College Spending in a Turbulent Decade: Findings From the Delta Cost Project

A Delta Data Update
2000–2010
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Two years after the onset of the Great Recession, nonprofit colleges and universities found themselves struggling with their finances. Average per-student spending on academics declined in fiscal year (FY) 2010, and despite per-student spending cuts to prerecession levels at four-year institutions, students shouldered a larger share of the cost this time around. Even in private nonprofit colleges, average educational spending per student declined for the first time in a decade. However, it is higher education’s most accessible institutions—community colleges—that took the greatest financial hit in 2010. As funding failed to keep pace with historic increases in enrollment, educational spending per student plummeted to its lowest level in a decade.

These are some of the key findings in this annual update to the Delta Cost Project’s Trends in College Spending report series—a series of data briefs highlighting patterns and trends in institutional revenues, spending, subsidies, and outcomes for public and private nonprofit colleges and universities between 2000 and 2010, with particular attention given to changes between 2009 and 2010. Across higher education, 2010 was indeed a difficult year, with effects of the recent recession widely apparent. Huge enrollment increases took a toll on institutional resources, and even when aggregate revenues and spending increased, colleges and universities often found themselves serving more students with less. The findings show that:

- **Community colleges suffered the greatest financial hardships in 2010.** Historic enrollment increases, combined with sharp losses in per-student revenues from state appropriations and meager increases in net tuition revenue, resulted in significant cuts to academic spending per full-time equivalent (FTE) student. Community colleges concluded the decade spending less per student than they had ten years earlier.

- **All types of institutions spent less on the academic mission in 2010, but cuts in public four-year institutions appeared more strategic than those in the private nonprofit sector.** Education and related spending declined, on average, across all types of public and private institutions from 2009 to 2010. But public four-year institutions were largely able to preserve spending on instruction and student services, while private institutions implemented widespread cuts.

- **Historic declines in state and local funding per FTE student could not be recouped by increases in net tuition.** Public funding per student for higher education reached a decade-long low in 2010. Sharp increases in net tuition revenues were not enough to offset these losses, and for the first time, public research and master’s institutions generated more revenue from net tuition than from state and local appropriations.

- **Private institutions constrained education spending for the first time in a decade, even as their revenues continued to increase.** Despite a strong rebound from sharp investment portfolio losses in 2009, all types of private nonprofit institutions spent less on average education and related expenditures in 2010. Even well-funded private research universities, which historically have remained insulated from the economic realities affecting other institutions, were not immune from cutbacks in 2010.

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1 All years represent fiscal years (e.g., 2010 refers to FY 2010, or alternately, to academic year 2009–10).
2 The Delta Cost Project at AIR recently produced a series of data briefs to update the key tables and figures in the Trends in College Spending report series. These Delta Data Updates, 2000–2010, are available at http://www.deltacostproject.org/analyses/delta_reports.asp
3 The data in this report were drawn from IPEDS Analytics: Delta Cost Project Database 1987–2010, recently released by the U.S. Department of Education, National Center for Education Statistics. All of the Delta financial measures are shown in 2010 constant dollars (using the Consumer Price Index for All Urban Consumers [CPI–U], fiscal year index) and adjusted to reflect changes in enrollments by dividing per full-time equivalent (FTE) student enrollment.
• **Institutional subsidies reached a decade-long low across most types of institutions, as students covered a larger portion of educational costs.** Students at public four-year institutions paid roughly half toward the full cost of education. At private institutions, the student share of costs jumped sharply, in contrast to smaller annual increases across most of the decade.

• **Colleges and universities did not increase degree productivity—nor degree production costs—in 2010.** Though degree productivity was flat or declining in 2010, it has improved since the beginning of the decade at four-year institutions; but so has the cost per degree.

### Enrollments

Enrollments were woven into much of the back story of higher education finance in 2010. As often occurs in economic downturns, postsecondary enrollments swelled as traditional college-age students and experienced workers facing a difficult labor market turned to colleges and universities to improve their skills and earn new credentials.

