Trends in College Spending

1998-2008

Where does the money come from?
Where does it go?
What does it buy?

A report of the Delta Cost Project

Supported by Lumina Foundation for Education

Trends in College Spending

1998–2008

Where does the money come from?

Where does it go?

What does it buy?

Donna M. Desrochers
Colleen M. Lenihan
Jane V. Wellman

A report of the Delta Cost Project

Supported by Lumina Foundation for Education

Acknowledgments

The authors wish to acknowledge the support of the many colleagues who contributed to this work, beginning with the leadership from the Delta Cost Project's Board of Directors, Robert Atwell, Kati Haycock, and Richard Legon; the tireless work of Deborah Friedman, our Director of Administration; and the wise counsel from the members of the project Advisory Committee—Alisa Cunningham, Vice President of the Institute for Higher Education Policy; Sandra Baum, Consultant to the College Board; Patrick Kelly, Senior Associate with the National Center for Higher Education Management Systems; Kenneth Redd, Director of Research for the National Association of College and University Business Officers, and David Wright, Associate Executive Director of Policy, Planning and Research with the Tennessee Higher Education Commission. Thanks also go to our colleagues Steve Hurlburt and Rita Kirshstein at the American Institutes for Research, to Craig Bowen, Michelle Coon, and Samuel Barbett from the National Center for Education Statistics' IPEDS team, to Brian Zucker of Human Capital Research Corporation, and to Jim Brown and the team at Xcalibur. And a special vote of appreciation goes to Betsy Rubinstein of InForm Communications, and to the staff at CommWorks. Errors, omissions, and misinterpretations are the responsibility of the authors only.

For additional copies of this report:

Email inquiries to: admin@deltacostproject.org

Or write: Publications
Delta Cost Project
1250 H Street, NW, Suite 700
Washington, DC 20005

PDF copies, including additional data not available in the print version, are available online at no charge: www.deltacostproject.org.

Contents

List of figures

Data appendix:

Introduction: History and the "new normal"

Trends in college spending

Where does the money come from? Where does it go? What does it buy?

Trends in College Spending, 1998–2008: Where does the money come from? Where does it go? What does it buy? is the third in a series of reports on college and university spending from the Delta Cost Project. The findings presented in this report concentrate on the 1998 to 2008 time period—the last academic year for which spending data are available, and what in retrospect may turn out to be a high point in funding for higher education.

The Great Recession that began in the middle of the 2008 academic year falls outside of the time period covered in this report. We know that funding has fallen since then, leading to budget cuts that are reported to be heaviest in the public sector and in those private institutions that had come to be dependent on investment earnings for operating funds. Unlike earlier recessions, when revenues were expected to rebound within a few years, the consensus now is that the "new normal" means that higher education has seen a permanent reduction of roughly 10 percent of its revenue base—more in some areas of the country, less in others—money that won't be coming back, and can't realistically be made up in tuition increases.

Can cost data that are now two years old shed any light on the decisions that must be made now? We think so: the patterns of higher education finance are quite durable, and there is much to be learned from data that are contextualized through comparative and historic analyses. Looking backwards, we can see that the fault lines so amply revealed by the Great Recession had been building for some time:

- Sharp increases in spending in the first part of the decade among a handful of private institutions, fueled by unprecedented growth in investment revenues;
- Cyclical funding of state and local appropriations for public institutions: up in good times, down in bad, with spending cuts following recessions falling heaviest on the instructional function;
- No evidence of permanent cost restructuring in either public or private institutions, instead a pattern of cost shifting to student tuition revenues in times of economic downturn;
- Growing stratification of wealth separating public and private institutions, with the institutions serving the majority of students having the least to invest in their success; and

About the Delta Cost Project IPEDS database

The data in this report were drawn from the Delta Cost Project IPEDS database, which was developed using publicly available data reported to the federal government through annual IPEDS (Integrated Postsecondary Education Data System) surveys on higher education finance, enrollments, completions, and student aid. Adjustments were made to harmonize and standardize the data as much as possible to account for changes over time in accounting standards and IPEDS reporting formats. These adjustments ensure reasonable consistency in the patterns over time and allow broad comparisons between public and private institutions. The data are standardized by FTE enrollments and adjusted for inflation to further facilitate these comparisons.

All of the fiscal trends presented in this report were produced using a consistent panel (or "matched set") of institutions. This ensures that variations in spending across time are not explained by differences in the number of institutions reporting data. More than 2,000 institutions are included in the 11-year matched set (1998–2008) used in this report, which collectively accounts for about 90 percent of two- and four-year institutions in the public and private, nonprofit sectors. The data are organized into "Carnegie 2005" classifications to distinguish between research, comprehensive or master's institutions, community colleges, and baccalaureate institutions, and also between the public and private, nonprofit sectors. The institutions are classified as follows:

1) public research—152 institutions
2) public master's—231 institutions
3) public community colleges (associate's)—785 institutions
4) private research—100 institutions
5) private master's—317 institutions
6) private bachelor's—471 institutions

For ease of data presentation, private nonprofit two-year colleges, public bachelor's, as well as tribal and specialty schools are excluded since fewer students are enrolled in these institution sectors.

The classification presented is the best way to organize the data for national reports such as this, although it may not translate well to the governing structures used in many public institutions. Institution-level data available in our web-based data system "Trends in College Spending Online" (www.tcs-online.org) can be aggregated to the state level.

As in most cost studies, this report focuses only on operating budgets and excludes spending on building or capital improvement projects. Financial data for the for-profit

private sector are also not included in this report because their data are not consistently reported. Improving the quality and reliability of public data about revenues and spending for this important and growing sector should be a priority for future federal attention to improvements in the IPEDS financial files.

- A continuous shift to ever-higher student tuitions, which is the one constant across all of postsecondary education.

The data in this report also help to remind us that the funding cuts that came in 2009 and 2010 occurred on a base that, in many institutions, were at historic highs. As we collectively try to find our way to the "new normal," we need to recognize that a return to the pre-recession levels of spending is neither realistic, nor for the most part necessary to ensure adequate funding. The question ahead is how to best allocate available resources to accomplish public goals for higher education. That will require more attention from policy makers and institutional leaders to spending, and to the regular use of data to guide decisions about where funds are spent. We hope the metrics presented in this report are useful tools to help support this necessary new focus.

The Delta metrics

Most financial reports in higher education present either balance sheets (year-end revenues against expenses), or budgets (projected spending), neither of which tells us much about where the money comes from, where it goes, and what it buys. For policy makers—be they board members or state legislators—these fiscal presentations offer no help in putting information into context, to enable them to get some sense of proportionality and ask the critical questions about funding adequacy and efficiency. *How* the money is spent is something that remains shrouded in too much mystery. What the public and most policy makers *can* see is that, whatever else happens, college tuitions continue to go up—at a rate faster than inflation and family incomes—with no discernible pay-off in quality, opportunity, or results *(see Figure 1, next page)*. And as a result, public skepticism about higher education spending—and the values that are implicit in institutional decisions about spending—is at an all-time high.[1]

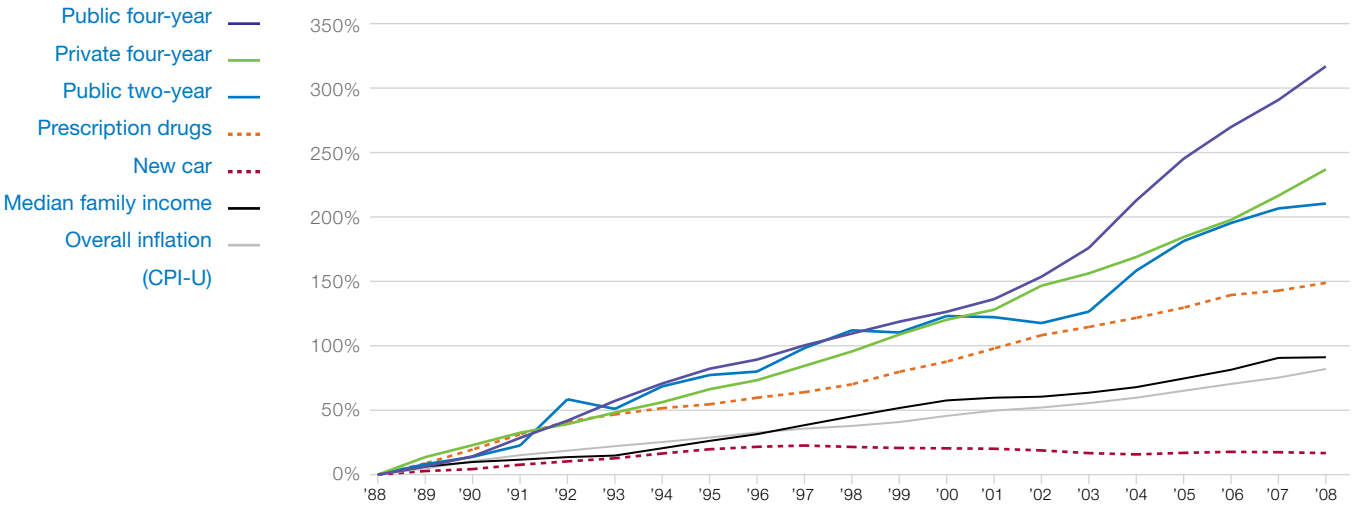
Improving cost accountability in higher education lies, in part, in the metrics of cost analysis, and organizing information to shine a light on where the money comes from, where it goes, and what it buys. To advance the discussion, the Delta Project has organized data already in

[1] Immerwahr, John, Jean Johnson, Amber Ott, and Jonathan Rochkind. 2010. *Public Agenda, Squeeze Play 2010: Continued Public Anxiety on Costs, Harsher Judgments on How Colleges Are Run.* National Center for Public Policy and Higher Education and Public Agenda. Available at www.publicagenda.org/pages/squeeze-play-2010.

Figure 1

College tuitions continue to rise—at a rate faster than inflation and family incomes

Cumulative change in the price of college, 1988–2008 (current dollar change)



Sources: College Board, *Trends in College Pricing,* 2009. Available at www.trends-collegeboard.com/college_pricing/ (Table 4a); U.S. Bureau of the Census, *Census Historical Income Tables, Families.* Available at www.census.gov/hhes/www/income/histinc/incfamdet.html (Table F-6, All Races); U.S. Bureau of Labor Statistics, Consumer Price Index Databases. Available at www.bls.gov/cpi/.

the public domain, through the federal IPEDS program, into the aggregate measures presented in this report. All of the metrics are designed to put financial figures into context by adjusting them for student enrollment and for inflation.[2] These metrics can be applied to individual institutions or aggregated into sector-level measures at both the national and state levels, allowing policy makers to compare institutions or state systems around the country, and to look within state systems to see how institutions compare against one another.[3]

The metrics include:

Revenues

1. Revenues by source
2. Net tuition compared against state and local appropriations
3. Sticker price, gross tuition, net tuition differences

[2] Enrollments are adjusted per full-time-equivalent (FTE) student enrolled, and inflation using the Consumer Price Index (CPI-U). Analysts preferring to use a different inflation adjustor, either the Higher Education Price Index (HEPI) or the Higher Education Cost Adjustment (HECA), may find this option at www.tcs-online.org.

