



MORE STUDENTS, MORE DEGREES, MORE DOLLARS¹

How Universities Can Close Budget Gaps While Benefiting Students

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When the recession wounded state budgets, public universities felt the pain. Nationally, from the 2010-11 school year to the next, state support for higher education declined an average of 7.6 percent.² Universities couldn't balance the books with just the usual belt-tightening. Many increased tuition. Some shifted more admission slots to out-of-state students, who pay higher tuition. Obviously, those tactics are tough on potential customers—those who must pay more and those who never get the chance to enroll. There's another, more compelling way to increase revenue: by admitting more students overall.

This is a tough sell to university officials intensely concerned about reputation; selectivity is a key component of college rankings. It requires universities to innovate, so that they can reduce per-pupil costs while maintaining the quality of instruction and services. But whether their mission statements make it explicit or not, public flagship universities exist in large part to create opportunity for state residents and bolster state economies.³ And increasing college attainment is a prominent national goal. When state policymakers evaluate strategies to generate revenue at flagship universities, then, they should consider not just which strategies are the most efficient, but which serve students the best and produce the most degrees.

State flagship universities generate revenue from students through two main sources, tuition and state allocations. It is not surprising, then, that many universities first reacted to state cuts by raising tuition, to the extent that their states authorized them to do so. For instance, over one year, tuition increased 21 percent in the University of California system (which came to double the tuition of five years before), 17 percent at the University of Arizona, and 16 percent at the University of Georgia.⁴ In each case, the move produced more revenue, but where tuition hikes were steeper, so was the pushback, as students and policy leaders worried that the additional financial burden would hinder completion rates.

Several public universities, including flagships in Michigan, Colorado, South Carolina, Oregon, and Washington, employed a second strategy, admitting more out-of-state students, who

¹ A previous version of this paper was released under the title "How Public Universities Close Budget Gaps Matters For States" by the Center on Reinventing Public Education in December 2012.

² Doug Lederman, "State Support Slumps Again," *Inside Higher Ed*, January 23, 2012.

³ Some institutions are explicit about the goal of service to the state. See, for instance, the University of California system's mission statement at <http://www.universityofcalifornia.edu/aboutuc/mission.html>. Some others don't mention it in their mission.

⁴ Jonnelle Marte, "Five States Where College Tuition Is Soaring," *Wall Street Journal*, August 18, 2012.

typically pay much higher tuitions. At the University of Washington, the number of international students in the freshman class jumped from 564 in 2010 to 1,036 in 2011.⁵

Some universities, including the University of Maryland, University of Washington, and Arizona State University, have chosen a third strategy: expanding overall enrollment.⁶ Given that nearly all students, even the neediest (who qualify for federal Pell grants), pay some tuition, this brings in more revenue. It is unclear whether or not the marginal cost of serving an additional student exceeds his or her in-state tuition. It is clear, however, that it does not have to, if universities can find ways to serve more students more efficiently.

Universities may be able to achieve lower marginal costs by leveraging technology to change the way some instruction is delivered and make student services more efficient.⁷ Some already are rethinking course scheduling to make better use of facilities that typically sit empty on weekends or over the summer, in order to serve more students.⁸ Others are streamlining credit transfer policies and capping degree requirements to reduce excess credit accumulation.⁹

Impacts vary by university

These three options for increasing revenue are not mutually exclusive; some universities are employing all three. For this analysis, we compared each as a discrete strategy in the context of each university's own revenue and enrollment data to better understand the magnitude of change required to close a given gap and the impact on state residents' degree attainment. We focused on undergraduate students at more typical flagship universities, as these institutions are often the most competitive of the state's publicly funded institutions in terms of admissions, enabling us to model changes in tuition or enrollment and still assume a surplus of qualified and interested students.¹⁰ Further, because these institutions are large and have relatively high rates of degree completion, enrollment changes are likely to affect their states' overall degree production.¹¹

⁵ Grant Blume and Marguerite Roza, *Are Residents Losing Their Edge In Public University Admissions?* (Seattle: Center on Reinventing Public Education, 2012).

⁶ See, for example, the New American University at <http://newamericanuniversity.asu.edu/> and the University of Virginia's increased enrollment as a response to the Virginia Higher Education Opportunity Act of 2011, <http://www.virginia.edu/finance101/answers.html>.

⁷ Stephen A. Hoenack and Eileen L. Collins, *The Economics Of American Universities: Management, Operations, And Fiscal Environment* (Albany, N.Y.: State University of New York Press, 1990).