**Postsecondary enrollments increased substantially in 2010, often at rates not seen in the previous ten years.** Although FTE enrollments increased much faster than average at most types of public and private four-year institutions (2.5 percent to 3.5 percent), the majority of new students selected colleges offering easy access and affordability. Public bachelor’s institutions grew twice as fast as other four-year institutions. Because of their small market share, however, they enrolled far fewer new students.

Community colleges, with their open admission policies and abundance of short-term certificate programs, accommodated the most new students in higher education, adding 450,000 new FTE students in 2010. Single-year FTE enrollments rose an average of 12 percent, which is nearly twice the rate observed for community colleges in any other year during the previous decade. Only two- and four-year for-profit institutions grew faster than did community colleges (26 percent), but they added fewer new students.

### Revenues: Where Does the Money Come From?

Top-line revenues often obscure what is actually going on within institutions. Colleges and universities are multi-function enterprises that draw in revenues from various sources (such as tuition, grants, contracts, and auxiliary services like bookstores and dining halls). Many of these revenues, however, are earmarked for purposes other than academics.

**Funding for the academic mission of colleges and universities declined at public four-year institutions in 2010, even though total revenues were steady or rising.** At public institutions, most funding for academics comes from tuition and state and local appropriations. Combined revenue from these two sources declined in 2010 by an average of 2 percent to 5 percent at public four-year institutions compared to a year earlier. Meanwhile, revenues from other university functions (including contracts and grants and auxiliary enterprises) increased, which boosted the bottom line even though these funds are typically unavailable for general instruction.
Public institutions faced historic declines in state and local appropriations per student in 2010. For the second consecutive year, public colleges and universities were operating with less state money when measured on a per-student basis. But the cuts in FY 2010 were much larger than in other years during the decade, averaging single-year declines of 9 percent to 13 percent at public four-year institutions and 15 percent at public community colleges. These declines, which averaged between $600 and $1,000 per student, resulted in the lowest per-student state and local funding in the decade across all types of public institutions (see Figure 1).

Figure 1

Tuition revenues surpassed state and local appropriations in public research and master's institutions.
Net tuition revenues and state and local appropriations revenues per FTE student, AY 2000-2010 (in 2010 dollars)


For the first time in higher education, net tuition brought in more revenue than did state and local appropriations at the average public research and master's institutions. In response to declining state and local appropriations, net tuition revenue per student rose sharply at public four-year institutions in 2010 (5 percent to 7 percent, on average), roughly double the increases in many recent years. Nevertheless, net tuition rose more slowly in 2010 than it did following the 2001 recession, and it did not increase enough to offset losses in state and local appropriations.

Funding from state and local appropriations is cyclical, but the overall trend presses downward. Just a decade ago, public funds for higher education exceeded tuition revenues from students by roughly $3,000 to $5,000 per student; but by 2010, the gap between state appropriations and tuition had shrunk to roughly $500 per student in public four-year institutions.

Funding for community colleges continued to fall further behind other public institutions. Top-line revenues were unable to disguise the long-standing financial difficulties faced by community colleges. They were the only public institutions at which average total operating revenues per FTE student declined in 2010 and also were lower than a decade earlier. Community colleges suffered the deepest cuts in state and local appropriations per student in 2010, with funding reduced by approximately $1,000 per student; however, they also limited the new money coming from net tuition revenue more than did other types of public institutions.
Efforts to keep community colleges accessible and affordable while accommodating more than 40 percent of new higher education students—often the most economically or academically disadvantaged—have significantly eroded the resources they have to devote to each student.

**Private nonprofit colleges and universities regained their footing in 2010 as financial markets recovered and their investment returns once again turned positive.** Private nonprofit institutions recovered from a difficult year in 2009, as the average investment portfolio made a significant turnaround and contributed to large increases in total operating revenues for 2010. However, these gains may not have fully erased prior losses⁴, which may have had implications for spending. Nevertheless, much of the fluctuation in portfolio income represented “paper” gains and losses, and the impact on annual operating budgets was probably smaller than it appeared.

