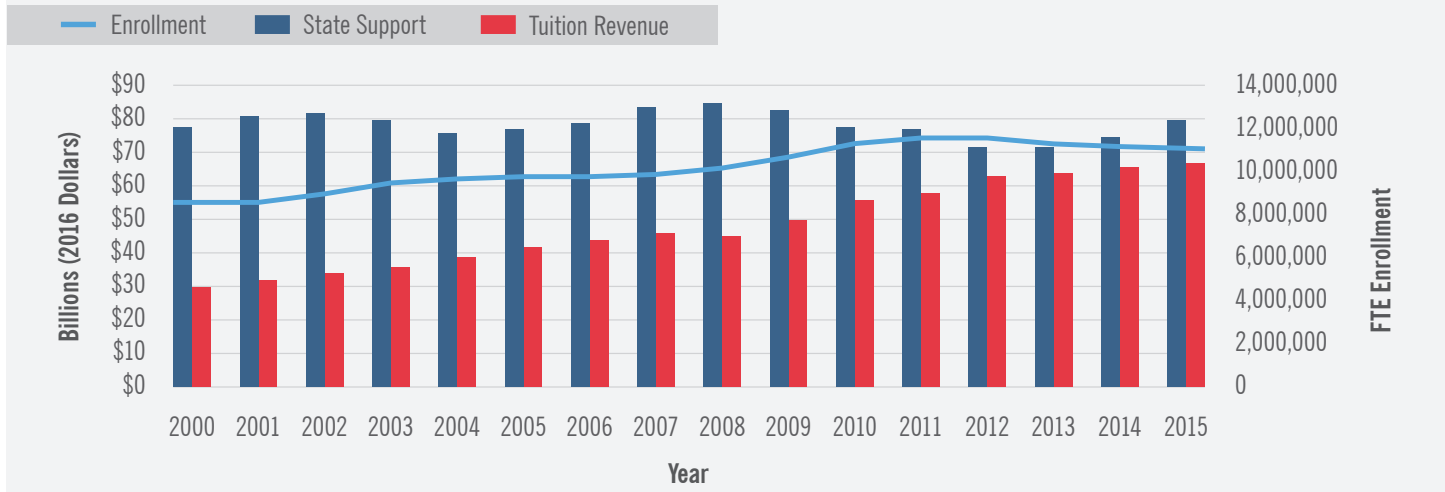
(or even primarily) from rising enrollment.<sup>29</sup>

To highlight this point, Figure 7 charts average annual tuition and fees at public four-year universities.<sup>31</sup> Prices charged by these institutions almost doubled between 2000 and 2015, increasing every year over that span *including during periods of growth in state appropriations*. This is not to say that state support was irrelevant or had no effect on tuition rates; on the contrary, it seems reasonable to suppose that if state support had kept pace with increasing enrollment, public colleges and universities might have faced less pressure to rely on other revenue streams, and tuition

rates might have risen less sharply. But these data do cast doubt on the theory that declining public support is the primary culprit behind rising tuition prices that are making

a public college or university education less affordable for many low- and middle-income families in the United States.

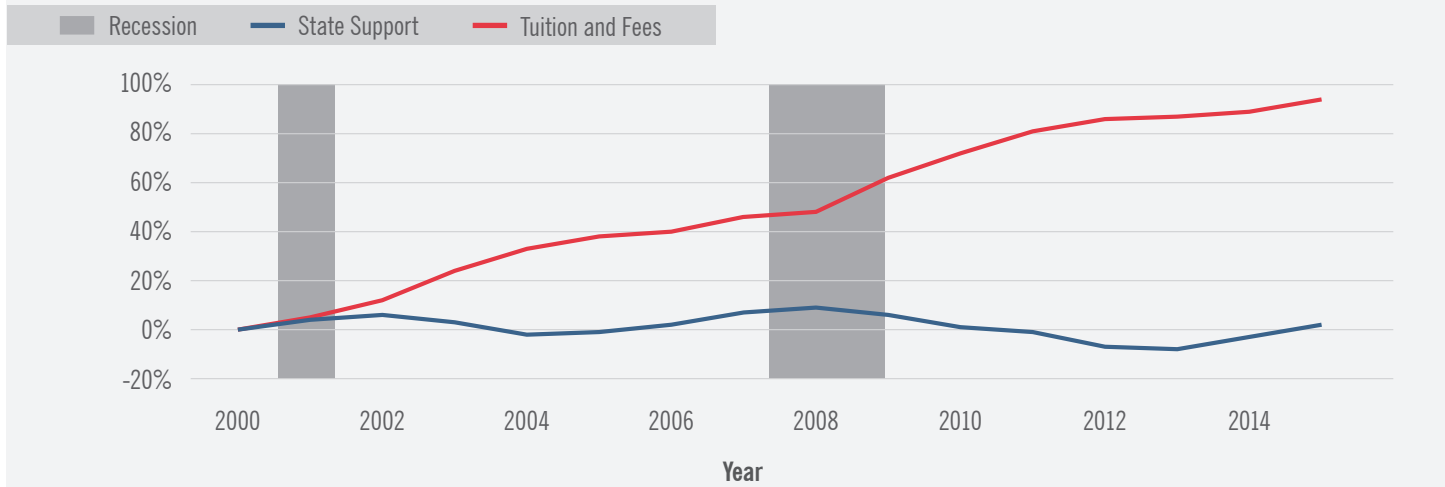
**Figure 6. State Support, Tuition Revenue, and Enrollment at Public Institutions of Higher Education**



**Note:** Tuition revenue is defined as the total revenue brought in by schools from tuition. This metric does not include tuition waivers and discounts offered by institutions, and it also excludes the portion of tuition used for capital or debt service. Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Dollars were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** State Higher Education Executive Officers Association.<sup>30</sup>

**Figure 7. Cumulative Change in State Support and Average Tuition & Fees at Four-Year Public Institutions of Higher Education**



**Note:** Tuition and fees are defined as the published prices charged by institutions. Percentage change is measured from 2000, using dollars that were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** State Higher Education Executive Officers Association and College Board.<sup>32</sup>

## Trends in Institutional Spending

Spending by institutions of higher education is another potentially important driver of tuition rates—it is also a factor over which institutions themselves have more direct control, certainly compared with public funding. In fact, some explanations of recent price increases—notably Bowen’s Rule (see Box 1)—assign primary responsibility to an institutional tendency to maximize spending, often on non-educational amenities and services, in an effort to boost prestige and attract more students. Without attempting to quantify the role of institutional spending as a cost driver, this section examines recent trends in various types of spending by public institutions of higher education. Broadly speaking, we find that institutional spending patterns have followed expectations—contraction in some areas during

the Great Recession and expansion in the years since. Overall spending for non-educational purposes at many public colleges and universities did increase over the past 15 years, but so did spending in education-related categories.