[3] Data for individual institutions and the national-level data described in this report are available at www.tcs-online.org; state data are available at www.deltacostproject.org/data/state.

Spending

4. Spending by standard expense categories
5. Total spending by aggregated expense categories, including education and related (E&R) expenditures and education and general (E&G) expenditures
6. The proportion of education and related spending going to pay for instruction and student services

Spending, subsidies, and tuitions

7. Subsidy share versus student share of education and related costs
8. Tuition increases compared against spending and subsidy shifts

Spending and results

9. Total degrees and completions relative to enrollments
10. Education and related spending per graduate or other completers

Spending and equity

11. Spending compared against enrollment

Enrollments: Where do students attend?

Enrollment patterns provide important context for the revenue and spending trends described throughout this report because they underlie the standardized financial data that are presented later.

1998–2008 enrollment patterns

Enrollment in U.S. postsecondary institutions totaled almost 18.6 million students in the 2008 academic year, a nearly 26 percent increase over the ten-year period beginning in 1998. While enrollment growth was somewhat faster in the first half of the decade, close to a half a million more students enrolled in the 2007–2008 year alone.

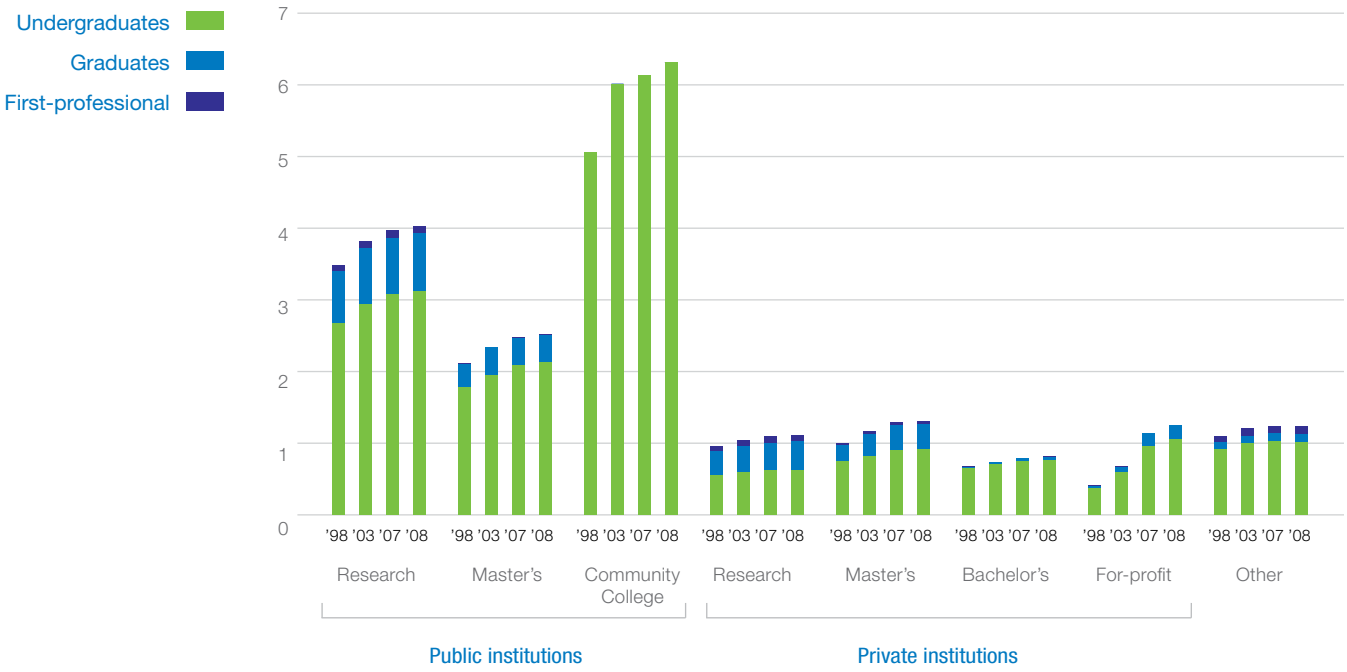
Public community colleges added the most students over the decade, but private for-profit institutions also contributed substantially to the enrollment growth. Although traditional public and private not-for-profit institutions still serve the vast majority of students, private for-profit institutions grew the fastest between 1998 and 2008, averaging growth of 12 percent per year and tripling the number of students enrolled from about 400,000 in 1998 to approximately 1.25 million students in 2008 *(see Figure 2, next page)*. However, community colleges still added the most new students, increasing enrollments by 1.26 million, to enroll a total of 6.3 million students in 2008.

Full-time and undergraduate students were the primary drivers of enrollment growth. The largest source of enrollment growth between 1998 and 2008 was among full-time students, unlike

Figure 2

Public community colleges added the most students over the decade, but private for-profit institutions also contributed substantially to the enrollment growth

Total enrollment by institutional sector and student level, AY1998–2008 (in millions)



Note: "Other" includes public baccalaureate, private associate's, and all specialty, tribal, less than two-year, and unclassified institutions.

Source: Delta Cost Project IPEDS database, 1987–2008, unmatched set.

patterns from the prior two decades when part-time and older enrollments grew relatively faster. Full-time enrollments increased by nearly 2.9 million (33 percent) over the period while part-time student enrollment only increased by 913,000 (15 percent). Enrollments increased across all levels of education; undergraduate enrollment grew by nearly 3.2 million students (25 percent), graduate enrollment by almost 550,000 students (31 percent), and enrollment in first-professional programs increased by 56,000 students (19 percent). The overall ratio of undergraduate to graduate and professional enrollments has remained fairly steady, however.

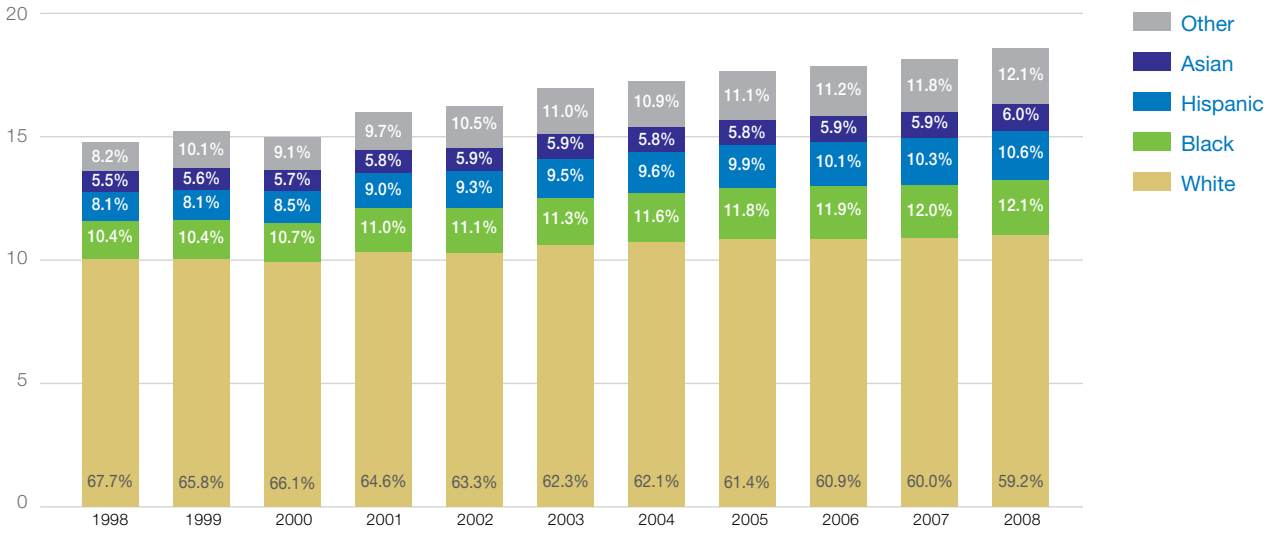
The U.S. student population has become more diverse since 1998 and this diversity is reflected across college campuses in all sectors. More students from all racial/ethnic groups have been enrolling in postsecondary education than ten years ago, but some groups have been growing quicker than others—causing a noticeable shift in the makeup of the student population.

- White students' share of total enrollments has decreased by 8.6 percentage points since 1998, as Black, Hispanic, and Asian students have accounted for increasing proportions of

Figure 3

Diversity has increased across institutional sectors

Fall headcount enrollment by race/ethnicity, AY1998–2008 (in millions)



Note: "Other" includes: American Indian, Alaska native, non-resident, and unknown.

Source: Delta Cost Project IPEDS database, 1987–2008, unmatched set.

postsecondary enrollments *(see Figure 3)*. This increasing in diversity has occurred quite evenly across institutional sectors.

- Growth rates for each of the racial/ethnic groups were largely consistent over the past ten years with Hispanic enrollment growth averaging 5 percent per year, Black enrollment growth averaging 4 percent per year, and Asian enrollment growth averaging 3 percent per year—each of which outpaced the 1 percent average annual growth in White enrollments. Despite lower growth rates, White students still had the largest numeric increase in enrollments with 974,000 additional students entering postsecondary institutions.

- Community colleges have consistently enrolled the largest share of students overall (34 percent). While just over one-third of White, Black, and Asian students were enrolled in community colleges in 2008, these institutions served nearly one-half of all Hispanic students.

The importance of enrollments to analysis of spending

Enrollment-adjusted funding trends show very different patterns than when looking at total revenues or expenditures alone. For instance, *total unadjusted* revenues from state and local appropriations increased by 57 percent over the ten-year period in this report.[4] Adjusted for

[4] These figures are computed only for the institutions in the Delta 11-year matched set.

Attainment versus enrollment

Declining postsecondary attainment rates for the United States have received considerable policy and media attention, and have factored into the Obama administration's call to return the United States to a position of international leadership in educational attainment by the year 2020. The metric is confusing to many, since it isn't clear why U.S. attainment rates are declining despite increases in enrollments.

Attainment is a measure of the *proportion* of the population that has attained some level of education, while enrollment measures the *number* of students participating. If, for example, population grows and institutions increase enrollments to keep pace with population growth, then enrollments will increase, but attainment rates may not. To increase attainment rates, institutions need to increase enrollments at a rate faster than the population is increasing, or increase the proportion of students who complete degrees. If enrollments fail to keep pace with population increases, or if fewer students complete a certificate or a degree, then attainment rates will not increase.