Excluding these volatile investment returns, operating revenues at private nonprofit institutions grew between 1 percent and 2 percent in 2010, which is generally consistent with past increases. Private master’s and bachelor’s institutions received much of their new revenue from increases in net tuition, while private research institutions instead relied upon grants, contracts, and revenue from auxiliary enterprises and other sources.

### Spending: Where Does the Money Go?

Educating students is the common thread that weaves across all colleges and universities, but it takes more than just faculty to run institutions. Student services (such as admissions, registrar services, and student counseling) are often key to a successful college experience. And other support functions (including academic and institutional support⁵ and operations and maintenance) contribute indirectly by providing an infrastructure that supports learning. Institutions may also engage in sponsored research and public service activities or in hosted auxiliary operations, such as food service, book stores, and sometimes even hospitals.

By isolating spending related to higher education’s academic mission, it is easier to make reasonable comparisons across institutions. Education and related spending (E&R) is the common metric used to measure the full “production cost” of education, capturing only spending related to academics.⁶ Total spending includes all university functions, while education and general spending (E&G) includes all spending except that for auxiliaries, hospitals, and other independent operations.

**All types of institutions cut average spending on the academic mission in 2010.** The 2010 E&R spending declines were the first cuts that public four-year institutions experienced since the 2008 recession began. E&R spending per FTE student declined by an average of 1 percent to 2 percent across public and private four-year institutions in 2010, bringing spending back to roughly 2007 and 2008 levels. It is not unusual to observe a delayed financial impact from an economic downturn, which could persist for several years; similar patterns of reduced spending were evident after the 2001 recession.

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⁵ Academic support includes activities such as libraries, academic computing, museums, and central academic administration (e.g., deans’ offices). Institutional support includes general administrative services, executive management, legal and fiscal operations, etc.

⁶ E&R includes spending on instruction, student services, and a prorated share of spending on academic and institutional support and operations and maintenance. Departmental research is included in spending on instruction; sponsored research, which generally includes research centers and projects funded though outside grants and contracts, is excluded.
Community colleges experienced per-student cuts for the second consecutive year, though the 8 percent decline in 2010 was far more severe than the reduction of the year before (2 percent). These cuts brought average community college E&R spending to its lowest point in a decade.

Private nonprofit institutions also cut spending in 2010, which was unprecedented over the previous decade. But these cuts were also unexpected because private nonprofit institutions’ revenues continued to increase in 2010. The pull-back in spending was perhaps related to broader concerns about the economy or to the significant hit these institutions’ investment portfolios took in the prior year.

**Spending cuts at public four-year institutions appeared more strategic than were the widespread cuts implemented at private institutions.** Facing budgetary pressures in 2010, public four-year institutions typically preserved spending on those functions directly related to students’ education—including instruction, student services, and academic support—while cutting spending in other “overhead” functions, such as operations and maintenance and institutional support (see Figure 2). However, the severe funding deficits faced by community colleges contributed to widespread cuts across all categories of institutional spending.

Private institutions were less strategic than were their public sector counterparts and largely cut spending across the board—despite increased revenues. The academic mission was not protected, with spending on instruction cut by 1 percent to 2 percent and with spending on student services holding steady or declining. Sponsored research, which is typically financed through external grants and contracts, was spared cuts.

**For most of the decade, the portion of educational spending devoted to instruction declined; but it increased at public institutions in 2010.** Even though public and private four-year institutions have, on average, made new investments in instruction, student services, and overhead since the beginning of the decade, the relative weight of these investments has gradually shifted. Over most of the decade, the instruction share of E&R spending declined, on average, across institutions. Private institutions typically offset this decline with investments in student services, while public institutions offset reduced educational spending on instruction with related spending increases for student services and overhead (public bachelor’s and community colleges shifted more to overhead; research and master’s institutions favored student services).