⁸ The Indiana University proposed a tuition discount to encourage taking summer courses in part to make better use of its facilities. Carrie Richie, "IU summer tuition could fall 25%," *Indianapolis Star*, October 25, 2011.

⁹ Southern Regional Education Board (2007). *Focus on State Policies Limiting Excess Undergraduate Credit Hours*. http://publications.sreb.org/2007/07S05_Credit_Hours.pdf

¹⁰ A few notable flagships—like University of California, Berkeley, Pennsylvania State University, Rutgers University-Newark, University of Colorado Boulder, University of Idaho, and University of Delaware—are not included because we were unable to obtain complete data for these institutions or their figures were either in too great of flux or unrepresentative for the years studied.

¹¹ We cannot assume, however, that degree production rates would be stable across economic groups. Higher tuitions would likely dissuade some lower-income students from seeking enrollment in the flagship universities as these tend to be the most expensive of the public institutions.

We began with 2010-11 state appropriation, tuition revenue, enrollment, out-of-state tuition rates, and graduation data for 40 flagship institutions from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS). We first estimated the total dollar loss resulting from a hypothetical 5 percent cut in state funding and then computed the required change in each revenue strategy needed to fully offset the reduction in state funds. For the tuition change, the analysis computed the percentage change to the current revenue realized per undergraduate student to offset the gap in state funds.¹² To determine how many enrollment spots would need to shift to out-of-state students, we divided the gap by the difference in resident to nonresident undergraduate student tuition. In our third analysis, we assumed that universities would make some changes in processes and instructional delivery so that the marginal costs of adding another student are essentially negligible; thus to determine the enrollment growth, we simply divided the gap by the average tuition collected per student.¹³

As is clear from Table 1, given the target of closing a 5% gap in state funds, the magnitude of each strategy's effect differs substantially by university. One key element is the extent of the university's reliance on state funding: a 5 percent cut amounts to a larger portion of some universities' budgets. At the University of Wyoming and the University of Alaska-Fairbanks, where state funding provides more than 80 percent of operating revenue, tuition would need to jump 24 percent (\$942 per student) and 32 percent (\$1,051 per student) respectively in order to make up for the cut. Larger institutions like the University of Vermont and the University of Oregon, where state funding accounts for less than a quarter of the university's relevant revenue, would have to increase tuition only 1 percent to make up for the state cut. Across all the flagship institutions we examined, a 6 percent increase in tuition (\$553 per student) would be required to offset a 5 percent drop in state funding.

What about shifting the student balance to more out-of-state residents? Again, the magnitude of the change needed to close a gap in state funds depends on the university. Of the 40 universities we examined, 12 would need to shift 5 percent or more of their total undergraduate spots to nonresident students in order to close the gap in state funds.¹⁴

For the third strategy—that of expanding enrollment to close the budget gap—the implications again vary. If universities could indeed contain the marginal costs of serving additional students, 19 of 40 could close the revenue gap by increasing enrollment by 5 percent or less. For 8 of the universities, offsetting the gap in state funds would require enrollment growth of more than 10 percent—calling to question the viability of such a strategy for these universities, particularly given the assumption of negligible marginal costs with added enrollment.

¹² Tuition revenue per student is different from published tuition rates as the former captures actual revenue received by the university after scholarships, aid, etc. has been awarded. This simulation uses average current revenue, thereby assuming the university is continuing to enroll a roughly similar student population into the future as it currently enrolls, i.e., that rates of delivering aid, scholarships, and mix of in-state and out-of-state students grow proportionately with the tuition increases.

¹³ This analysis assumes few limits on the demand for higher education and the supply of resident and nonresident students. Here again, we assume that the mix of students remains constant, as do the actual per student revenues.

¹⁴ For our analysis, we applied the shift evenly to all cohorts of undergraduates, instead of only the entering cohort. If this were the case, it would be unlikely for a university to offset the state cut in a single year. Applying the strategy to only the entering cohort would necessitate an even larger shift, roughly 4.5 times the size.