"Attainment" is a relatively new concept to higher education planning, and its prominence reflects the increasingly international world that we live within. Attainment measures are commonly used to compare postsecondary performance in international comparisons, such as those used by the Organisation for Economic Cooperation and Development (OECD). For more information on attainment, and to see how the United States compares to other countries, see the OECD "Education at a Glance," www.oecd.org/edu/eag2009.

inflation, the increase drops to 19 percent, and if adjusted again for increases in FTE enrollments, to just 6 percent. Understanding this helps explain why state appropriators may see higher education finance differently than institutional leaders: from their perspective, they are giving a lot more money to higher education each year—and in most states, this is true. But when inflation and enrollment increases are factored in, this seemingly generous increase whittles down very rapidly.

Revenues: Where does the money come from?

Revenue patterns and trends show the shifts in the sources of revenue, and also provide context for evaluating spending since revenue sources often dictate how the money can be used. The main revenue metrics include:

1. Total operating revenues by major sources;

2. The interaction between net tuition revenues and state and local appropriations, a pertinent measure for public institutions; and
3. Patterns of tuition discounting, showing the difference between sticker price, gross and net tuition revenues.

Where the money comes from: Revenue sources

- **Net tuition revenue:** Total revenue from tuition and fees, excluding institutional grant aid.
- **State and local appropriations:** Revenues received through state or local legislative organizations (except grants, contracts, and capital appropriations).
- **Private and affiliated gifts, investment returns, and endowment income (PIE):** Private gifts include revenues received from private donors, affiliated entities, or from private contracts for specific goods or services provided by the institution that are directly related to instruction, research, public service, or other institutional purposes. Investment revenues are from interest income, dividend income, rental income, or royalty income. Endowment income is generally income from trusts held by others, and income from endowments and similar funds.
- **State and local grants and contracts:** Revenues from state or local government agencies for training programs or similar activities that are either received or are reimbursable under a contract or grant.
- **Federal appropriations, grants, and contracts:** The total amount of revenue coming from federal appropriations, grants, and contracts.
- **Auxiliary enterprises:** Revenues generated by, or collected from, auxiliary enterprise operations of the institution that furnish a service to students, faculty, or staff, and that charge a fee related to the cost of service. These are generally self-supporting activities such as residence halls, food services, student health services, and inter-collegiate athletics.
- **Hospitals, independent operations, and other sources:** Revenue generated by hospitals operated by the postsecondary institution. Revenues associated with the medical school are not included. "Independent operations" include revenues associated with operations independent or unrelated to instruction, research, or public services and generally include only revenues from major federally funded research and development centers. "Other sources" include miscellaneous revenues not covered elsewhere.

There are four notable trends in revenue that dominate the 1998–2008 period:

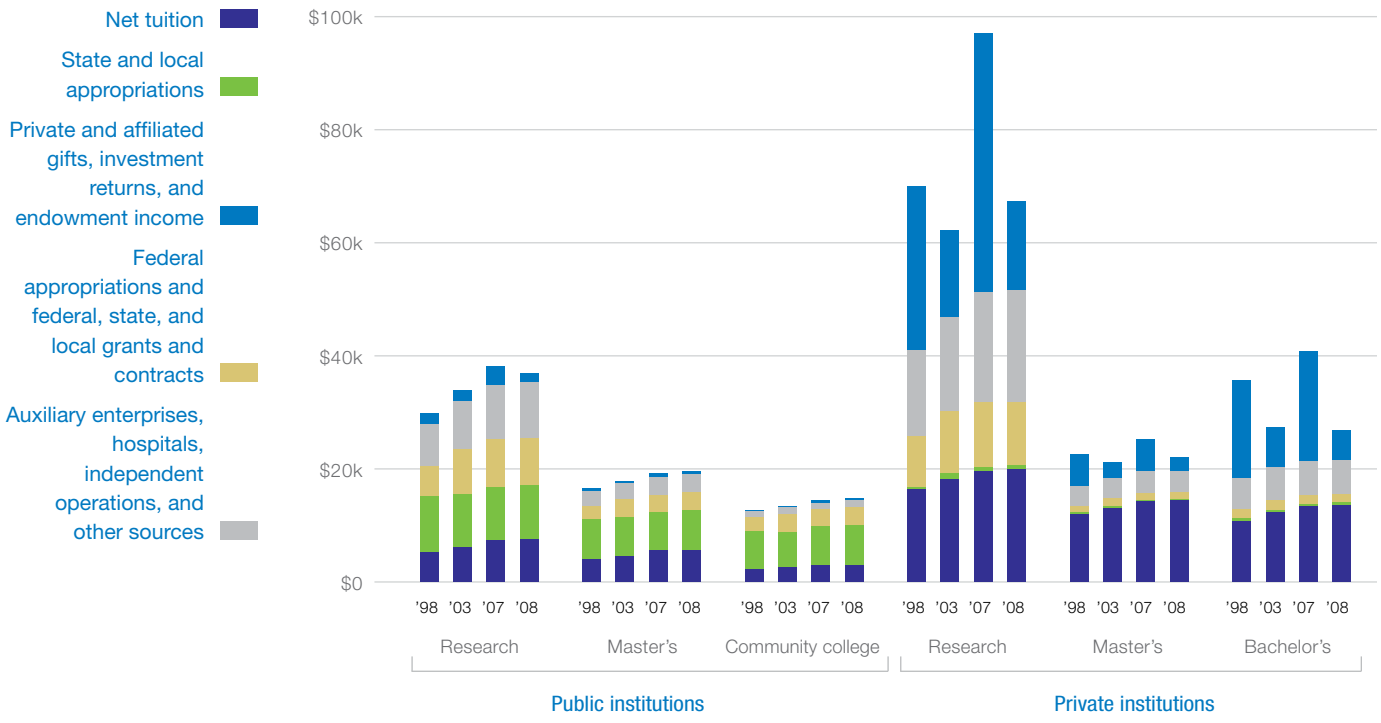
1. **Per capita revenues increased across all of higher education, but there was considerable volatility in both state and local appropriations and private investment returns.** The steadiest source of new revenue in all sectors was from tuition *(see Figure 4)*. Research institutions also saw notable gains in federal funds, and in auxiliary enterprises and hospitals. If revenues from auxiliaries and federal funds are subtracted from other operating revenues, almost half of the total revenues disappear from the bottom lines for research universities.

2. **In public institutions, cuts in state and local appropriations after the 2001 recession gave rise to tuition increases, which continued even when appropriations later rebounded.** State and local appropriations per student varied considerably over the period, with reductions following recessions and growth in the subsequent recovery. State and local appropriations were at an all-time high in most public institutions between 1998 and 2001, and declined through 2005 prior to a slow recovery to nearly pre-recession levels in 2008 *(see Figure 5)*. As state and local appropriations declined in the mid-2000s, revenues from student tuitions increased. Although the rate of tuition increases slowed in 2007–2008 as state revenues returned, tuitions continued to rise among public four-year institutions, but not in community colleges.

Figure 4

The steadiest source of new revenue in all sectors was from tuition

Total revenues per FTE student, AY1998–2008 (in 2008 dollars)



Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

Figure 5

In public institutions, cuts in state and local appropriations after the 2001 recession led to tuition increases, which continued even after appropriations rebounded

Net tuition revenues and state and local appropriations per FTE student, AY1998–2008 (in 2008 dollars)

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

3. **Despite access to significant resources from gifts, investments, and endowment income in many private institutions, tuitions continued to increase.** The beginning of the period saw an almost explosive growth in revenue from "PIE"—private gifts, investment and endowment income—most evident among private research universities. These revenues are cyclical, and dipped somewhat with the 2001 recession, to return again between 2004 and 2007 before a sharp drop in 2008. These institutions continued to increase tuitions each year despite having access to these resources, albeit at lower rates—but higher dollar values—than in the public sector. The PIE category includes unrealized earnings from investments; however, as the spending trends make evident, at least some of these resources clearly went into paying for much higher spending among institutions.

4. **Public and private institutions tend to use different strategies to maximize tuition revenues.** In public institutions, "gross tuition" revenue per student (before discounts) has increased more rapidly than revenues from sticker prices alone—suggesting that these institutions increasingly turned to different types of tuition surcharges or out-of-state students to maximize tuition revenues. The gap between the average sticker prices and average gross tuition revenues per student has increased steadily across the 1998 to 2008 period at each type of public institution, but increased by more than $950 (to $2,765) at public research institutions, growing by more than 4 percent per year *(see Figure 6, next page)*. At private institutions, the tuition patterns are reversed and sticker prices are routinely higher than either gross or net tuition indicating they provide significant tuition discounts to students. Tuition discounting, estimated by the difference between gross and net tuition revenue, increased everywhere, but remains steepest among private bachelor's institutions.

Figure 6

Pricing and discounting practices within institutions

Pricing versus revenues, AY1998–2008 (in 2008 dollars)

Public research sector	1998	2003	2007	2008	1998–2008 change
Sticker price	$4,315	$5,099	$6,433	$6,518	$2,202
Gross tuition revenue	$6,128	$7,335	$9,053	$9,283	$3,154
Net tuition revenue	$5,195	$6,036	$7,411	$7,563	$2,369
Tuition discount rate	15%	17%	18%	18%	3%
Public master's sector					
Sticker price	$3,624	$4,176	$5,189	$5,314	$1,690
Gross tuition revenue	$4,421	$5,108	$6,208	$6,363	$1,941
Net tuition revenue	$3,999	$4,507	$5,492	$5,607	$1,608
Tuition discount rate	10%	13%	12%	12%	2%
Community colleges sector					
Sticker price	$1,806	$2,009	$2,350	$2,343	$536
Gross tuition revenue	$2,365	$2,784	$3,219	$3,242	$877
Net tuition revenue	$2,202	$2,577	$2,983	$2,992	$790
Tuition discount rate	11%	10%	10%	11%	0%
Private research sector					
Sticker price	$21,966	$25,079	$27,945	$28,527	$6,561
Gross tuition revenue	$21,556	$24,729	$27,272	$27,739	$6,183
Net tuition revenue	$16,343	$18,203	$19,586	$19,836	$3,493
Tuition discount rate	24%	25%	27%	27%	3%
Private master's sector					
Sticker price	$15,625	$18,160	$20,472	$20,952	$5,327
Gross tuition revenue	$14,989	$17,188	$19,085	$19,352	$4,363
Net tuition revenue	$11,853	$13,043	$14,224	$14,332	$2,479
Tuition discount rate	23%	24%	25%	26%	3%
Private bachelor's sector					
Sticker price	$16,257	$18,629	$20,663	$21,148	$4,891
Gross tuition revenue	$15,598	$18,284	$20,317	$20,724	$5,126
Net tuition revenue	$10,751	$12,253	$13,297	$13,515	$2,764
Tuition discount rate	35%	32%	34%	34%	-1%

Note: At public four-year institutions, "sticker price" is the average in-state tuition and fees for undergraduates; at public community colleges, "sticker price" is the average in-district tuition and fees.