With widespread declines in E&R in 2010—particularly in terms of support functions—institutions devoted a larger share of spending to both instruction and students services, rather than to overhead functions. Public institutions favored instruction over student services, while private nonprofit institutions continued to shift a large share of spending to student services.

**Total expenditures increased at public four-year institutions, boosted in part by spending on research and auxiliaries; but total spending declined at private nonprofit institutions.** Again, top-line spending trends can sometimes be deceptive. Although E&R spending declined across higher education, at public four-year institutions broader measures of spending (total operating costs and E&G) held steady or rose in 2010. Spending on research and/or auxiliaries seems to account for the boost. Spending on the public service mission has continued to sustain a decade-long decline across all types of institutions except research universities. At private institutions, spending was lower in 2010 regardless of the granularity at which it was observed.
Only community colleges spent less per student at the end of the decade on nearly all spending measures. Most types of institutions spent more on E&R, E&G, and total operating expenses in 2010 compared to five years before, when institutions were still recovering from the fallout of the 2001 recession. Community colleges, however, were the only group of institutions spending less per student, on average, on each of these aggregate spending measures by the end of the decade. Community colleges also spent less in nearly all standard expenditure categories compared to 2000.

Figure 2.
Spending per FTE student by standard expense categories, AY 2000–2010 (in 2010 dollars)

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<th>Public</th>
<th>Private</th>
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<td>Education and related</td>
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|                        | Public                      | Private                      |
|                        | Research | Master’s | Bachelor’s | Community College | Research | Master’s | Bachelor’s |
| 2009–2010 Percent Change |          |          |           |                  |          |          |           |
| Instruction            | 0.6%     | 0.2%     | 1.7%      | -6.9%           | -1.9%    | -0.9%    | -2.0%     |
| Research               | 4.7%     | 3.2%     | 18.7%     | -13.8%          | 0.4%     | 2.0%     | 3.2%      |
| Student services       | 1.2%     | 1.4%     | 2.5%      | -6.7%           | 0.3%     | 0.5%     | -1.9%     |
| Public service         | 2.9%     | -2.3%    | -2.1%     | -7.5%           | -2.4%    | -4.6%    | -2.2%     |
| Academic support       | 2.5%     | -1.0%    | 2.5%      | -8.0%           | -2.3%    | -1.5%    | -2.1%     |
| Institutional support  | -0.4%    | -0.3%    | -2.1%     | -9.3%           | -3.5%    | -2.7%    | -3.6%     |
| Operation and maintenance | -16.3%  | -18.0%   | -20.5%    | -15.4%          | -6.8%    | -4.1%    | -7.7%     |
| Education and related  | -1.0%    | -2.0%    | -1.9%     | -8.3%           | -2.4%    | -0.7%    | -2.3%     |

|                        | Public                      | Private                      |
|                        | Research | Master’s | Bachelor’s | Community College | Research | Master’s | Bachelor’s |
| 2000–2010 Percent Change |          |          |           |                  |          |          |           |
| Instruction            | 8.4%     | 4.7%     | 8.4%      | -10.7%          | 19.9%    | 9.8%     | 10.8%     |
| Research               | 20.4%    | 9.7%     | 35.9%     | 9.7%            | 26.7%    | -21.1%   | 9.8%      |
| Student services       | 16.9%    | 14.3%    | 5.1%      | -4.9%           | 34.1%    | 24.5%    | 27.1%     |
| Public service         | 9.9%     | -1.0%    | -31.7%    | -22.7%          | 9.2%     | -22.1%   | -5.7%     |
| Academic support       | 12.1%    | 2.5%     | -0.1%     | -13.6%          | 29.1%    | 12.3%    | 13.9%     |
| Institutional support  | 12.1%    | 2.2%     | 4.3%      | -8.2%           | 21.5%    | 12.1%    | 4.1%      |
| Operation and maintenance | -0.5%   | -2.2%    | -1.3%     | -7.9%           | 35.7%    | 5.5%     | 9.2%      |
| Education and related  | 8.1%     | 4.4%     | 6.4%      | -9.4%           | 22.3%    | 12.7%    | 11.5%     |

Higher Education Subsidies

The full production cost of providing an education is typically a shared expense, funded partly through student tuitions and partly from institutional subsidies. At public institutions, these subsidies come from state and local appropriations; at private institutions, they come from other institutional resources, such as gifts, grants, and endowments.