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TABLE 1: THREE OPTIONS MODELED FOR EACH UNIVERSITY TO OFFSET A 5% REDUCTION IN STATE APPROPRIATIONS

	#1: Increase tuition	#2: More out-of-staters	#3: Expand enrollment
	Increase tuition for all undergrads by:	Number of in-state spots replaced with out-of-state: Change in percent of all undergrads	Expand enrollment by (assumes negligible marginal costs): Percent increase in undergrad enrollment
	Equivalent change in tuition revenue		
5% of state funds			
Auburn University	\$521	730	1,018
Indiana University-Bloomington	\$373	607	861
Louisiana State Univ. and A & M College	\$528	N/A*	1,871
Ohio State University-Main Campus	\$481	1,385	1,698
SUNY at Albany	\$683	1,077	1,795
The University of Alabama	\$262	517	754
The University of Montana	\$204	185	427
The University of Tennessee	\$1,068	1,345	2,774
The University of Texas at Austin	\$394	666	1,688
University of Alaska Fairbanks	\$942	690	2,037
University of Arizona	\$569	1,077	1,806
University of Arkansas	\$526	959	2,127
University of Connecticut	\$1,555	1,640	2,902
University of Florida	\$888	1,365	5,200
University of Georgia	\$727	1,081	2,340
University of Hawaii at Manoa	\$663	644	1,328
University of Illinois Urbana-Champaign	\$443	929	1,079
University of Iowa	\$533	663	1,105
University of Kansas	\$638	1,057	1,482
University of Kentucky	\$737	1,542	1,808
University of Maine	\$534	305	655
University of Maryland-College Park	\$759	1,172	2,037
University of Massachusetts Amherst	\$540	1,433	1,209
University of Michigan-Ann Arbor	\$581	629	839
University of Mississippi	\$230	392	492
University of Missouri-Columbia	\$439	892	1,562
University of Nebraska-Lincoln	\$627	987	1,889
University of Nevada-Las Vegas	\$383	624	1,504
University of New Hampshire-Main	\$259	245	316
University of North Carolina-Chapel Hill	\$1,411	1,312	2,614
University of North Dakota	\$384	457	596
University of Oregon	\$149	163	264
University of Rhode Island	\$218	176	248
University of South Carolina-Columbia	\$225	314	564
University of Utah	\$516	856	1,681
University of Vermont	\$194	113	121
University of Virginia-Main Campus	\$468	302	499
University of Washington-Seattle	\$492	849	1,080
University of Wisconsin Colleges	\$137	286	774
University of Wyoming	\$1,051	1,526	3,201
	\$32%	15%	32%
			58,245

*Tuition rates are already the same for residents and nonresidents

A focus on degrees

Only considering money saved, no one strategy stands out as a magic bullet. But how do these approaches each impact degree production, particularly for state residents? This too should be a crucial consideration for state leaders. As they articulate goals to grow their economies (which they hope will restore state revenues), evidence suggests that economic growth may be bolstered by granting more degrees to residents, not fewer.¹⁵ Strategies like raising tuition or shifting spots to more out-of-state students draw criticism from those who argue that public state universities have a responsibility to foster degree attainment among state residents, and both increasing tuition and setting aside seats for more out-of-state students conflict with that goal.¹⁶

We used current completion rates at each university (according to IPEDS) to project the impact of each strategy on resident enrollment and then on the production of degrees. Given the hypothetical 5 percent reduction in state funding, Table 2 demonstrates the annual impact on resident degree production for the flagship institutions in our sample.

Not surprisingly, raising tuition would have essentially no effect on resident degree attainment for residents, as flagships would likely continue to fill their spots (possibly with a higher-income student population), keeping graduation rates steady.

If institutions began to rely more heavily on out-of-state students, while overall degrees awarded would remain constant, the number of degrees awarded to a state's residents would fall. As Table 2 shows, for most institutions this would only amount to a change in a few hundred degrees per year. Over a decade, however, the figure gains significance: for each institution, a few thousand resident degrees hang in the balance.

Increasing enrollment, meanwhile—using the current mix of resident and nonresidents—would accelerate degree production for in-state students. In fact, growing enrollment as described here to offset a 5% reduction in state funds would yield more than 1,000 new diplomas for residents each year in 26 of the 40 institutions in our sample. All told, for this set of universities, the impact nationally would be to produce more than 10,000 new baccalaureate degrees annually or roughly 100,000 additional degrees in a decade (see Figure 1). Increasing degree production could accelerate a state's economy and restore state revenues, including to universities.

¹⁵ For a sampling, see: *The Road Ahead*, available at <http://www.doa.state.wi.us/documents/theroadahead.pdf>; or Anthony Carnevale, Nicole Smith, and Jeff Strohl, *Help Wanted: Projections of Jobs and Education Requirements Through 2018* (Washington, DC: Center on Education and the Workforce, Georgetown University, 2010).