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

Policy relevance of the measures

Looking at the interaction between revenues and spending forces policy maker attention to questions of management control over institutional spending, and whether discretionary spending decisions are consistent with institutional priorities. Since so much of the revenue coming into higher education goes to pay for something other than teaching and learning, it is important to develop revenue measures that help to focus on resources that pay for the core academic enterprise. Looking at revenue patterns over time helps states, systems, and institutions to answer questions such as:

- Where are revenues growing, and are these resources available for discretionary spending, or are they largely sequestered for specific purposes?
- Is tuition discounting eroding discretionary spending capability? What students get the tuition discounts? What are the criteria determining who gets the discounts?
- History shows that the major non-tuition revenue sources fluctuate widely in all types of institutions. Is the institution building adequate reserves against future fluctuations in income, to forestall the need for tuition increases when revenues inevitably decline?
- What is the relation between public or tax-supported operating revenues and tuition revenues? Is the institution becoming more or less tuition dependent, and what are the implications of these trends for future attainment goals?

Limitations of the metrics

Revenue measures are confined to operating resources, and exclude revenues and spending for capital outlay. The exclusion of capital resources understates total revenue availability, and hence total costs. There may be inconsistency between institutions in how some revenue sources are classified, in particular how private gifts, investment, and endowment returns are classified. By aggregating these three revenue sources into a composite measure, which we call "PIE," we hope to compensate for these discrepancies.

Spending: Where does the money go?

We look at spending several different ways, as each lens sheds a slightly different light on the overall patterns:

1. Spending by standard expense categories;
2. Spending aggregated by: total expenditures, education and general (E&G) expenditures, and education and related (E&R) expenditures; and
3. The proportion of education and related spending going to pay for instruction and student services.

Figure 7

Spending levels in 2008 were generally at historic highs in most higher education sectors and spending areas

Spending per FTE student by standard expense categories, AY1998–2008 (in 2008 dollars)

Public research sector	1998	2003	2007	2008	10-year change Dollars	10-year change Percent
Instruction	$8,837	$9,112	$9,516	$9,732	$895	10.1%
Research	$4,528	$5,311	$5,504	$5,567	$1,039	23.0%
Student services	$1,097	$1,203	$1,283	$1,318	$220	20.1%
Public service	$1,635	$1,834	$1,872	$1,912	$277	17.0%
Academic support	$2,400	$2,342	$2,534	$2,775	$375	15.6%
Institutional support	$2,049	$2,121	$2,339	$2,456	$407	19.9%
Operations and maintenance	$1,704	$1,859	$2,173	$2,147	$443	26.0%

Public master's sector	1998	2003	2007	2008	10-year change Dollars	10-year change Percent
Instruction	$5,738	$5,916	$6,035	$6,209	$471	8.2%
Research	$449	$466	$668	$664	$215	47.9%
Student services	$1,150	$1,219	$1,311	$1,365	$215	18.7%
Public service	$501	$629	$634	$629	$128	25.5%
Academic support	$1,344	$1,380	$1,439	$1,490	$146	10.9%
Institutional support	$1,807	$1,982	$1,999	$2,055	$248	13.7%
Operations and maintenance	$1,298	$1,448	$1,628	$1,661	$362	27.9%

Public community college sector	1998	2003	2007	2008	10-year change Dollars	10-year change Percent
Instruction	$5,043	$4,880	$5,131	$5,216	$173	3.4%
Research	$51	$55	$53	$50	$0	-0.4%
Student services	$1,127	$1,157	$1,232	$1,234	$107	9.5%
Public service	$379	$393	$354	$367	-$12	-3.2%
Academic support	$946	$912	$957	$982	$37	3.9%
Institutional support	$1,709	$1,659	$1,799	$1,863	$155	9.0%
Operations and maintenance	$1,097	$1,145	$1,269	$1,273	$176	16.0%

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

We first look at dollar and percent change within the standard IPEDS expense categories, to see where spending is going up faster or slower than in other categories. Since there is some discrepancy among institutions in how expenses are reported to IPEDS, we then repack these categories, first to exclude spending for auxiliaries (which results in what many institutions report as "education and general" expenses), and then again to exclude sponsored research, public service, and net scholarships/fellowships *(see Appendix for additional explanation)*. This last measure, what we call "education and related" (or E&R) expenses, is a proxy for "the full cost of education," as it includes both direct spending for instruction and student services, and an estimate of the support and maintenance costs going to support the instructional function. Once we have derived the E&R figure, we then look at the constituent elements within it,

Private research sector	1998	2003	2007	2008	10-year change Dollars	10-year change Percent
Instruction	$15,946	$18,152	$19,480	$19,520	$3,574	22.4%
Research	$8,523	$10,729	$11,140	$11,216	$2,694	31.6%
Student services	$2,349	$2,775	$3,185	$3,200	$851	36.2%
Public service	$1,450	$1,465	$1,259	$1,293	-$158	-10.9%
Academic support	$3,887	$4,803	$5,207	$5,471	$1,584	40.8%
Institutional support	$5,065	$6,018	$6,583	$6,894	$1,829	36.1%
Operations and maintenance	$2,815	$3,046	$3,585	$3,858	$1,043	37.1%

Private master's sector	1998	2003	2007	2008	10-year change Dollars	10-year change Percent
Instruction	$6,369	$6,803	$7,056	$7,056	$687	10.8%
Research	$836	$860	$701	$684	-$152	-18.2%
Student services	$2,084	$2,360	$2,603	$2,654	$570	27.4%
Public service	$877	$820	$468	$467	-$410	-46.8%
Academic support	$1,468	$1,628	$1,701	$1,711	$243	16.5%
Institutional support	$3,383	$3,674	$3,864	$3,873	$490	14.5%
Operations and maintenance	$1,315	$1,338	$1,342	$1,401	$86	6.5%

Private bachelor's sector	1998	2003	2007	2008	10-year change Dollars	10-year change Percent
Instruction	$7,232	$7,972	$8,062	$8,172	$940	13.0%
Research	$746	$715	$740	$725	-$21	-2.8%
Student services	$2,845	$3,352	$3,660	$3,740	$894	31.4%
Public service	$588	$748	$692	$628	$40	6.7%
Academic support	$1,692	$1,953	$1,994	$2,017	$325	19.2%
Institutional support	$4,548	$4,854	$4,973	$5,091	$544	12.0%
Operations and maintenance	$1,923	$1,932	$2,070	$2,110	$187	9.7%

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

to see what proportion is going to pay for the direct cost of instruction and student services, relative to spending on institutional and academic support and maintenance.

Major patterns in spending trends over the 1998–2008 decade

1. **2008 proved to be a peak, or near-peak, spending year in most higher education sectors and spending areas.** Spending levels in 2008 were generally at historic highs across most functions of public four-year colleges and universities *(see Figure 7)*. Though public sector institutions weathered widespread spending declines in the post-recession years between 2001 and 2004, when spending subsequently picked back up the gains were also widespread.

Where the money goes: Standard expense categories

- **Instruction:** Activities directly related to instruction, including faculty salaries and benefits, office supplies, administration of academic departments, and the proportion of faculty salaries going to departmental research and public service.
- **Research:** Sponsored or organized research, including research centers and project research. These costs are typically budgeted separately from other institutional spending, through special revenues restricted to these purposes.
- **Public service:** Activities established to provide noninstructional services to external groups. These costs are also budgeted separately and include conferences, reference bureaus, cooperative extension services, and public broadcasting.
- **Student services:** Noninstructional, student-related activities such as admissions, registrar services, career counseling, financial aid administration, student organizations, and intramural athletics. Costs of recruitment, for instance, are typically embedded within student services.
- **Academic support:** Activities that support instruction, research, and public service, including: libraries, academic computing, museums, central academic administration (dean's offices), and central personnel for curriculum and course development.
- **Institutional support:** General administrative services, executive management, legal and fiscal operations, public relations, and central operations for physical operation.
- **Scholarships and fellowships net of allowances:** Institutional spending on scholarships and fellowships net of allowances does not include federal aid, tuition waivers, or tuition discounts (which since 1998 have been reported as waivers); it is a residual that captures any remaining aid after it is applied to tuition and auxiliaries.
- **Plant operation and maintenance:** Service and maintenance of the physical plant, grounds and buildings maintenance, utilities, property insurance and similar items.
- **Auxiliary enterprises, hospitals, independent, and other operations:** User-fee activities that do not receive general support. Auxiliary enterprises include dormitories, bookstores, and meal services.

By 2008, spending in each of the standard reporting categories at public four-year institutions was at or near peak relative to spending levels over the prior ten years, though in community colleges, spending still hadn't quite rebounded to its pre-recession levels in several areas. In private institutions, spending also peaked in 2008 in most areas, except research and public service.

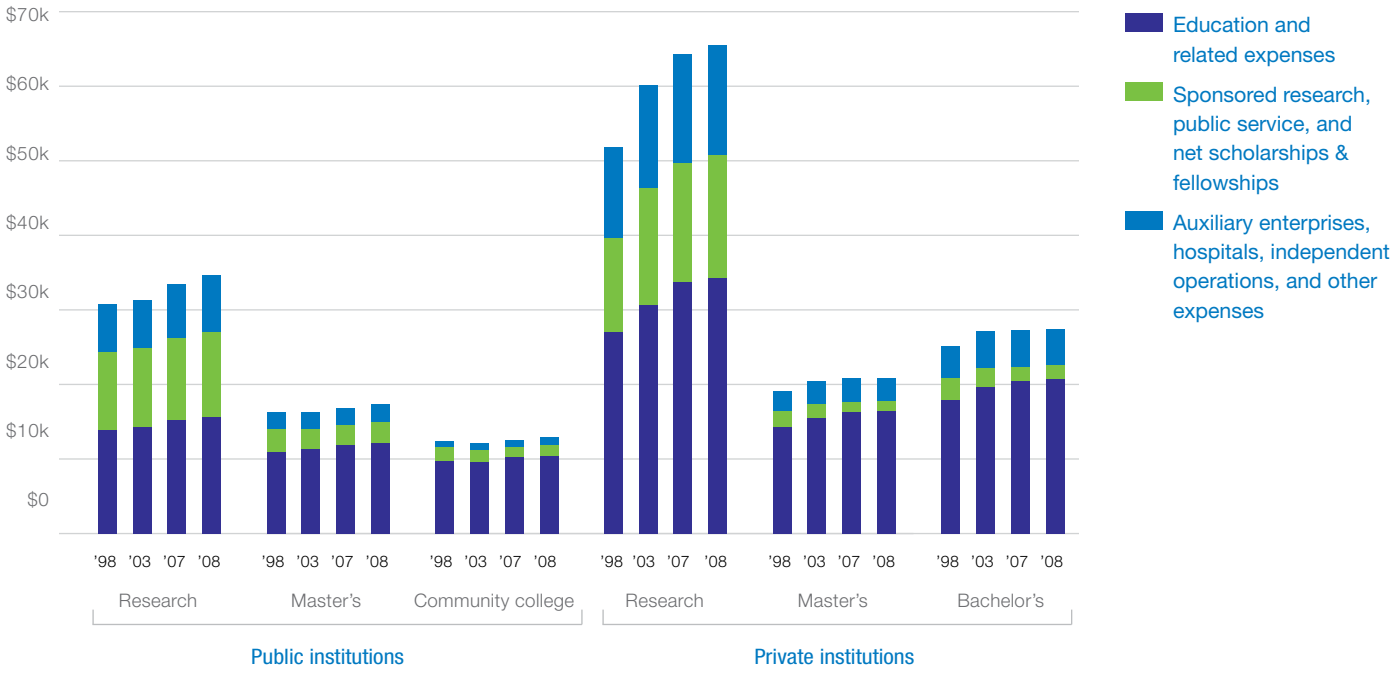
2. **All sectors increased spending on education and related (E&R) costs per student; research institutions boosted spending on research; but no sector devoted significant new resources to public service in recent years.** Spending on education and related costs per student were higher in 2008 than at any time in the prior decade *(see Figure 8)*, up overall from 1998 by around 12 percent in public research and master's institutions, compared to 6 percent in community colleges. Spending increased even more in private institutions, with master's and bachelor's institutions growing E&R spending by about 15 percent and research institutions by 27 percent.