Students across higher education continued to pay a larger share of the full cost of education in 2010, with private institutions showing the largest subsidy shift in a decade. Students have traditionally paid a majority of the full educational costs at private colleges and universities. But as a consequence of rising tuition revenues and declining E&R, the average net tuition share of costs jumped significantly at those institutions in 2010 (by 2–3 percentage points; see Figure 3), far exceeding increases in most of the previous ten years (except 2004). Though increases were even larger at public institutions, both in dollars and proportion (averaging 3–4 percentage points), the increases were generally smaller than those seen following the 2001 recession.

In just a decade, the share of educational costs paid by students at public institutions has increased sharply. At public four-year institutions, students paid roughly half of the full E&R cost in 2010, a 15–18 percentage point increase since 2000; students at community colleges faced smaller proportional increases over the decade, paying a little more than one third of the full E&R cost in 2010. Private school students inched close to “full pay,” with net tuitions averaging 70 percent to 90 percent of education costs. But with less room for cost shifting, the net tuition share of cost increased by only 4–8 percentage points over the decade.

Average subsidies declined across all types of institutions in 2010, and for the most part revealed the largest average cuts in a decade. With E&R declining and net tuition increasing across higher education, declines in average subsidies were also widespread in 2010. Average subsidies were cut by $500 to $700 in public four-year institutions (7 percent to 10 percent) and by nearly $1,000 in community colleges (14 percent). While all the cuts were large compared to other years, the declines in community college subsidies were significantly larger than at any other point in the decade. Subsidies also declined at private institutions (by 7 percent to 19 percent), and private research institutions posted their first meaningful cuts in the decade; they also averaged the largest dollar declines in higher education ($1,000).

At both public and private institutions, net tuition increases in 2010 were entirely the result of cost shifting to replace institutional subsidies. As in 2009, increases in net tuition revenue largely offset declines in institutional subsidies. But it appears that even these new tuition revenues were not enough to offset other revenue declines, so E&R costs were cut in 2010. Though cost shifting has been prevalent in recent years, this is the first time in recent years that students at four-year institutions have borne the full impact of cost shifting (e.g. paying more even though spending was cut), and it is also the first instance of cost shifting at private research institutions.
Figure 3
Tuition revenues continued to shoulder a larger share of costs.
Net tuition and subsidy shares of education and related costs, AY 2000–2010 (in 2010 dollars)

Spending and Results
Performance in higher education can be evaluated using different degree-related outcome measures. Degree productivity, measured as the number of degrees awarded per 100 FTE students, shows changes in degrees and certificates in the context of changes in enrollment. And the cost per degree/completion measures E&R costs against outcomes, rather than enrollments.

More degrees were granted across all types of institutions in 2010, but degree productivity was flat or declining. Average degree productivity did not improve in either the public or private sectors in 2010. Public bachelor’s and community colleges had the largest declines, producing one less degree per 100 FTE students that the year before. With certificates included, community colleges were down almost two completions per 100 FTE. But it was rapidly rising enrollments that dampened the degree productivity
ratios. There was a robust increase in the overall number of degrees awarded, which grew by more than 3 percent in public four-year colleges and universities and 8 percent in community colleges, which are among the highest growth rates in the latter half of the decade.

Over the course of the decade, average degree productivity improved at most types of institutions (except at public and private bachelor’s colleges). In community colleges, the boost came solely from increases in certificates. At the end of the decade, private research and master’s institutions posted the highest degree productivity among all types of institutions.