Table 1 shows the average breakdown in spending among several major expense categories at public institutions of higher education in 2013. Discussions of spending typically distinguish between total operating expenses and spending in education and related (E&R) categories. Total operating expenses are defined as the sum of the nine broad spending categories in Table 1, whereas the subset of E&R spending includes only spending that is directly related to educating students: student services; instruction; and the portions of academic support, operation and maintenance, and

**TABLE 1:** Standard Expense Categories and Percent of Total Operating Expenses

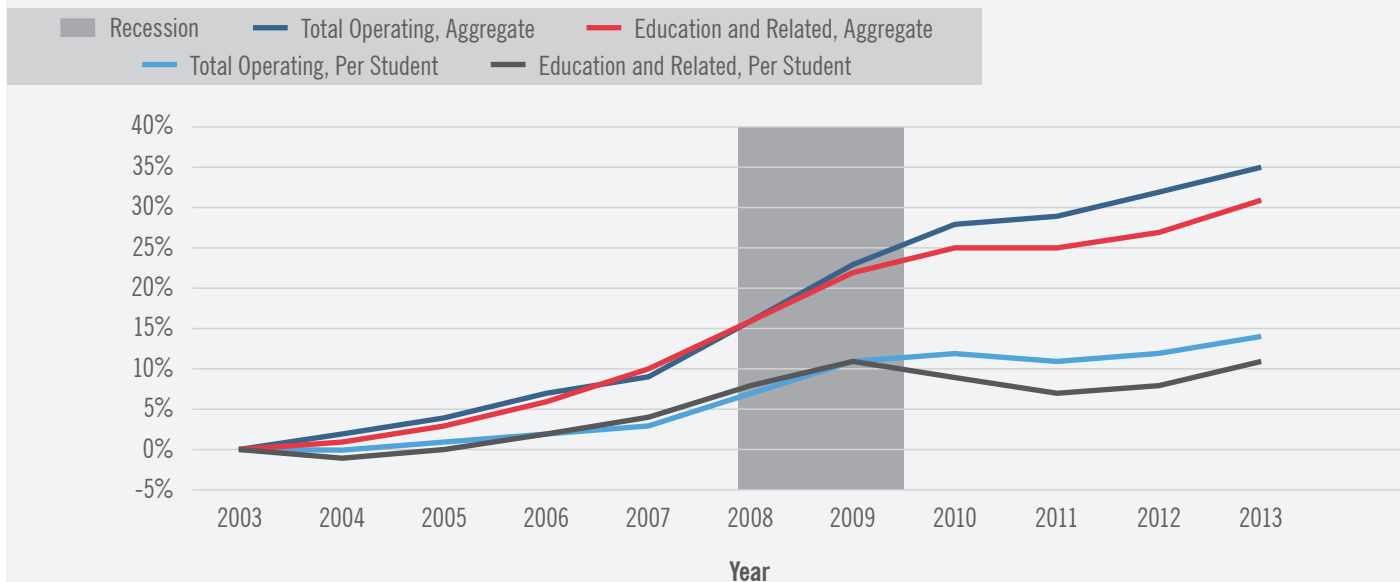
Category	Definition	Percent of Total Operating Expenses (2013)
Instruction	Spending directly related to instruction, including salaries, classroom supplies, and academic department administration.	28%
Auxiliary Enterprises, Hospitals, Independent and Other Operations	Spending on user-fee activities that do not receive general support, including residence halls and meal services. This category also includes clinics and hospitals.	26%
Research	Spending on organized or sponsored research, including project research and centers for research.	13%
Academic Support	Spending on activities to support instruction, research, and public service. This includes museums, deans’ offices, and personnel for curriculum and course development.	8%
Institutional Support	Spending on general administrative services, executive management, legal and fiscal operations, public relations, and physical operation.	7%
Operation and Maintenance	Spending on service and maintenance, including grounds, buildings, utilities, property insurance, and similar expenses.	5%
Public Service	Spending on non-instructional services provided to external groups, including conferences, public broadcasting, and reference bureaus.	5%
Scholarships and Fellowships	Spending on scholarships and fellowships, net of allowances, meaning that this category does not include any federal aid, tuition waivers, or tuition discounts offered to students. Only aid that comes on top of any discounts to tuition and auxiliaries is counted.	4%
Student Services	Spending on non-instructional services provided to students, including admissions, registrars, counseling, financial aid administration, intramural athletics, and student organizations.	4%

**Note:** Total operating costs are defined as the sum of the nine major spending categories in this table.

**Source:** Delta Cost Project.<sup>35</sup>



**Figure 8. Cumulative Change in Aggregate and Per-Student Spending at Four-Year Public Institutions of Higher Education**



**Note:** Total operating costs are defined as the sum of the nine major spending categories defined in Table 1 of this report. Education and related expenses include only spending that is directly related to educating students. Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Percentage change is measured from 2003, using dollars that were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** Delta Cost Project.<sup>37</sup>

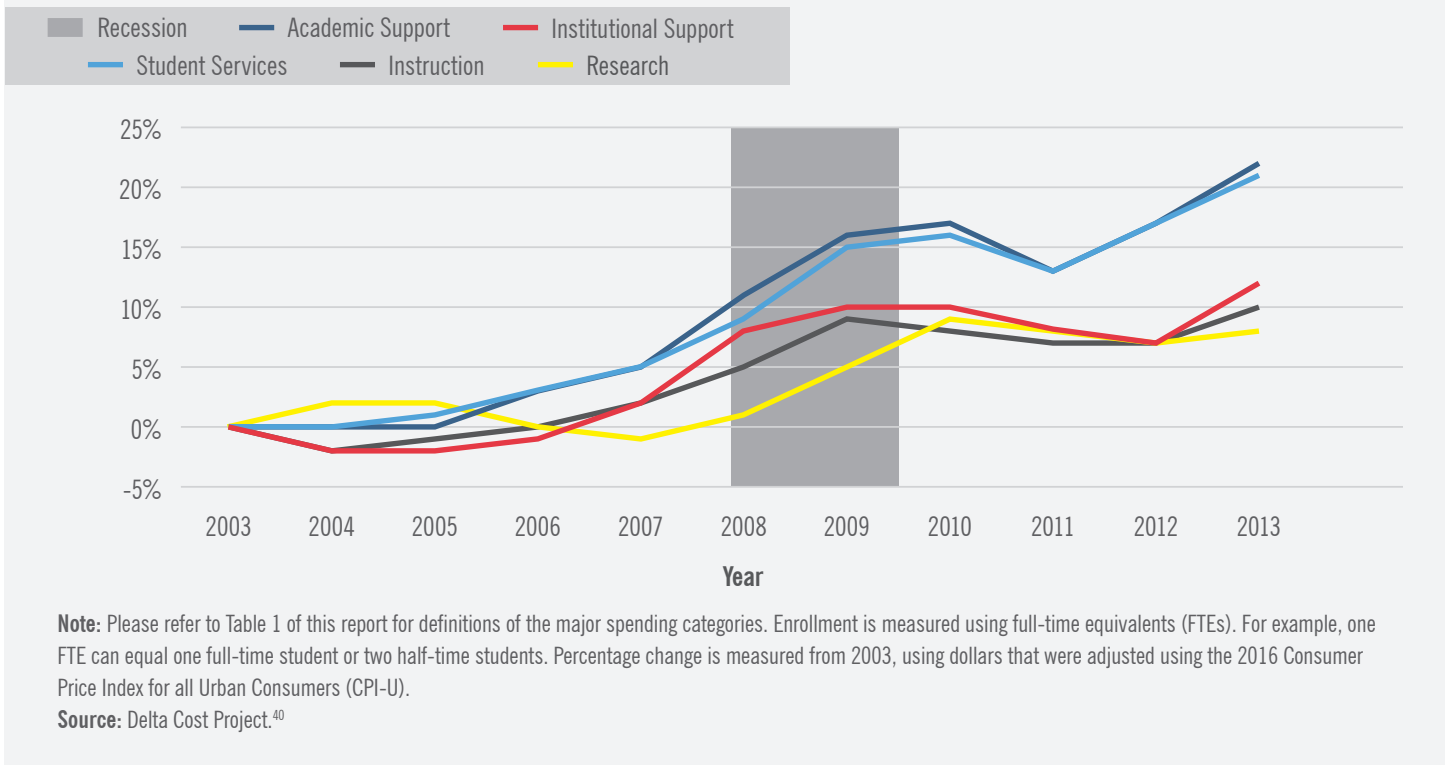
institutional support that are directly related to delivering education services.<sup>33</sup> In 2013, E&R comprised 46 percent of total operating expenses.<sup>34</sup>