   Among both public and private research institutions, spending for research increased at a faster pace than spending for education and related expenses across the entire 1998 to 2008 period. Spending on organized research was modest in the other sectors. Spending on public service and related costs has not changed appreciably in public institutions over the past five years, though spending is up slightly in public four-year institutions compared to ten years ago. Investments in public service by private institutions have declined over the past five years, and are now generally at or below their 1998 spending levels.

Figure 8

Spending on education and related costs per student were higher in 2008 than at any time in the prior decade

Total operating expenditures per FTE student by grouped categories, AY1998–2008 (in 2008 dollars)



Note: Public institutions reported gross scholarships and fellowships prior to 2002, with some institutions reporting gross amounts through 2004.

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

3. **Among all types of institutions, the share of spending going to pay for the direct cost of instruction has declined slightly.** The "instructional" expense category is dominated by spending on faculty, including time for "departmental" or nonsponsored research, and faculty release time for administrative services. Over the 1998 to 2008 period, the share of instruction spending declined against increased spending for academic support (libraries and computing), institutional support (administration), and student services *(see Figure 9)*.

   This does not necessarily mean that institutions have short-changed students, as spending for student services and academic support may be a good way to spend money to increase student success. Nonetheless, it does show that the common myth that spending on faculty is responsible for continuing cost escalation is not true. In fact, in public institutions, spending for instruction saw the greatest relative declines during the 2003–2008 period, with absolute cuts in this category during the first part of this period in all public sectors. Spending rebounded after 2005, although in all sectors, the instruction share of spending was lower in 2008 than both five and ten years prior.

   Public institutions have shifted resources into increased spending on administration, with comparable shifts to student services in public research institutions, along with smaller increases in the student services share among public nonresearch institutions. Private research institutions also increased their administration proportion of E&R faster than their student services share. In contrast, private bachelor's and master's institutions have increased their relative spending on student services, while *cutting* the share of their E&R budgets dedicated to administration and maintenance compared to ten years prior.

4. **Private research institutions set a high bar for spending, and other sectors had difficulty trying to keep up.** Private research institutions showed significant increases in E&R spending during the 1998 to 2003 period—an average increase of about $725 per student per year, compared to $60 per student per year in the public research sector. This clearly raised the bar among at least some public research institutions for the funding levels they felt necessary to pursue, in turn raising the spending gap between the public research institutions and the master's and community colleges. Spending in the private research universities continued to increase through 2007 at a similarly torrid pace, though by 2008, spending increases in the instructional area were nearly zero, compared to continued sharp increases in academic and institutional support. While we know that these institutions were forced to make major cuts in 2009 and 2010, it is important to recall how dramatically spending had gone up prior to that.

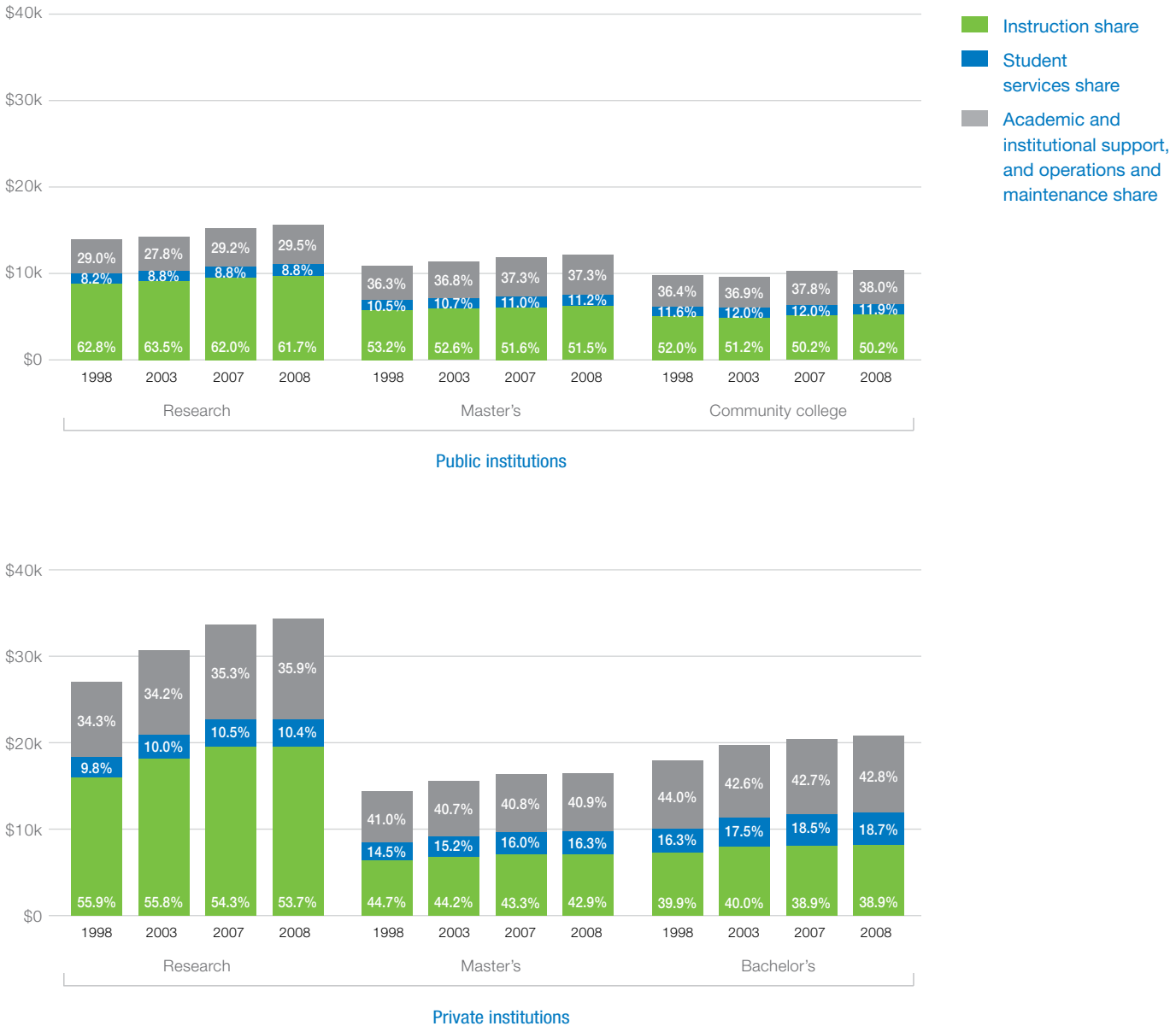
Policy relevance of the measures

The E&R measure is the best single benchmark for putting cost information into context, either as a way to compare spending for postsecondary education to other areas, or to look at the shift in spending within E&R in a single institution. For instance, changes over time in the proportion of spending going to E&R versus other functions show how spending priorities may be shifting in an institution, either because of changes in revenues or because of spending patterns that draw resources away from instruction and toward other areas. And looking

Figure 9

Among all types of institutions, the share of spending going toward the direct cost of instruction declined slightly

Average education and related spending per FTE student by component, AY1998–2008 (in 2008 dollars)



Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

at spending within E&R shows whether there are shifts over time away from spending on faculty and other direct costs of instruction toward general administrative and academic support. Both measures are relevant to assessing costs, and to where costs are increasing or decreasing. They also are the building blocks for gauging productivity, as coarsely measured

by E&R spending per degree or completion. And trends in E&R spending over time are a better measure of state investments in higher education than other commonly used metrics, such as the share of state appropriations going to higher education, or the share of institutional resources coming from state funds. Looking at E&R patterns, questions policy makers should be asking include:

- Has the proportion of total spending going to pay for E&R decreased over time, and if so, does this reflect an explicit decision or is it a reflection of revenue opportunities?
- Has spending for administration increased disproportionately to spending on instruction, student services, and academic support? Have the institutions taken steps to reduce spending on administration, and to reinvest resources in core academic purposes?
- How do E&R trends over time compare to state spending in other major expenditure areas? Does this reflect current public priorities for higher education?
- How do E&R trends compare to trends in sticker prices? Does this suggest that the institutions are engaged in cost shifting, or is there evidence of attention to cost reduction?

Since the E&R measure excludes spending for sponsored research, contracted services, and auxiliary enterprises, it is also the best way to evaluate changes in aggregate spending for postsecondary education compared to K-12 education, or for international purposes. It also can be used at an aggregate level to ask about whether spending in one area is eclipsing spending in other areas. As an example, the Knight Commission on Intercollegiate Athletics used trends in E&R spending per student to compare spending for the general academic program to athletic-related spending *(see "Educational and athletic spending," facing page)*.

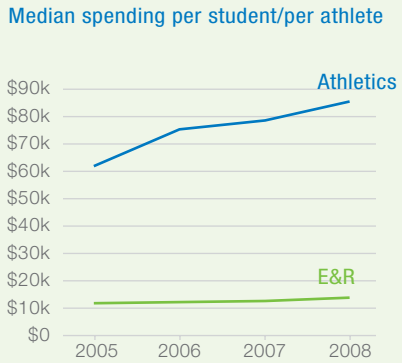
Limitations of the metrics

Like all other IPEDS-generated cost measures, the E&R measure is an average across all types of students and programs. So while the measure is good for comparisons over time and to other areas, it is not granular enough for institutional decision makers to use it to make judgments about internal institutional cost drivers or to make judgments about the relative cost-effectiveness of different academic or administrative functions.

We know from other studies that costs are not evenly spread within any institution. Some disciplines cost more than others, and unless there are dedicated sources of revenues to pay for these high-cost areas, they are funded through internal "cross-subsidies" or redirections of resources from low-cost programs. People wanting to get a handle on variations in unit costs by discipline or level of instruction can get help from two sources: the Delaware Study of Instructional Productivity and the State Higher Education Executive Officers *Four-State Cost Study*. Both of these sources show that the general pattern of variation in unit costs by discipline and level of instruction is quite stable between different institutions *(see "SHEEO Four-State Cost Study," page 26)*.