Cost per degree/completion declined in 2010 at most types of institutions, but was still higher than 5 and 10 years ago. Declines in E&R, coupled with increases in the numbers of degrees and certificates, translated into 1 percent to 2 percent declines in the cost per completion at most types of public and private four-year institutions (see Figure 4). Declines in community colleges were twice as large, continuing a decade-long slide in the cost per completion. Community colleges are the only group of institutions in which the cost per completion was lower in 2010 than at the beginning of the decade, a phenomenon resulting from the growth in less costly and shorter-term certificate programs. The greatest cost increases over the decade were in private research and master’s institutions.

Figure 4
Costs per total number of degrees and completions declined in 2010 across most types of institutions, but only community colleges consistently decreased costs over the decade.
Average education and related spending per total number of degrees and completions awarded, AY 2000–2010 (in 2010 dollars)

Looking Ahead

Though it is difficult to predict the future—or the present, as it may be—because of inherent lags in data collection and reporting, the prevailing view is that the Great Recession has ushered in a new era in higher education finance. Public support for higher education may not return to previous levels as states continue to face financial difficulties and other competing budgetary commitments. But at the same time, strained financial resources have a way of shining the spotlight on spending priorities and may encourage colleges and universities to further organize their resources in ways that support better outcomes for students.

There is no other comprehensive data source that can provide more timely information on higher education spending than the Delta Cost Project Database. However, more recent information on enrollment, tuition prices, revenues, and degree production from other sources hint at what college and university spending may look like in FY 2011.

The wave of new college students that arrived on college campuses at the end of the decade appeared to have receded in 2011, with enrollment growth returning to normal levels. Growth also slowed at for-profit institutions, though these providers will probably continue to change the landscape of higher education as busy students are drawn to their convenient and non-traditional settings—whether they are easy-access office buildings or online courses that transcend time and location. Many traditional brick-and-mortar institutions are also adopting these changes as they strive to offer more flexible programs, courses, and instructional methods.

One steady trend in higher education is that college prices continue to go up: average tuition and fee increases for 2011 mirrored those in recent years. These price increases were consistent with new revenue data showing that net tuition revenues per FTE student grew at similar rates in both 2010 and 2011. At the same time, public support for higher education appeared to continue its decline, though educational appropriations per FTE decreased only half as fast in 2011 as during the previous two years, perhaps reflecting the slowdown in new student enrollments.

Taken together, these data suggest that funding for the academic mission at public institutions may have had a soft landing in 2011. Despite differences in the data sources, the historical patterns are durable; current trends from these other sources show little change in total education revenues between 2010 and 2011, with increases in student revenue fully offsetting declines in public funding. Nevertheless, we expect to see that students continued to pay for more of their educational costs.

Private institutions may have seen a brighter 2011 as financial returns on endowment portfolios continued to rise in FY 2011 at nearly double the rate of 2010. The average three-year return on investments turned positive again; however, it was still below the average spending rates of educational institutions, suggesting that damage from the downturn had not yet been fully restored.

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8 Snyder and Dillow, 2012 (Table 349).
10 SHEEO, 2012.
Despite financial difficulties at the end of the decade, the corresponding increase in enrollments added many new college graduates. The number of degrees granted at public institutions climbed sharply in 2011, exceeding the already strong growth exhibited in 2010.\textsuperscript{12}

It is perhaps best to look ahead with cautious optimism. The current outlook may not be rosy, but financial stabilization will provide a more solid footing upon which higher education can move forward. Still unclear is whether all institutions will fare equally, or if community colleges will remain at the bottom of this financial roller coaster. And we have yet to see how colleges and universities may further adjust their spending patterns to adapt to this financial reality that is likely here to stay for awhile.

About the Delta Cost Project
The Delta Cost Project at American Institutes for Research provides data and tools to help higher education administrators and policymakers improve college affordability by controlling institutional costs and increasing productivity. The work is animated by the belief that college costs can be contained without sacrificing access or educational quality through better use of data to inform strategic decision making. For more information about the Delta Cost Project, visit www.deltacostproject.org.

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