The decade between 2003 and 2013 saw significant growth in spending by four-year public institutions for both total operating expenses and E&R expenses. Some of this growth reflected rising enrollment, but spending also increased on a per-student basis. As shown in Figure 8, total operating expenses increased by 35 percent in real terms between 2003 and 2013, from \$183 billion to \$247 billion, and by 14 percent on a per-student basis, from \$33,600 per student in 2003 to \$38,400 per student in 2013. Growth in E&R spending generally tracked growth in total operating expenses:

Aggregate spending for E&R increased by 31 percent in real terms over this decade, from \$86 billion to \$113 billion, while per-student spending for E&R increased by 11 percent, from \$15,800 to \$17,500 per student.<sup>36</sup>

Figure 8 also shows that spending on E&R diverged from total operating expenses in the aftermath of the recession, with per-student spending on E&R declining more than total per-student spending between 2009 and 2011. This is due to the fact that per-student spending on several non-E&R categories—scholarships/fellowships and auxiliary enterprises/hospitals—increased throughout the recession, while virtually all of the other categories suffered declines.<sup>38</sup>

**Figure 9. Cumulative Change in Per-Student Spending at Four-Year Public Institutions of Higher Education, by Major Category**



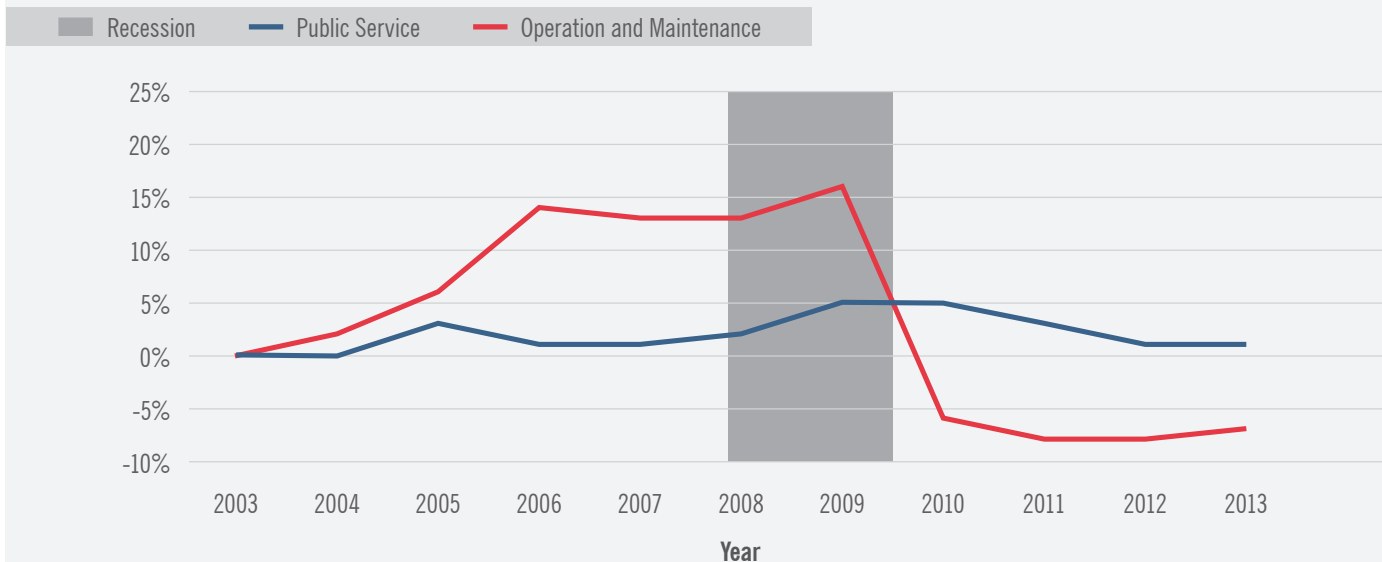
Overall, most of the categories that comprise total operating expenses experienced mild declines immediately following the recession on a per-student basis, although many had recovered to pre-recession levels by 2013. For example, per-student spending on institutional support fell by 3 percent between 2009 and 2012, but then increased by 4 percent the following year (Figure 9).<sup>39</sup> Notably, per-student spending on academic support and student services declined by 3 percent and 1 percent, respectively, between 2010 and 2011, before rebounding with a nearly 8 percent increases between 2011 and 2013, far exceeding their pre-recession levels. These large increases lend credence to the Bowen Effect, as institutions might have boosted spending in these categories to gain prestige.

Other expense categories—notably, operation and maintenance and public service—faced spending reductions in the immediate aftermath of the recession and did not

rebound in short order, at least through 2013. Operation and maintenance was most strongly affected by the recession, with per-student spending in this category falling by 20 percent between 2009 and 2011; spending for public service declined by a more modest 4 percent over a similar period. Per-student spending in both categories then remained relatively flat between 2011 and 2013 (Figure 10).<sup>41</sup>

Interestingly, scholarships and fellowships and auxiliary enterprises/hospitals—which are included in total operating expenses but *not* E&R—were the only spending categories to be relatively unaffected by the recession. They both experienced close to 30 percent growth in per-student spending between 2003 and 2013—from \$1,166 to \$1,495 for scholarships and fellowships, and from \$7,919 to \$10,030 for auxiliary enterprises/hospitals (Figure 11). Spending on scholarships and fellowships did decline from 2011 to 2013, but the dip occurred after an eight-year period in which spending in this category grew 37 percent.<sup>43</sup>

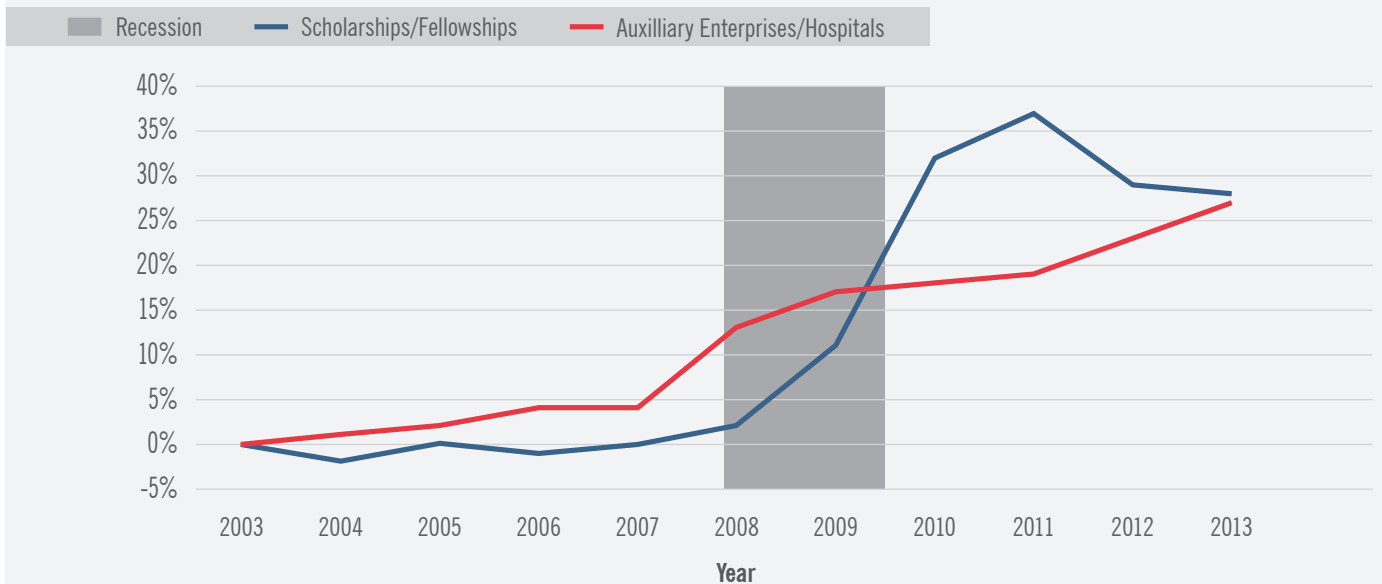
**Figure 10. Cumulative Change in Per-Student Spending on Public Service and Operation and Maintenance at Four-Year Public Institutions of Higher Education**