Educational and athletic spending

The Knight Commission on Intercollegiate Athletics recently compared spending on athletics with spending on education for institutions in the FBS (Football Bowl Subdivision) conference, using the E&R per student as its comparative spending metric. The Commission found that between 2005 and 2008, median athletic spending per student athlete was between four to ten times higher than median spending per student for E&R expenses. The measure of athletic spending included only operating expenditures (reported by the institutions to the NCAA), and covered expenses such as coach and staff salaries, recruiting, travel and game expenses, uniforms, facilities maintenance, and athletic student aid. It was also the case that while E&R spending per student was basically flat during this period, spending per athlete increased almost 38 percent (in current dollars).



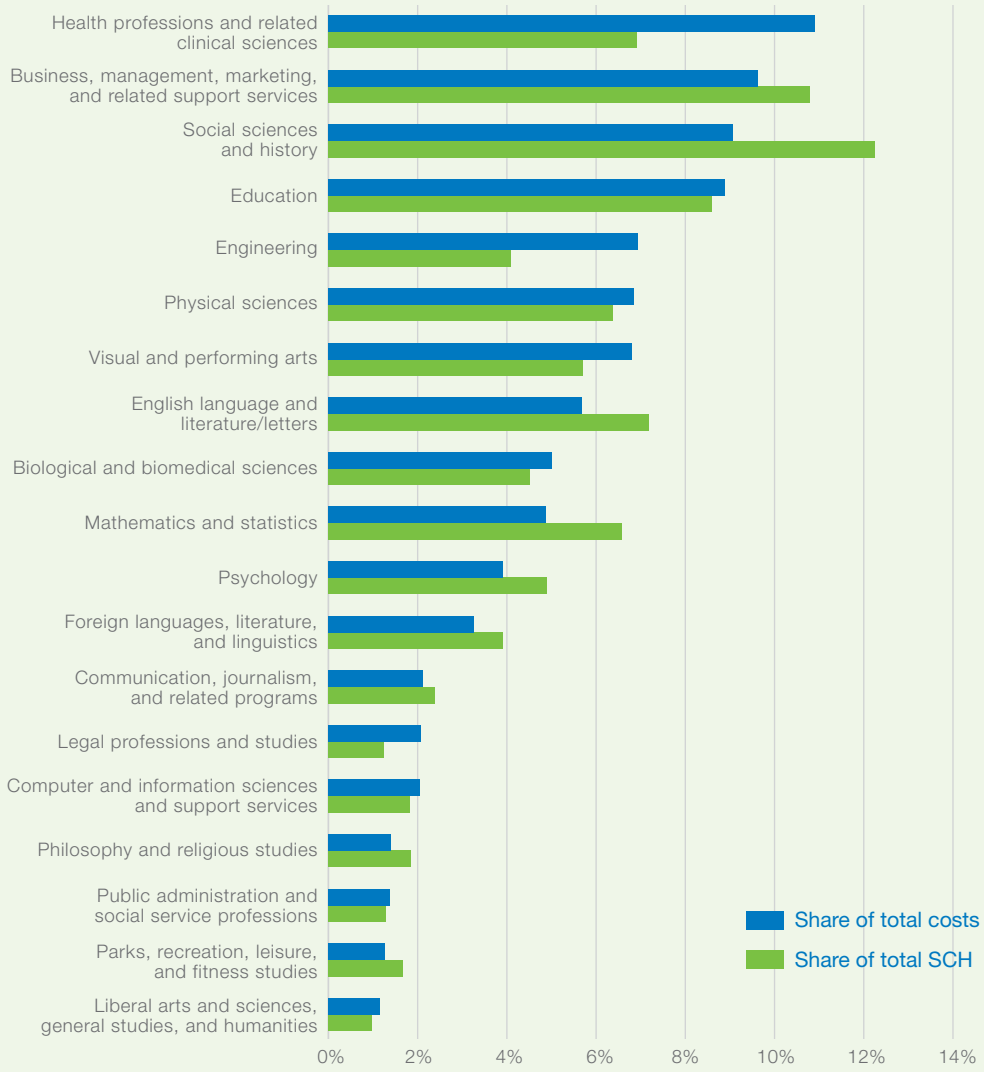
FBS (Football Bowl Subdivision) Conference	Median E&R spending per FTE student, 2008	Median athletic spending per athlete, 2008	Ratio of athletics spending per athlete to E&R spending per FTE student
Southeastern (SEC)	$13,410	$144,592	10.8
Big 12	$13,741	$124,054	9.0
Big Ten	$17,025	$115,538	6.8
Atlantic Coast (ACC)	$15,911	$105,805	6.6
FBS Median	$13,349	$84,446	6.3
Pacific-10	$15,149	$94,545	6.2
Conference USA	$11,222	$64,508	5.7
Mountain West	$13,404	$69,000	5.1
Western Athletic Conference (WAC)	$12,251	$62,634	5.1
Big East	$17,504	$84,887	4.8
Sun Belt	$9,691	$41,895	4.3
Mid-America (MAC)	$12,032	$48,139	4.0

Source: Knight Commission on Intercollegiate Athletics. 2010. *Restoring the Balance: Dollars, Values, and the Future of College Sports.* Miami, FL: John S. and James L. Knight Foundation.

SHEEO Four-State Cost Study

A recent report, *Four-State Cost Study,* by the State Higher Education Executive Office (SHEEO) shows how costs vary by discipline and level of instruction, using data from public institutions in four states that maintain detailed cost data. The combined results for three of those states (FL, OH, IL)* are shown in the graph below. For these states, health professions accounted for 11 percent of instructional spending, on average, but only 7 percent of student credit hours. Social sciences, on the other hand, accounted for 12 percent of all student credit hours, but only 9 percent of instructional spending.

Share of total costs and student credit hours (SCH) for selected disciplines, 2007



Some high-cost areas are funded through higher tuitions or through supplemental state appropriations that pay for the high costs (a common pattern in medical schools). But if there is not a special source of revenue to pay for higher costs, then these areas are funded through redirections of resources from low-cost areas, in a funding pattern known as "cross-subsidies." Cross-subsidies are also common across levels of instruction, with revenues from lower division students helping to pay for the higher cost of graduate education.

Level of instruction	Distribution of student credit hours	Distribution of instructional costs
Lower division undergraduate	35%	21%
Upper division undergraduate	45%	45%
Graduate/professional	20%	34%
Total	100%	100%

*For comparability reasons, the aggregate data presented here does not include data from NY-SUNY.

Source: Adapted data; Basu Conger, Sharmila, Alli Bell, and Jeff Stanley. 2009. *Four-State Cost Study.* Boulder, CO: SHEEO. Available at www.sheeo.org.

Spending, subsidies and tuitions: Who pays for what?

In this section we look at revenue and spending together, reporting on what portion of educational costs are paid through subsidies or by students. We focus on two measures:

1. The subsidy and student shares of E&R costs, and how these are changing over time; and
2. Whether rising tuitions are primarily explained by subsidy shifts or increased overall spending.

In public and nonprofit private colleges and universities, revenues from student tuition and fees do not cover the full cost of educating students; the difference comes from a general institutional subsidy. The subsidy share of cost—determined by subtracting net tuition revenue per student from education and related costs per student—is the proportion of education and related expenses paid for by taxpayers or from tax-subsidized funding sources. In public institutions, the subsidy cost is largely paid for by state and local appropriations. In private nonprofit institutions, it is supported with tax-exempt institutional resources, either earnings on endowments or private gifts. The subsidy share of costs is an average cost, for all levels of instruction and discipline areas.

The average subsidy for public institutions varies in inverse relation to economic cycles. In times of recession, the state subsidy per student declines, and tuitions increase. In times of

economic growth, state subsidies increase, and tuition increases are smaller. In the prior sections we saw that nationwide, after adjusting for student enrollments and inflation, there were both boom and bust cycles in the public sector, but that E&R spending was up over the ten-year period covered. However, the overall trend that has emerged across the country over the last decade is that the subsidy share of costs is down, and revenue for this increased E&R spending came from tuition revenues as the student share of costs went up.

Patterns over the 1998–2008 decade

1. **State subsidies per student at public institutions are reasonably consistent at a national level, although there are large differences in state appropriations and tuition strategies across the states.** Within the public sector, the largest subsidies are consistently found at research institutions, averaging just over $8,000 per student in 2008 *(see Figure 10)*. Subsidies are only slightly lower at community colleges, averaging just over $7,400, and master's institutions, about $6,500 on average, in 2008. However, states vary considerably in their subsidy strategies for different types of institutions. For instance, in Illinois, the state subsidizes costs in the public research universities and the master's institutions at quite similar levels, allowing tuition to vary to pay for higher costs in the research university. And Illinois public community colleges receive a subsidy that is slightly lower (by about 25 percent) than the subsidy provided to the four-year institutions *(see Figure 11, page 30)*. In California, the average subsidy per student at public research universities is nearly twice that provided to either the public master's institutions or the community colleges.

   Average subsidies vary more widely in the private sector than in the public sector. Private research institutions provide the largest average subsidies in higher education, nearly $14,500 per student in 2008, about double the subsidy in private bachelor's institutions at nearly $7,300 per student. Private master's institutions provided the smallest higher education subsidies, averaging just over $2,100 per student.