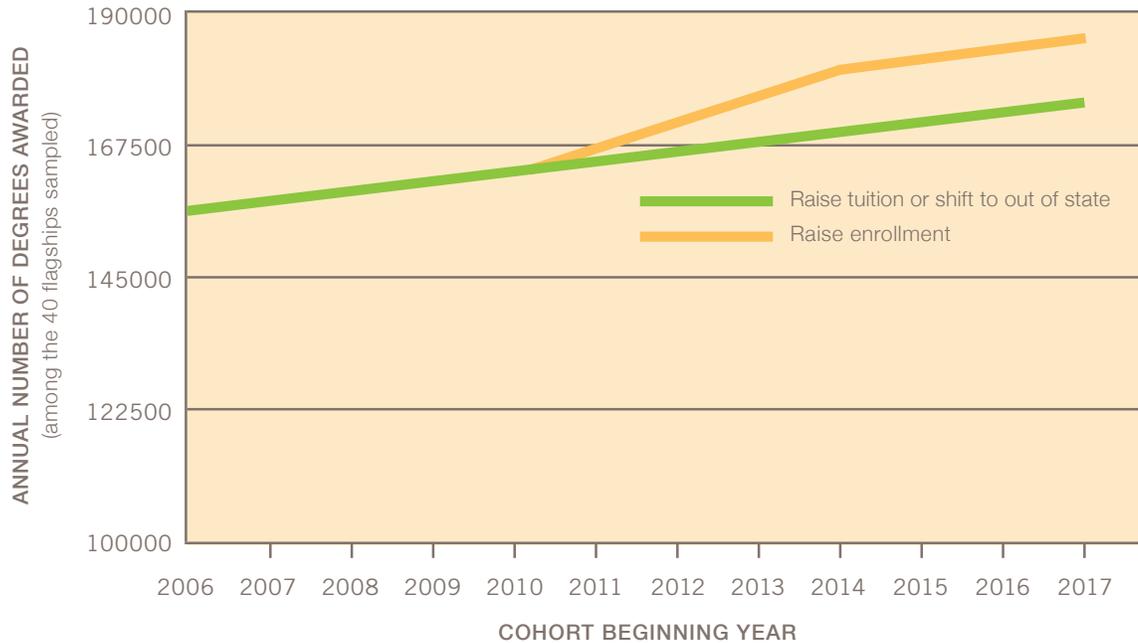
¹⁶ Some universities, such as the University of Michigan, University of Virginia, or the University of California campuses, are now debating whether they want to be public at all, given declining state support. Of course, this would naturally move focus away from degree production for their states' students.

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TABLE 2: CHANGE IN ANNUAL DEGREE ATTAINMENT FOR RESIDENTS

	#1: Increase tuition		#2: More out-of-staters		#3: Expand enrollment	
	Number	%	Number	%	Number	%
Auburn University	0	0%	-136	-4%	190	5%
Indiana University-Bloomington	0	0%	-122	-2%	173	3%
Louisiana State Univ. and A & M College	0	0%	N/A	N/A	318	8%
Ohio State University-Main Campus	0	0%	-250	-3%	306	4%
SUNY at Albany	0	0%	-224	-8%	374	14%
The University of Alabama	0	0%	-101	-2%	148	3%
The University of Montana	0	0%	-23	-1%	54	3%
The University of Tennessee	0	0%	-219	-6%	451	13%
The University of Texas at Austin	0	0%	-140	-2%	354	4%
The University of Alaska Fairbanks	0	0%	-74	-8%	219	24%
University of Arizona	0	0%	-198	-4%	333	6%
University of Arkansas	0	0%	-193	-5%	429	11%
University of Connecticut	0	0%	-323	-9%	571	16%
University of Florida	0	0%	-303	-4%	1153	16%
University of Georgia	0	0%	-232	-4%	501	9%
University of Hawaii at Manoa	0	0%	-98	-4%	203	9%
University of Illinois Urbana-Champaign	0	0%	-213	-3%	247	3%
University of Iowa	0	0%	-139	-3%	231	5%
University of Kansas	0	0%	-181	-5%	253	8%
University of Kentucky	0	0%	-255	-8%	298	9%
University of Maine	0	0%	-55	-3%	117	7%
University of Maryland-College Park	0	0%	-226	-4%	393	8%
University of Massachusetts Amherst	0	0%	-291	-7%	245	6%
University of Michigan-Ann Arbor	0	0%	-150	-2%	200	3%
University of Mississippi	0	0%	-82	-3%	103	3%
University of Missouri-Columbia	0	0%	-182	-3%	318	6%
University of Nebraska-Lincoln	0	0%	-173	-5%	330	10%
University of Nevada-Las Vegas	0	0%	-68	-3%	165	7%
University of New Hampshire-Main	0	0%	-53	-2%	68	3%
University of North Carolina-Chapel Hill	0	0%	-295	-7%	588	14%
University of North Dakota	0	0%	-78	-4%	102	5%
University of Oregon	0	0%	-34	-1%	55	1%
University of Rhode Island	0	0%	-30	-1%	42	2%
University of South Carolina-Columbia	0	0%	-66	-1%	119	3%
University of Utah	0	0%	-149	-4%	292	7%
University of Vermont	0	0%	-22	-1%	24	1%
University of Virginia-Main Campus	0	0%	-90	-2%	148	3%
University of Washington-Seattle	0	0%	-198	-3%	252	4%
University of Wisconsin Colleges	0	0%	*	*	*	*
University of Wyoming	0	0%	-241	-15%	505	32%
*Insufficient data	0	0%	0	0%	10872	0%