**Note:** Please refer to Table 1 of this report for definitions of the spending categories. Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Percentage change is measured from 2003, using dollars that were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** Delta Cost Project.<sup>42</sup>

**Figure 11. Cumulative Change in Per-Student Spending on Scholarships/Fellowships and Auxilliary Enterprises/Hospitals at Four-Year Public Institutions of Higher Education**



**Note:** Please refer to Table 1 of this report for definitions of the spending categories. Enrollment is measured using full-time equivalents (FTEs). For example, one FTE can equal one full-time student or two half-time students. Percentage change is measured from 2003, using dollars that were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** Delta Cost Project.<sup>44</sup>

Scholarships and fellowships include any merit- or need-based aid supplied to students, *besides* tuition discounts and funds provided for auxiliary enterprises. For example, providing a student with a free meal plan or discounted tuition would not count as scholarship and fellowship spending, but providing the student with a stipend for living expenses would. The steep rise in spending on this category reflects universities' efforts to help offset rising tuition prices.<sup>45</sup>

Growing hospital costs were likely, in part, a reflection of growth in overall health care costs over this period. From 2003 to 2013, the medical care price index increased by 43 percent.<sup>46</sup> Auxiliary enterprises include dining halls, facilities, and bookstores. User fees, as opposed to general revenue, typically support these functions. (In other words, they are not supported by student tuition dollars or state appropriations.) As such, auxiliary spending was largely unaffected by the declines in state funding that occurred during the recession. Indeed, a review of the state university system of Virginia found that 56 percent of inflation-adjusted per-student spending increases from 2002 to 2012 stemmed from auxiliary enterprises.<sup>47</sup> The collected fees actually serve as a major revenue source for many colleges and universities. In 2013, auxiliary enterprises/hospitals generated \$253.4 billion in aggregate revenue at public four-year institutions.<sup>48</sup>

Summing up these trends, it is clear that institutional spending at four-year public institutions increased significantly in recent years—both in aggregate terms and on a per-student basis. Expenditures did fall somewhat in response to the Great Recession—due largely to declines in state appropriations—but spending in most categories has since rebounded. Notably, spending increases have been slightly more pronounced in areas not related to the delivery of educational services—namely, in hospitals and auxiliary enterprises. This has led to small declines in education-related spending as a percentage of the total. Increased spending on hospitals and auxiliary

enterprises is largely unsurprising in light of rising health care costs and the fact that these services are supported by dedicated user fees and are therefore less affected by changes in state appropriations.

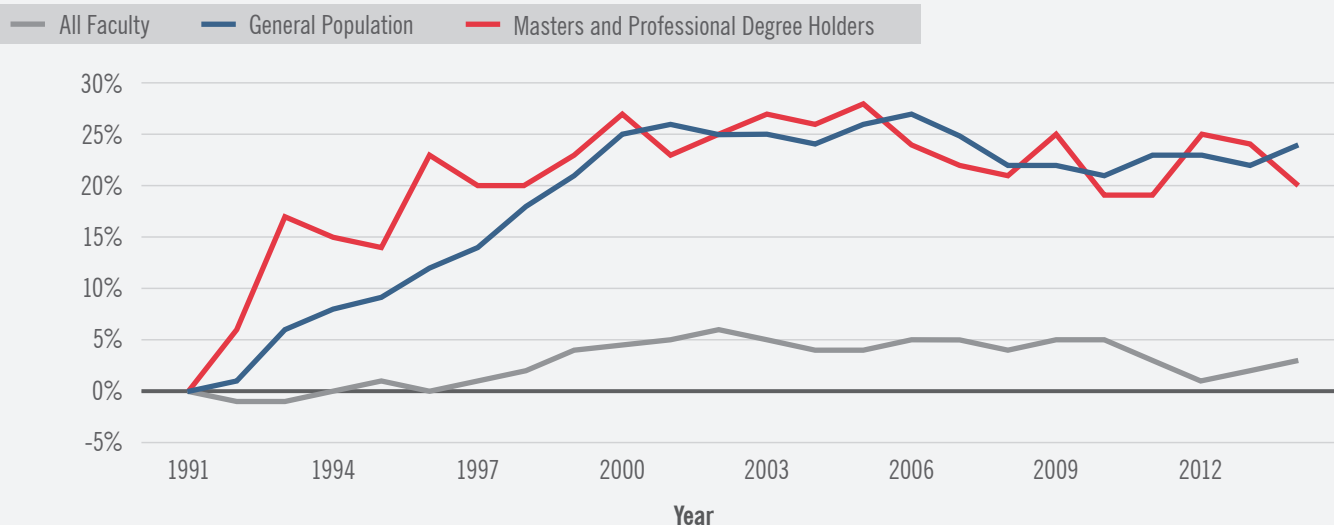
Unfortunately, these trends do not afford much insight into the validity of the Bowen Rule—the extent to which certain institutional spending has influenced college tuition and fees and driven up COA over the past decade. Rather, the data on expenditures indicate that institutions largely behaved along the lines of what one would expect, delaying operation and maintenance expenses as the first line of defense to fiscal belt-tightening, while continuing to collect revenue (and spend) via avenues that were unaffected by state appropriations—that is, auxiliary enterprises. Even so, the growth in auxiliary spending—which continued throughout the recession—as well as the mild decrease in E&R spending as a share of total operating expenses implies that the Bowen Rule may play some role in promoting institutional spending, thereby putting upward pressure on tuition and fees.

## *Trends in Labor Costs*

A third factor that is sometimes implicated in rising higher education prices is labor costs. According to this view, higher education—like other labor-intensive sectors with little potential for productivity growth—is subject to Baumol's cost disease, in which increased demand for the good or service being provided leads to ever-higher salaries. Rising prices, this argument goes, are an inexorable outcome of steadily escalating labor costs.<sup>49</sup>

An in-depth investigation of Baumol's cost disease as a possible explanation for recent trends in costs for public higher education is beyond the scope of this paper. A quick review of faculty salaries relative to general wages over the past several decades, however, suggests that labor costs have not been

**Figure 12. Cumulative Change in Average Wages for All Faculty at Four-Year Public Institutions of Higher Education, Masters/Professional Degree Holders, and the General Population**



**Note:** The general population includes workers over the age of 25. The masters and professional degree holders category averages the mean earnings of those two groups. Percentage change is measured from 1991, using dollars that were adjusted using the 2016 Consumer Price Index for all Urban Consumers (CPI-U).

**Source:** U.S. Census Bureau and U.S. Digest of Education Statistics.<sup>52</sup>

a major driver of rising COA at most public colleges and universities. Instead, public institutions seem to have contained labor costs by reducing the number of tenure-track positions and by replacing tenured professors with lower-paid, part-time and adjunct professors.<sup>50</sup>

Figure 12 compares the cumulative change since 1991 in the average wages of faculty with those of masters and professional degree holders, as well as those of the general adult population.<sup>k</sup> As indicated by the chart, wages among both the general population and professional and graduate degree holders have grown several times faster than faculty wages over the past 25 years.<sup>51</sup>

In a similar vein, tenure-track positions at institutions are in decline. In 1969, full-time tenured or tenure-tracked positions typically accounted for nearly 80 percent of college

and university faculties. By 2009, that number had fallen to 34 percent. On average, full-time adjunct professors earn 26 percent less than tenure-track faculty, while part-time adjunct professors earn 60 percent less than full-time tenure track faculty (on an hourly basis).<sup>53</sup>

There is some evidence that non-faculty staff, such as administrative positions, have expanded and seen higher wage gains over the past several years, which could represent a form of Baumol's cost disease.<sup>54</sup> Indeed, a 2014 study found that evidence of Baumol's cost disease was most apparent in institutions with higher staff-to-faculty ratios.<sup>55</sup> Faculty wage trends alone, however, provide little support for the proposition that rising labor costs are playing a major role in boosting revenue needs at most public universities and colleges.