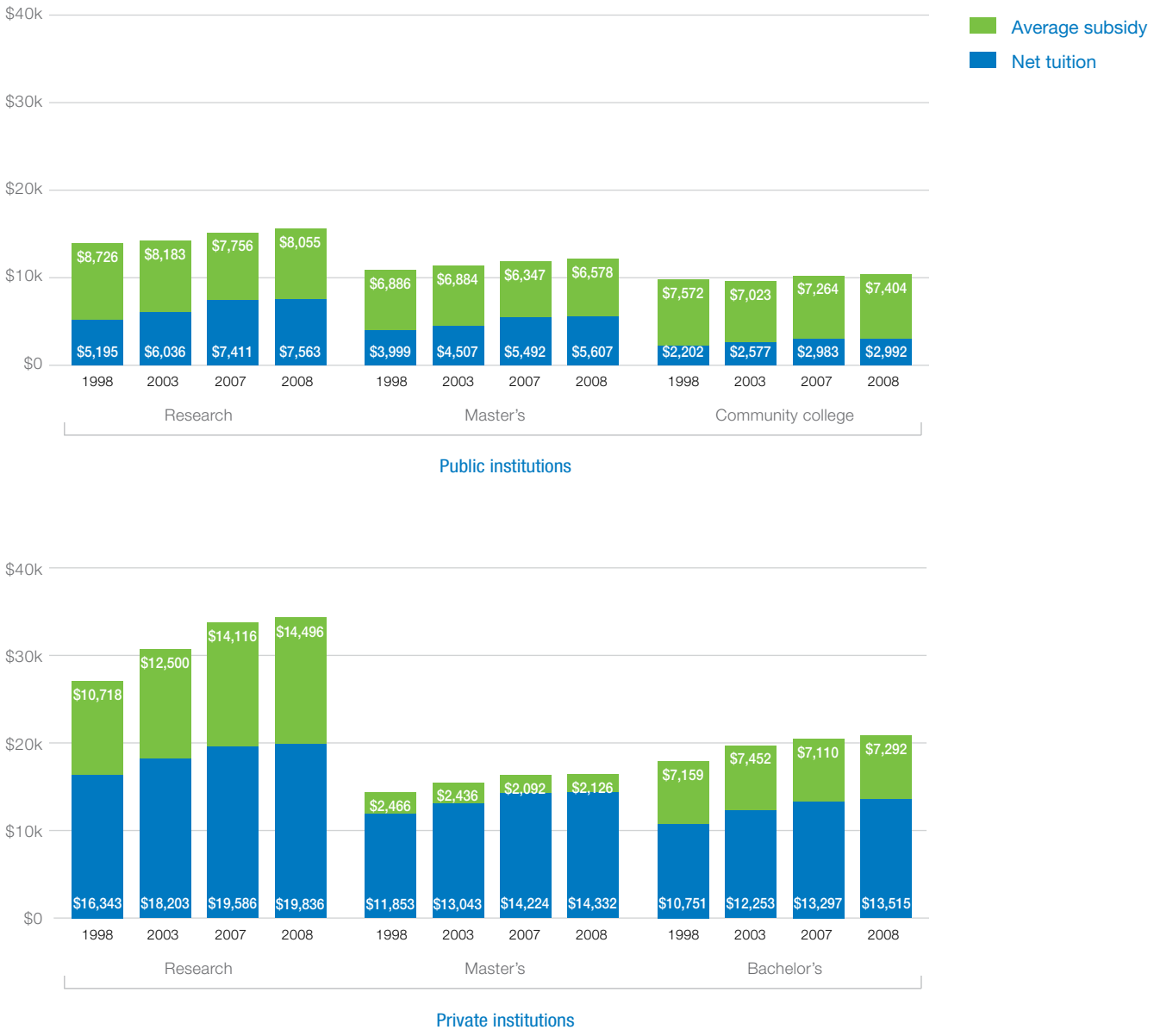
2. **In the public sector, average subsidy levels have increased in recent years, but still remain below levels in the late 1990s and early 2000s.** Although net tuition revenue consistently increased across all sectors from 1998 to 2008, the trend in average subsidy levels has followed different patterns across the sectors. At public institutions subsidies generally followed a cyclical pattern over time. Average subsidy amounts peaked in 2001 before decreasing through 2005; in the following years they grew by about 3 percent per year, on average, as institutions continued to increase spending while net tuition growth slowed.

   At private research institutions subsidies increased consistently by an average of 3 percent per year, and raised the average subsidy by more than $3,775 per student between 1998 and 2008. In private master's institutions, the subsidy level was fairly stable except for a mid-decade decrease that resulted in an average subsidy that was $340 less per student in 2008 than in 1998. At private bachelor's institutions the subsidy was largely steady over time.

Figure 10

Subsidies vary most widely in the private sector, but in both public and private sectors, the largest subsidies are found at research institutions

Average education and related spending per FTE student, by net tuition and subsidy, AY1998–2008 (in 2008 dollars)

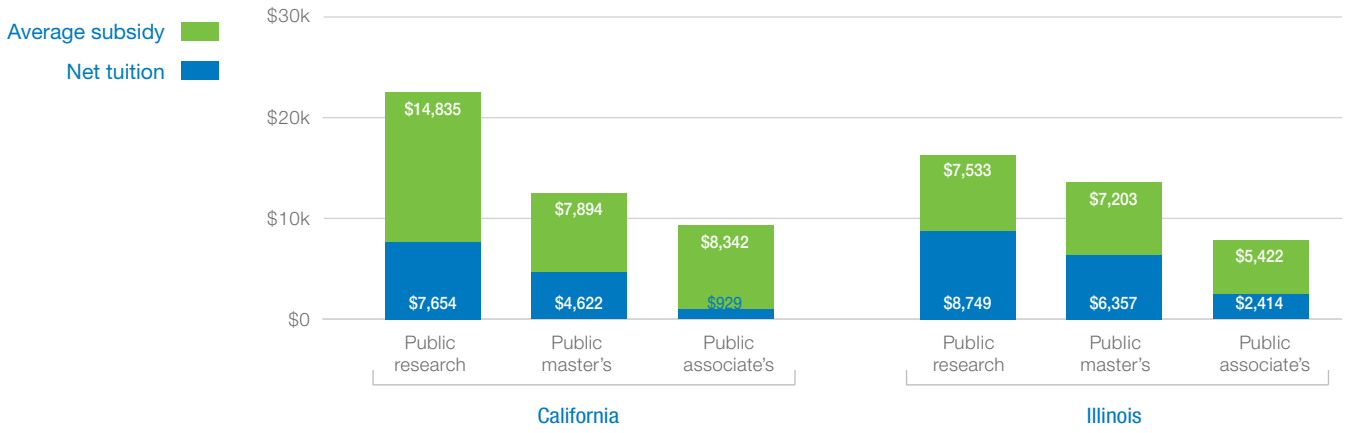


Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

Figure 11

States vary considerably in their subsidy strategies for different types of institutions

Average education and related spending per FTE student, by net tuition and subsidy, in California and Illinois, AY2008 (in 2008 dollars)



Source: Delta Cost Project IPEDS state database, 2003–2008.

3. **Nationwide, over the 1998 to 2008 decade, there was a slight shift of subsidies away from public research universities and toward the public master's and community colleges.** By 2008, average subsidy levels in the public research sector had declined by around $700 per student, compared to declines of around $300 per student in the master's institutions, and nearly $200 per student in the community colleges. Despite this shift, public research universities still maintained the highest average subsidy levels per student among public institutions in 2008. While it may not have been explicit, the practice showed that states were willing to let tuitions replace public subsidies to a far greater extent in the research sector than in the community colleges. To be sure, when revenues began to come back in 2005 the states once again replenished those subsidies in the research sector and the difference in subsidy levels between the sectors grew again (though remaining smaller than in 1998), showing that this subsidy shift was a short-term rather than a permanent strategy. Nonetheless, shifting of subsidies away from research universities toward master's and community colleges may be needed as a long-term funding strategy to support the goal of increased educational attainment.

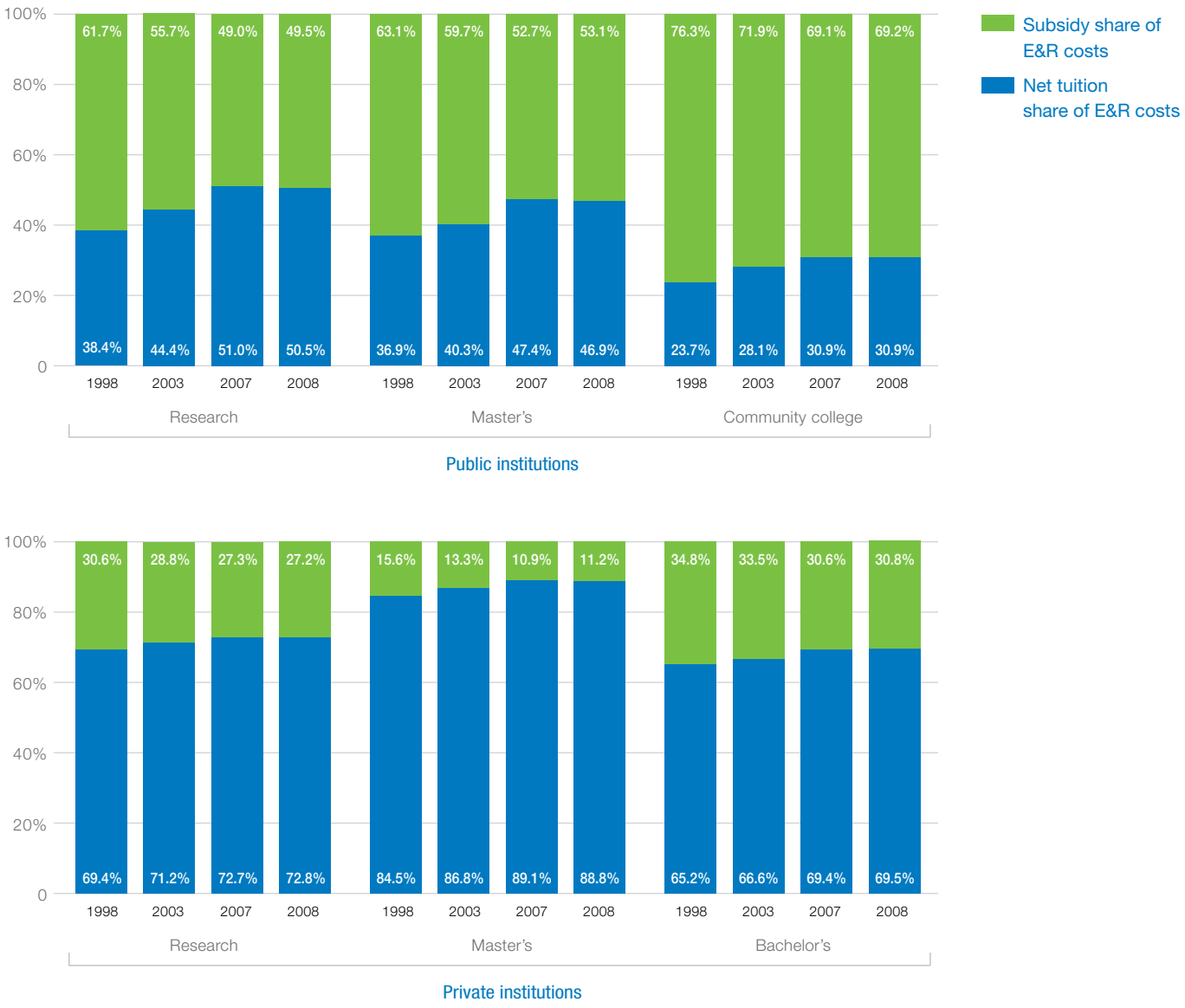
   The average dollar amounts for net tuition revenue and institutional subsidies only tell one part of the cost, price, and subsidy story. Because there is such variance around the net tuition and education and related average amounts within each Carnegie classification, it is useful to look at the actual share of the costs being covered by student tuitions or public subsidies.

4. **Student tuitions are covering significantly more of educational costs in 2008 than was the case five and ten years prior.** In the post-recession years between 2001 and 2005, there was a noticeable change in higher education financing at public institutions—it was during this period that institutions began to shift significantly more of the costs of education onto students.