FIGURE 1: INCREASING ENROLLMENT CAN YIELD MORE DEGREES ANNUALLY OVER THE LONG TERM



Making room for students

State flagship universities are understandably wary about adding students. They are concerned about status, and about space. Policymakers might consider, however, the fact that increasing enrollment can serve two goals: mitigating budget cuts and increasing degree attainment.

As for space: There are many ways public universities can make room for new students, and which ones make sense will vary by institution. Students may experience larger classes and more crowded facilities.¹⁷ Faculty may have to shift their focus toward serving more undergraduates, and some high-cost, low-demand graduate programs may need to be pared back. In some cases, adding 30 students to a class that already has 300 students would hardly impact the learning experience. Adding more students to under-enrolled classes can also be done at little or no cost.

One strong possibility is exploring the potential to leverage technology for all or part of some courses' instructional delivery. Many college leaders and policymakers fear that online instruction cannot be quality instruction. The growing popularity of blended models show, though, that even in elite institutions students can be served well through such approaches.¹⁸ Making this work requires innovative thinking and a deft handling of campus politics—but should not be dismissed, as it offers a compelling way to increase enrollment without a proportional increase in spending.

¹⁷ Many students would likely choose to put up with such costs when faced with the alternative of attending a less prestigious institution.

¹⁸ Rubin, Beth (2013). "The Real trouble with online higher ed". Huffington Post. http://www.huffingtonpost.com/beth-rubin/online-classes-higher-education_b_2616446.html

Selectivity factors into college rankings, of course, and admitting up to 5 percent more students affects that data somewhat. But at most flagship universities, students who would otherwise be just below the acceptance threshold typically have qualifications that are scarcely different from the students in the lower end of the admitted pool. We know that students who attend the most selective colleges they get into can increase their chances of graduation—and for the most part, selective flagship institutions have the highest graduation rates among the public universities in their states—so these students would likely have a better chance of getting a degree than if they had attended the less selective school they would otherwise have gone to.¹⁹

Navigating for the long haul

The current budget circumstances are a challenge for universities. For most, the response will likely be a combination of strategies, including rethinking cost structures, considering new delivery models, and some mix of strategies to bolster revenues. As the analysis here suggests, decisions made by public universities can have implications for degree production over the long term. Shifting spots to out-of-state students may appear to be an expedient response in the short run, but when that shift lowers the number of degrees produced among residents, the strategy could put a damper on a state's efforts to build its economy by developing its workforce. Many may assume they have no choice but to raise tuition, but doing so will undoubtedly put higher education out of reach for some demographic groups and may be unsustainable over the long term.

The findings here are qualified, of course. We acknowledge that institutional budgets are more complicated than tuition plus state support. Given existing data, it is almost impossible to know the actual capacity of institutions and to what degree they can actually accommodate more students. Practically speaking, for most institutions, growth would almost certainly correspond with some additional costs. And of course any moves to accommodate more students, such as growing use of online instruction, come with political challenges. The trick for universities would be to keep marginal costs below average tuition levels. For many universities, a more practical solution will likely be an increase in tuition and an increase in enrollment.

Despite these limitations, institutions should still take these strategies seriously. It is likely that the current fiscal conditions will persist well into the future and state revenues will continue to be strained. Given competing demands on state budgets, and with higher education being one of the largest discretionary items, postsecondary institutions will probably need to find new ways to fund their operations. Admitting more students can help state policymakers close these budget gaps, while serving an even more important goal: turning their residents into successful graduates.

¹⁹ William Bowen, Matthew M. Chingos, and Michael S. McPherson, *Crossing the Finish Line: Completing College at America's Public Universities* (Princeton, N.J.: Princeton University Press, 2009).



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