<sup>k</sup> Comparing faculty wages with those of masters and professional degree holders is useful because both groups are high-skilled workers, and would thus be more likely to see similar wage gains. Doctoral degree holders are excluded from the comparison because a large percentage of these individuals are also faculty members.

## *A Complex Diagnosis*

Available data on state support and labor costs at public universities and colleges suggest that neither of these two commonly cited supply-side factors, by itself, can account for the large increase in tuition and fees that occurred at these institutions over the past 15 years. State support has ebbed and flowed over this time period—largely in response to broader economic conditions—while college prices have risen consistently. This casts doubt on the proposition that declining public support is driving up COA and making a public college education less affordable. Similarly, faculty labor costs—the central driver in Baumol’s cost disease hypothesis—do not appear to be spiraling out of control, at least at an aggregate level. In fact, average wages for professors have failed to even keep pace with average wages for advanced-degree-holding workers in the economy as a whole.

It is more difficult, based on the data available for this study, to draw conclusions about the role of institutional spending, which is the focus of Bowen’s Rule. Overall institutional spending per student did increase over the past decade and a half, and much of this increase in expenditures was for non-education-related services. As such, Bowen’s Rule may be contributing to rising prices, especially considering the increased spending on student services and academic support that has occurred over the past decade.

In sum, while supply-side factors likely play some part in driving up the COA for students, our research indicates that none of these factors seems to be a dominant driving force behind the rapid escalation of prices that has occurred in recent years. As such, policymakers seeking to address rising costs must be cognizant of the many demand- and supply-side factors that may play a role in driving prices upward, and consider a host of different approaches without relying too heavily on a single explanative theory.

## *Part II. Performance Funding in Higher Education*



Through the end of World War II, state funding for higher education was traditionally based on historical patterns: How much a public college or university received from the state in a given year was largely determined by the prior-year allocation. During this era, tuition at public institutions in most states was either zero or very low relative to the cost of the educational services provided.<sup>56</sup> State funding, therefore, accounted for the vast majority of the revenue that public colleges and universities received from all sources. Over subsequent decades, however, state support failed to keep pace with increasing costs, and tuition rates at public institutions of higher education rose accordingly.<sup>57</sup> Today, these institutions rely on tuition for nearly half of their total revenue.<sup>58</sup> So how did this happen?

Beginning in the 1950s, states began to adopt a different approach to funding public colleges and universities. Increasingly, they applied formulas, which typically used some combination of enrollment and costs, to allocate funds to individual institutions. By the early 1970s, most states had adopted funding formulas as the principal vehicle for determining these allocations. On the whole, however, tuition rates continued to be low, accounting for less than 10 percent of revenue at public institutions.<sup>59</sup>

Then, in 1973, national organizations published reports asserting that tuition for public institutions should rise as a percentage of costs to reflect the fact that a college diploma confers a sizable private benefit on the student receiving that education. Taxpayers should not have to bear nearly the

full burden of such private benefits, so the argument went.<sup>60</sup> Interestingly, the reports concluded that tuition should rise over time to one-third of the cost of providing public higher education. This message began to resonate with the recession of the mid-1970s: As states faced growing budget strains and public support failed to keep pace with rising costs and increasing enrollment, tuition rates grew steadily to make up the difference. Cost sharing—often defined as the ratio of tuition revenue to total revenue—grew from less than 10 percent in the 1970s, to 25 percent in the mid-1980s, to roughly 50 percent today.<sup>61</sup>

Many aspiring students have needed significant financial assistance to cover such tuition. As a general matter, states have looked to the federal government to provide the bulk of this aid for students in the form of grants, loans, and work-study arrangements. Meanwhile, states continue to be the primary source of taxpayer support for public institutions and have also directed a modest portion of funds to supplement federal aid to students. This state assistance has grown in real terms over time to reflect growth in tuition and fees and address concerns about ongoing equity gaps in who attends college. Nonetheless, state-funded financial aid still constitutes 10 percent or less of total state funding for higher education in most states.<sup>62</sup>

Rising college prices were at the core of major financing issues that have emerged in recent decades regarding affordability and access to higher education, rising levels of student indebtedness, and low graduation rates. A number of states became concerned that funding formulas based on enrollments and per-student costs could be encouraging schools to increase spending and to maximize admissions with less attention paid to actual completion rates. These states began exploring alternative funding mechanisms that were based, in whole or in part, on how institutions performed rather than simply on how many students they enrolled. This shift in emphasis manifested itself in a series of

performance-based funding mechanisms that various states adopted to improve the effectiveness of their investments in higher education.

## *The Evolution of Performance Funding*

Early performance funding models have come to be known as **Performance Funding 1.0**. Typically, they provide a small bonus (generally less than 5 percent above base funding) to institutions that meet a prescribed set of performance metrics, such as boosting the number of graduates. Though several states still operate these systems, the past decade has seen the advent of more complex models.

The newer generation of systems—**Performance Funding 2.0**—creates higher-stakes incentives by building performance measures into states' base funding formulas, often in significant proportions. Some states, such as Tennessee, actually allocate close to 100 percent of the state's base funding in this manner.<sup>63</sup> These 2.0 systems tend to emphasize intermediate metrics (such as student progression) in addition to ultimate metrics (such as graduation).<sup>64</sup> Some of the models include metrics related to job placement upon graduation and many incorporate provisions designed to promote access to higher education among traditionally under-served populations. No clear delineation exists between 1.0 and 2.0 systems—in fact, a few states today contain elements of both models.<sup>65</sup>

This evolution in performance funding has occurred for several reasons. For one, given tight state budgets, the new generation of systems allows resources to be redirected to high-performing institutions.<sup>66</sup> Furthermore, state policymakers generally concluded that the small incentives attached to Performance Funding 1.0 systems were insufficient to encourage institutions to change their behavior. Indeed, as described later in this report, the



evidence backs this up, showing little to no effect on graduation rates. As such, many state leaders opted to raise the stakes and put more on the line to improve student outcomes.

## *A Review of the Current Performance Funding Landscape*

Currently, 33 states have a fully designed performance funding system for their public universities and/or community colleges. However, just 25 of these states actually implemented performance funding in 2016. Five additional states are in the process of developing their own models.<sup>67</sup> More than 6 million students are now enrolled at institutions that are subject to performance funding, comprising around 40 percent of enrollees at public institutions and 30 percent of the total postsecondary student body.<sup>68</sup>

Each of these funding systems is unique, reflecting differences in state goals and priorities. Variations include the set of metrics used, the weights attached to those metrics, and the percentage of overall state higher-education funding tied to performance outcomes. For example, some systems track credit completion, whereas others only measure graduation—and many utilize a combination of both metrics. Similarly, some states measure *the number* of students who graduate each year, whereas others measure *the percent* of students who graduate.

In general, performance funding is either formula-driven or it takes a “target/recapture” approach. Under formula-driven systems, states develop a formula that includes performance metrics and assigns relative weights to these metrics. Institutions’ outcome data are then inserted into the formula, which is used to determine their allocation of state funding. Conversely, a target/recapture approach sets aside a specific amount of money from each institution’s allotment and allows institutions to earn this money back if they meet a prescribed

set of benchmarks.<sup>69</sup> In addition, performance funding systems can either allocate base funding (a characteristic of 2.0 systems) or supplemental/new funding (as in 1.0 systems).

Formula-driven systems that utilize base funding are considered “best practice” among advocates of performance funding. Baking performance directly into the state’s funding formula helps to ensure that the state metrics are a central determinant in higher education funding. Similarly, linking performance to base funding—rather than additional funding—provides an element of predictability and stability, indicating that the fundamental performance system will stay intact in future years and will not simply be eliminated if the state faces budget cuts.<sup>70</sup>

In 2016, 16 states (64 percent of the total using performance funding) applied these systems to allocate base funding, five states (20 percent) used performance funding only to distribute additional or new dollars, and four states (16 percent) employed performance systems using a combination of new and base funding.<sup>71</sup> In addition, around two-thirds of the systems used a formula-driven approach rather than a target/recapture method (Table 2).<sup>72</sup>

In contrast to earlier performance funding mechanisms, many 2.0 systems track intermediate metrics—such as student progression (as measured by credit completion and/or retention)—as well as graduation. Currently, 21 states, or 84 percent of all states that have implemented performance funding systems, do this. Two other states—North Dakota and Wyoming—track progression but not degree completion.<sup>73</sup> Eighty-eight percent of today’s performance funding systems also reward schools based on the number of “high-impact degrees” awarded. This designation applies to degrees that are in-demand among employers, such as in science, technology, engineering, or mathematics.

**TABLE 2: Characteristics of State Performance Funding Systems**

Funding Level (as percentage of base budget)			Formula-Driven	Completion Metric	Progression Metric	High-Impact Degree Metric
Low (0%-4.9%)	Medium (5%-24.9%)	High (25% and over)				
56% (14 states)	24% (6 states)	20% (5 states)	68% (17 States)	92% (23 States)	84% (21 States)	88% (22 states)

**Note:** Please see the Appendix for details and sources.

Finally, substantial variation exists in the percentage of funding that states provide on a performance basis. Indiana, for example, allocates less than 5 percent of base funding in this way, while Tennessee and Ohio both apply performance metrics to a majority of base funding. In general, more than half of participating states allocate less than 5 percent of funds on a performance basis; around a quarter use performance funding for between 5 and 25 percent of state funds; and one-fifth allocate 25 percent or more of state funds on a performance basis (Table 2).<sup>74</sup>

## Gauging the Impacts of Performance Funding

The ultimate goal of performance funding systems is to incentivize institutions to improve student outcomes based on priorities identified by the state, such as increasing the number of graduates produced. To what extent performance funding has achieved this goal, however, remains difficult to assess due to data issues, contextual factors, and the heterogeneity of state systems. Although there is evidence that institutions alter their practices in response to performance metrics, the data are mixed on whether these changes elicit gains in student outcomes. Additional research is needed to distill the effects of current and alternative performance funding systems and to draw conclusions about the effectiveness of different approaches. Analyses of performance funding have typically focused on two issues: effects on institutions' behavior and effects

on student outcomes (usually the number of graduates).

The existing research indicates that performance funding systems can affect institutional behavior—for example, by causing institutions to increase spending on student services and instruction. Furthermore, studies show that performance funding can lead to changes in curricula, changes in instructional delivery, and improvements in counseling, retention services, and academic advising.<sup>75</sup> A qualitative study on Indiana, Ohio, and Tennessee found that institutions in all three states revised their strategic plans to emphasize performance as defined by the state metrics.<sup>76</sup>

With regard to student outcomes, most studies to date have only evaluated Performance Funding 1.0 systems, which are on the wane and tend to attach a far lower proportion of overall funding to performance measures. *The vast majority of these studies find that Performance Funding 1.0 models have little impact on student outcomes.*<sup>77</sup>

While less research exists on 2.0 systems, some emerging evidence points to more promising results. One recent study, for example, found that performance funding led to an increase in the number of associate's degrees and short-term certificates granted by two-year colleges, as well as a higher number of completed bachelor's degrees and degrees per 100 students at four-year institutions.<sup>78</sup> A recent longitudinal study using state-level data in Tennessee and Indiana found that the introduction of performance funding prompted a host

of statistically significant improvements in student outcomes, including an increase in graduation numbers among full-time students in both Tennessee and Indiana, as well as an increase in full-time Pell-eligible graduates in Tennessee. On the other hand, a similar study conducted in Ohio found that Performance Funding 2.0 had little to no effect on graduation numbers.<sup>79</sup>

The impacts of performance funding are uncertain and difficult to gauge, in part, because of the challenges associated with evaluating these systems. As already noted, there is wide variation in the specific aspects of states' performance funding systems. Furthermore, states have different levels of institutional buy-in, and the strength of leadership within state higher education commissions, which establish and guide institutions through the system parameters, can vary drastically. All of these factors can affect the success of a performance funding system; some (like leadership and institutional buy-in) are hard to measure. This state-to-state heterogeneity—both in the design of different performance funding systems and in the status of numerous external factors—complicates any econometric analysis that attempts to isolate the impacts of performance funding.

Another difficulty has to do with a lack of data. Most studies to date evaluate the earlier generation of performance funding systems, which are in decline. Given that the newer 2.0 models were introduced relatively recently, researchers will need several more years until they have sufficient data to thoroughly analyze the effects. Indeed, initial research points to a lagged effect from the introduction of these types of systems. A longitudinal study published in 2014 found that performance funding only began to yield a positive impact on graduation numbers seven years after adoption.<sup>80</sup>

## ***Concerns Raised About Performance Funding***

Performance funding systems can give rise to a number of design challenges, chief among them the failure to recognize that institutions may lack the capacity and resources to improve on their performance metrics. This can lead to reductions in funding, which in turn, can trigger a downward spiral where both performance and funding continue to decline.

Furthermore, performance funding systems have the potential to elicit perverse incentives that can cause institutions to change their behavior in unintended ways. Poorly crafted systems, for instance, can lead institutions to attempt to game the metrics, such as by indirectly restricting access to at-risk populations or by relaxing academic standards to boost graduation rates.

## **Issues Related to Institutional Capacity and Resources**

Research indicates that capacity building is important if institutions are to succeed in a performance funding system. Schools that, for instance, experiment with new approaches in retention, and provide training on best practices and data analysis are better-positioned to engage in organizational learning: the ability to assess their own performance, recognize shortfalls, propose solutions, and evaluate the extent to which those solutions translate into improvements in student outcomes.<sup>81</sup> This process can help institutions grow along state-defined metrics, thereby enabling success in a performance funding system.

Building capacity requires significant resources, and institutions with the means to make these investments are more likely to excel in a performance funding environment,

while resource-starved schools are at a disadvantage.<sup>82</sup> This can be problematic, as resource-starved institutions often produce poorer student outcomes. For instance, research indicates that average time to completion for a bachelor's degree depends in part on the financial resources of the school in question.<sup>83</sup> These realities raise the possibility that performance funding systems could exacerbate existing educational inequities, in the worst case furthering a vicious cycle in which better-financed institutions receive an increasingly disproportionate share of funding due to their inherent advantages.

Some state governments have tried to level the playing field by providing technical assistance to support institutions in meeting their performance goals. For example:

- The state of Tennessee held conferences designed to help institutions develop strategies for boosting retention and completion.
- Ohio gave its institutions access to user-friendly student longitudinal datasets.
- The Indiana Higher Education Commission advocated for a statewide forum where institutions could share best practices for improving completion and retention rates, and implementing evaluation strategies.<sup>84</sup>

Unfortunately, survey data from these states suggest that efforts thus far have been insufficient: 23 percent of surveyed officials at higher education institutions in Indiana, Ohio, and Tennessee believed a lack of institutional capacity remained a major hindrance to meeting performance goals.<sup>85</sup>

## Issues Related to Access for At-Risk Populations

Performance funding systems reward institutions on the basis of student outcomes—namely, graduation and retention levels. As a result, one particular unintended consequence can

be the creation of incentives that lead institutions to restrict access among students who are less likely to graduate. Schools could boost admissions criteria to screen out these students, thereby improving the institution's completion numbers and capturing higher levels of state funding. Restricting admissions would disproportionately affect students who are more likely to struggle academically, particularly low-income, first-generation, and underserved minority students, who suffer as a group from a significant achievement gap in the K-12 system.<sup>86</sup>

Although there is a notable paucity of data on the issue, limited evidence does support these concerns. In the previously noted survey of higher education officials in Indiana, Ohio, and Tennessee, 47 percent of respondents indicated that efforts to restrict access have occurred as a result of performance funding.<sup>87</sup> Furthermore, an analysis of Indiana's public four-year institutions found that the implementation of performance funding led to a statistically significant increase in ACT scores among enrolled students, implying that admissions requirements may have increased over time.<sup>88</sup>

Furthermore, even if performance funding formulas can be designed to adequately account for the unique challenges facing underserved minority students, these systems could still widen equity gaps if performance improvements occur unevenly across groups. For instance, even if graduation rates rise across the board, a slower rate of improvement among low-income or first-generation students could exacerbate the situation that already existed before performance funding was implemented.

An additional concern is that performance funding has the potential to harm institutions that enroll high levels of underserved students, such as community colleges and minority-serving institutions. Students at these schools not

only tend to graduate at a lower-than-average rate, they are also more likely to need remedial coursework and to be employed while attending school, both of which can delay time to degree. Performance funding systems that fail to take such factors into consideration can unintentionally starve these institutions of funding.

These adverse impacts are more likely to be found in performance funding systems that lack safeguards to protect at-risk students or where states apply a one-size-fits-all funding formula that fails to consider institutions' individual missions. Fortunately, many states are sensitive to these concerns and have introduced performance funding systems that attempt to counter negative impacts. Indeed, 19 of the 25 states with active performance funding systems have measures in place to protect under-served populations. Twelve states include metrics for both race and income, while six states use an income measure, which is generally Pell eligibility, but no race measure.

The embedded protections for under-served populations vary widely by state. For instance, Tennessee provides a more favorable weighting for Pell-eligible students who complete a degree, to provide institutions with an additional carrot for graduating low-income students. Indiana, on the other hand, has a totally separate metric that tracks the number of low-income students who graduate, while Ohio weights both progression (that is, course completions) and graduation numbers based on whether the student is considered “at-risk” (as determined by a combination of factors, including family income, race, and age).<sup>89</sup>

## Issues Related to the Maintenance of Academic Standards

Another fundamental concern about performance funding is its potential to create perverse incentives for institutions

to lower their academic standards. This could occur if schools seek to produce artificially better outcomes by reducing degree requirements. The risk is that institutions faced with incentives to boost completion could find it easiest to respond by lowering the bar.

Theoretically, this approach would run counter to an institution's interest in building prestige and boosting its standing among competing schools. However, since the precise benefits of increased prestige and higher educational quality are often intangible or long-term, the immediacy of year-to-year funding demands may outweigh these broader considerations.<sup>90</sup> The erosion of academic standards can also occur at the level of individual faculty members, who may feel pressured to deliver higher grades so the institution does not see a decrease in funding.

Performance funding systems can be designed to mitigate these concerns by integrating quality-assurance metrics into the state's base funding formula. This can be accomplished in several ways, such as by creating metrics that detect grade inflation or by including standardized-testing results or other measures of academic success, like employment or wage outcomes for graduates.

At present, however, just nine states have such measures in place. Five of those states—Missouri, Tennessee, Pennsylvania, North Carolina and Wisconsin—tie a portion of funding to student assessments (though Pennsylvania's metric is optional), and six of them—Missouri, Minnesota, Tennessee, Arkansas, Florida, and Texas—include metrics on the labor-force outcomes of graduates. Texas's state technical college system takes a particularly innovative approach wherein funding is partially guided by state wage records among the institutions' graduate cohorts for five years after they leave school (see Box 3 for details).<sup>91</sup>

## *Box 3: The Texas State Technical College System's Returned-Value Model*

The Texas State Technical College System (TSTCS) has a unique and innovative performance funding system. Using what is known as a “returned-value model,” it is designed to reward institutions based on the earnings and employment outcomes of graduates. Specifically, the returned-value system partially links state technical college funding to the economic benefit enjoyed by the state in the form of increased tax revenue from former TSTCS students.<sup>92</sup>

The returned-value model attempts to calculate the value derived from attending school at TSTCS. First, the model estimates wage gains over five years (called the “direct value-add”) by comparing former students’ annual wages five years after leaving school with the minimum wage for a full-time employee in Texas. Specifically, the metric evaluates a cohort of former students and derives their wage data from Texas’s unemployment insurance program, which requires quarterly reporting of employee wages.<sup>1</sup> The model then subtracts the state’s minimum wage from the cohort’s wages and multiplies the figure by Texas’s effective tax rate (which currently stands at 7 percent). This provides an estimate of the direct value-add of TSTCS to the state’s tax revenue.

In addition to estimating revenue obtained from student wage gains, the model also includes an “indirect value-add,” which accounts for the fact that wage gains ripple

across the economy and can lead to further increases in tax revenue. To measure these indirect effects, the model multiplies the cohort’s direct value-add by an economic multiplier of 1.5.<sup>93</sup> Finally, the model sums the direct and indirect value-adds to derive the “total value-add,” of which half goes to TSTCS and half goes to the state.

It should be noted that the returned-value model does not have the final say in state funding decisions, as that power is held by the state legislature. This was evident during the 2015-2017 biennial state budget process—the first to be informed by the returned-value model—in which TSTCS performed so well against the metrics that the model dictated large and unrealistic increases in state funding. This led lawmakers to abandon the model and instead simply grant a 5 percent funding increase for TSTCS, based on its positive performance in student outcomes.<sup>94</sup>

The returned-value model is innovative in its attempt to establish linkages between state appropriations and tax revenue gains that result from the supply of technical degrees. Given the model’s recent development, it will inevitably continue to be tweaked and tinkered with over the next several years.

<sup>1</sup> Texas uses two-year cohorts because of their system of biennial budgeting. Each cohort is also broken down into several subcategories—such as students who have received an Associate’s degree, those who have completed between nine and 15 credit hours, and those who have completed over 15 credits, among others. The model excludes those who completed less than nine credits, as well as those who have worked fewer than three quarters in a measured year. For more information, please refer to: Texas Higher Education Coordinating Board, Texas State Technical College System Returned Value Funding Model Methodology, 2013, 5. Available at: <http://www.thecb.state.tx.us/reports/pdf/3207.pdf>.

Wisconsin has also emphasized quality assurance in its performance funding system by insisting that its technical college students attain relevant workforce skills. Accordingly, public funding for higher education in Wisconsin is partially allotted to institutions that implement “industry-validated curricula,” which are developed by a committee composed of local employers. The committee produces course materials and syllabi in an effort to ensure that what is taught aligns with the needs of the local labor market. Funding is also tied in part to the results of “Technical Skill Attainment Assessments” that measure student achievement in relation to “industry-relevant program outcomes.”<sup>95</sup> While these developments in several states are encouraging, more work is needed to guard against the erosion of academic standards in performance funding systems. This is particularly true in states that have not yet introduced any mechanisms to handle this unintended consequence.

## Box 4: Outcomes-Based Funding in Tennessee

In 1979, Tennessee became the first state to implement performance funding for its higher education system. Although state appropriations remained largely enrollment-based throughout the 1980s and 1990s, Tennessee's initial performance funding component allowed institutions to earn up to 2 percent above annual appropriations based on a series of metrics designed to gauge institutional performance. These metrics included student performance on standardized tests, program accreditation, peer evaluation of academic programs, and student satisfaction surveys.<sup>96</sup> Over the several decades since its introduction, the 2 percent bonus increased to 5.45 percent.<sup>97</sup>

In 2010, the Tennessee legislature passed the Complete College Tennessee Act (CCTA), which implemented a far more comprehensive, performance-based system. This system, which is still in place today, ties a majority of base funding (all aside from operational support) to student outcomes. These outcomes are defined in the state's funding formula and include:

- Student progression (the accumulation of credit hours);
- Efficiency (degrees per 100 full-time students);
- Institutional functions (such as research and service expenditures or job placements); and
- Degree production.

Importantly, the Tennessee system weights outcomes differently for students who, due to socioeconomic background, have statistically lower odds of completion. This is intended to protect against perverse incentives that might lead schools to raise admissions standards in order to bar access to at-risk populations for the sake of improving performance on the metrics. For example, Pell-eligible students are currently

weighted at 1.8 times non-Pell students. Such an incentive encourages institutions to enroll and graduate students from low-income families.

After passing CCTA, Tennessee chose not to abandon its original performance funding formula. Rather, the state turned it into a quality-assurance system designed to protect against the potential for deteriorating academic quality or access for at-risk students.<sup>98</sup> This system, which continues to provide a 5.45 percent bonus to qualifying institutions, operates *in addition* to CCTA (which allocates a majority of funding toward student outcomes).<sup>99</sup>

Under the quality-assurance system, a public college or university in Tennessee can earn up to an additional 5.45 percent of its state funding based on performance in two broad categories: "student learning and engagement" and "student access and success."<sup>100</sup> Performance in the first category is measured using standardized tests for assessments of student learning in general education and major field programs; audits of academic programs; data on institutional satisfaction, as gathered through student surveys; metrics of adult-learner success; and graduate placement in the Tennessee job market. Performance in the second category, student access and success, is measured by comparing an institution's number of graduates from certain at-risk populations—for instance, minorities, veterans, and low-income students—with that same institution's three-year rolling average of such graduates.<sup>101</sup>

Since unveiling its first model in 1979, Tennessee has continued to update and refine its approach. But throughout, the state has remained at the forefront of performance funding for higher education.



# Conclusion



The growing importance of a college degree in the 21st century economy has focused greater attention on the cost of attending college and on the success of schools in graduating students with the degrees and skills needed to succeed in today's job market. This paper documents a substantial increase over the last 15 years in the tuition and fees charged by public colleges and universities, which serve more than three-quarters of the nation's undergraduate student population. Higher costs of attendance both discourage entry into college and make it harder for those students who do enter to stay long enough to complete a degree. Because these impacts fall disproportionately on students whose financial capacity—either to self-fund their education or to seek out other forms of aid—is limited, rising college costs can be expected to contribute to widening disparities in opportunity and income over time.

Meanwhile, low graduation rates mean that the United States, despite relatively high rates of college participation—in 2014, nearly 70 percent of high school graduates enrolled at an institution in the fall immediately after completing their secondary education<sup>102</sup>—is falling behind many other advanced countries in postsecondary *attainment* (that is, the proportion of the working-age population with a college degree). Rising attendance costs have undoubtedly also played a role in the rapid expansion of student lending in recent years—to the point where student loans are now a leading source of consumer debt in the United States.

The findings in this paper suggest that a combination of factors likely accounts for the upward pressure on college prices in recent years. Levels of public funding remain important, insofar as state appropriations still make up a

large share of the revenue that public colleges and universities rely on, but the record shows that tuition and fees at these institutions have increased even in years when state funding was stable or increasing. Thus, expanded public support, by itself, seems unlikely to be a practical approach to keeping attendance costs down—especially given the many other growing demands on state budgets.

Recent state efforts to introduce performance funding, on the other hand, may help ensure that future public investments in higher education, whatever their magnitude, yield better returns. Experience with these types of mechanisms is still relatively limited, making it difficult to draw conclusions about their effectiveness. Nonetheless, early evidence suggests that performance funding holds potential for incentivizing schools to focus on improving student outcomes. Long-term success, however, will require careful design and implementation to avoid unintended consequences with regard to equity and academic standards. As states at the forefront of this trend experiment with different approaches to performance funding, it will be important to track their progress and identify what does and does not work. This is especially true of the strategies that colleges and universities deploy to ensure that greater numbers of students, particularly low-income and minority students, receive the support they need to complete their postsecondary education.

# Appendix

**TABLE 1: Characteristics of Performance Funding Systems by State**

State	Funding Level <sup>103,m</sup>	Formula-Driven <sup>104,n</sup>	Completion Metric <sup>105,o</sup>	Progression Metric <sup>p</sup>	High-Impact Degree Metric <sup>q</sup>	Protections for Under-Served Populations			
						Income	Race	Adult Students	Veterans
Arkansas <sup>106</sup>	Moderate	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Colorado <sup>107</sup>	High	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Florida <sup>108</sup>	Moderate	No	Yes	Yes	Yes	Yes	No	No	No
Hawaii <sup>109,r</sup>	Low	No	Yes	No	Yes	Yes	Yes	No	No
Illinois <sup>110</sup>	Low	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Indiana <sup>111</sup>	Low	Yes	Yes	Yes	Yes	Yes	No	No	No
Massachusetts <sup>112</sup>	Low	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Maine <sup>113</sup>	Moderate	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Michigan <sup>114</sup>	Low	Yes	Yes	No	Yes	Yes	No	No	No
Minnesota <sup>115,s</sup>	Moderate	No	Yes	No	Yes	No	Yes	No	No
Missouri <sup>116</sup>	Low	No	Yes	Yes	Yes	No	No	No	No
Montana <sup>117,t</sup>	Moderate	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
North Carolina <sup>118</sup>	Low	Yes	Yes	Yes	No	No	No	No	No
North Dakota <sup>119</sup>	High	Yes	No	Yes	Yes	No	No	No	No
New Mexico <sup>120</sup>	Moderate	Yes	Yes	Yes	Yes	Yes	No	No	No
Nevada <sup>121</sup>	High	No	Yes	Yes	Yes	Yes	Yes	No	No
Ohio <sup>122</sup>	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Oregon <sup>123</sup>	Low	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Pennsylvania <sup>124</sup>	Low	No	Yes	Yes	Yes	Yes	Yes	No	No
Tennessee <sup>125,u</sup>	High	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Texas <sup>126,v</sup>	Low	Yes	Yes	Yes	Yes	No	No	No	No
Utah <sup>127</sup>	Low	Yes	Yes	No	Yes	Yes	No	No	No
Washington <sup>128</sup>	Low	Yes	Yes	Yes	No	No	No	No	No
Wisconsin <sup>129</sup>	Low	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Wyoming <sup>130</sup>	Low	Yes	No	Yes	No	No	No	No	No

<sup>m</sup> A “low” funding level is between 0 and 4.9 percent of base funding; “moderate” is between 5 and 24.9 percent; “high” is 25 percent and above.

<sup>n</sup> Under a formula-driven approach, states develop a formula that includes performance metrics and assigns relative weights to these metrics. Institutions’ outcome data are then inserted into the formula, which is used to determine their allocation of state funding.

<sup>o</sup> A completion metric ties funding to the number or percent of students who graduate in a given year.

<sup>p</sup> A progression metric ties funding to credit/course completion and/or student retention.

<sup>q</sup> High-impact degrees are generally those in science, technology, engineering and math, or degrees that have been identified as being important to the state economy.

<sup>r</sup> The race metric only applies to Native Hawaiian students.

<sup>s</sup> Although there is currently no metric in the Minnesota system that protects low-income students, the state amends its performance goals each year, and in years past, the system has included performance goals designed to increase enrollment and attainment among both low-income students and students of color. Currently, the only such goal in place is at the University of Minnesota (which has a separate set of performance goals than the other schools in the state system), where they are striving to increase undergraduate graduation rates by 1 percent among students of color.

<sup>t</sup> The race metric only applies to American Indian students.

<sup>u</sup> Protections for income, race and veteran status are addressed in Tennessee’s quality-assurance system, which provides institutions with bonus funding for meeting a prescribed set of metrics. For further information, please refer to Box 4 of this report.

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# *Notes*



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