Figure 12

Student tuitions covered more educational costs in 2008 than five or ten years earlier

Net tuition and subsidy share of education and related costs, AY1998–2008 (in 2008 dollars)



Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

- In 1998, net tuition covered only 38 percent of the costs at public research institutions but has incrementally crept up to over 50 percent in 2008 *(see Figure 12)*—even though the per student subsidy amount is now lower in real dollars. The net tuition share of costs has increased by 10 and 7 percentage points at public master's institutions and community colleges, over the same ten-year period, with the tuition share of costs now 47 and 31 percent, respectively.

- At private nonprofit institutions, tuition revenue has always covered the majority of the educational costs, and the shift in the student share of costs was smaller, increasing by 3 to 4 percentage points over the 1998 to 2008 period. At private bachelor's institutions student tuition now accounts for 70 percent of costs, at private research institutions the tuition share is 73 percent, and at private master's institutions student tuitions are paying for 89 percent of the educational costs.

5. **States vary considerably in their subsidy strategies for higher education with some high-spending states, like New York and Alaska, adopting a "high subsidy" strategy, while others, such as Vermont, are heavily dependent on student tuitions.** Average cost/subsidy structures for the public research sector are presented in Figure 13 and show that even among high-spending states there are starkly different financing strategies.

   - Among states that ranked the highest in education and related spending per FTE student in 2008, students attending public research universities in Minnesota and Washington received significant state subsidies; they paid just over 40 percent of the average education and related costs—much lower than the national average. Even in California, with its widely publicized increases in tuition and fees, students only covered 37 percent of the E&R costs at public research institutions, meaning that the state subsidy share of costs was over 60 percent in 2008.

   - Vermont is also a high-spending state but its educational costs are largely financed by students, not the state. Vermont ranked first in net tuition revenue per student in 2008 at $16,847, which covered 73 percent of its education and related costs. In the neighboring state of New Hampshire, student tuitions covered the highest share of the educational costs at 81 percent, followed closely by Colorado (80 percent) and Rhode Island (77 percent). But in each of these states, average spending per student was below the national average.

   - In contrast to those states highly dependent on tuition revenue to cover educational costs, four states had public research sectors where the average state subsidy share topped 70 percent of E&R spending in 2008: Alaska, Wyoming, New York, and Hawaii. All of these states also had E&R spending that exceeded the national average.

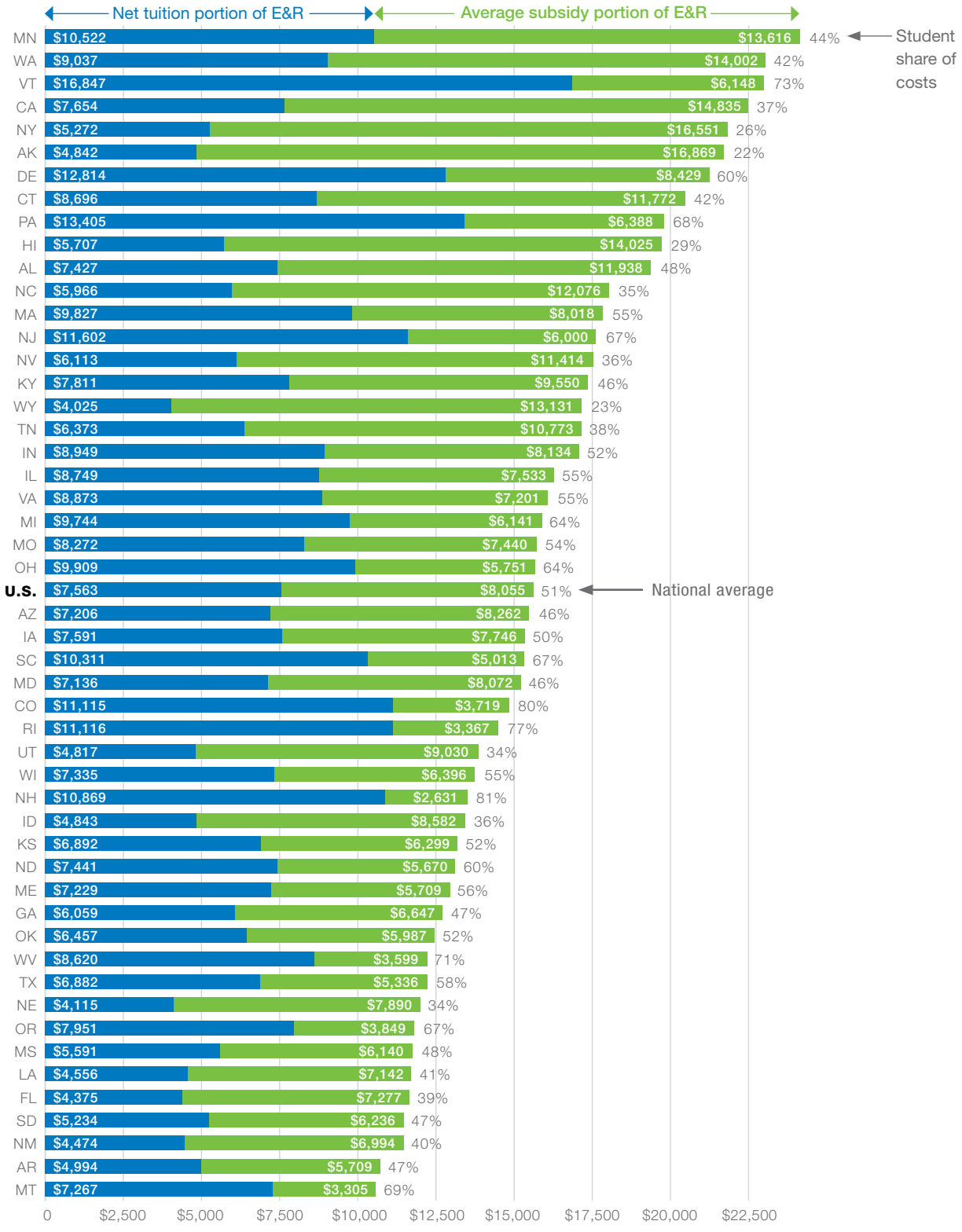
   For state comparisons of education and related spending, net tuition revenue, subsidy amounts, and the student share of costs at public master's and community colleges, please see the Appendix or visit www.deltacostproject.org/data/state/snapshot.asp.

6. **With the sole exception of the private research sector, the student share of costs is rising primarily to replace institutional subsidies—and not to enable greater spending. This practice is sometimes called cost shifting, and it means that institutions are increasing tuition rather than cutting costs. While students are paying more, they are not necessarily getting more bang for their educational buck.** In all public and private four-year institutions (except private research institutions), net tuition increases over the most recent five-year period from 2003 to 2008 were greater than the increases for educational spending, but the cost shifting was fairly modest. The average net tuition increase was only about $100 to $300 greater than the

Figure 13

A snapshot of state subsidy patterns for education and related expenses—public research sector

Average E&R spending, net tuition, and subsidy per FTE student at public research institutions by state, AY2008



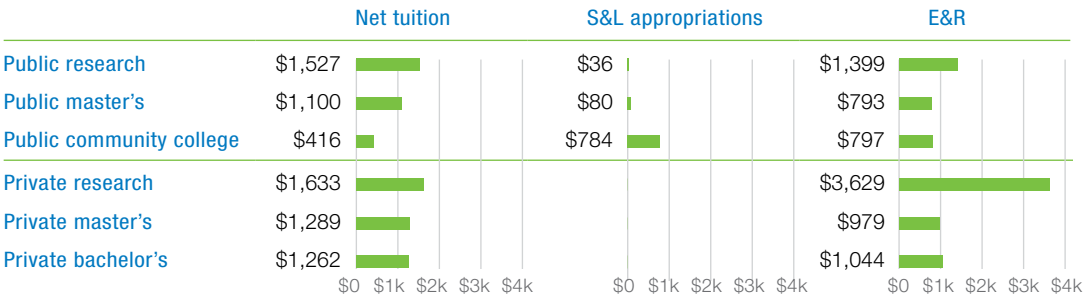
Source: Delta Cost Project IPEDS state database, 2003–2008.

average E&R spending increase *(see Figure 14)*. Between 2003 and 2008 the average net tuition at private research institutions and public community colleges increased less than average spending, meaning that during this period subsidies were increasing faster than tuitions. However, the relationship between tuition and spending is fairly sensitive to the years being analyzed. The cyclical nature of this relationship suggests that students attending college in fiscally lean years (when spending is held down) may indeed be paying more for less, while in times of prosperity, students benefit from greater spending on student learning while bearing less of the increased cost.

Figure 14

Outside the private research sector, the student share of costs is rising primarily to replace institutional subsidies—and not to enable greater spending

Changes in net tuition, state and local appropriations, and education and related spending per FTE student, 2003–2008 (in 2008 dollars)



Source: Delta Cost Project IPEDS database, 11-year matched set.

Policy relevance of the measures

Looking at changes in subsidies over time lets one see how public or publicly subsidized resources are being invested, relative to the student or private share of spending.

These patterns help to address questions such as:

- What institutions and types of students are getting the greatest subsidy?
- Are these spending patterns consistent with current funding priorities? Do they meet standards for equity and adequacy?
- Are there alternative funding sources—other than student tuition revenues—that could substitute for current subsidies? Are these alternative sources being maximized consistent with funding priorities and in light of constrained resources?

- Are subsidies providing the right incentives to institutions, to achieve goals of access, success, and quality? What alternative ways of spending subsidies might provide greater incentives for equity, efficiency, and quality?

Limitations of the metrics

The E&R cost measure used in the subsidy calculation is not a precise measure of the total cost to provide an education, because it excludes capital expenses. It also does not account for student living expenses, including books, food, and transportation, or the costs to students from foregone income. Recognizing those limitations, we do not think that the policy relevance of the measure would be much improved with greater precision in these costs estimates, although all the numbers would be larger. The larger issue is that these are average figures, and do not reflect differences in costs per student within institutions, recognizing there are large variations in average costs per student by discipline and level of instruction.

Spending and results: What does the money buy?

This section will focus on three measures related to degree outcomes in higher education:

1. The number of total degrees awarded, by degree level and institution;
2. Degree and completion ratios that compare the number of degrees or completions (total awards) relative to student enrollments, looking at how these differ across sectors and over time; and
3. The cost per degree or completion, using education and related spending per degree conferred or total awards granted, and how this compares among institutions and changes over time.

Degree and completion ratios are a performance measure used to gauge educational throughput, expressed as the number of degrees or completions (all formal awards, certificates, and degrees) awarded in a year for every 100 FTE students. They provide a reliable way of showing how degree and completion production has changed relative to the growth in enrollments. This is a different calculation than the cohort graduation rate figure, which only captures graduation rates for first-time, full-time freshmen. In contrast, degree and completion ratios capture the outcomes of all students, including part-time and transfers, and all award levels, including sub- and post-baccalaureate credentials.

Measures of cost per degree or completion parallel the education and related spending per FTE measure used throughout this report, but look at spending through the lens of performance rather than inputs (e.g., enrollments). These cost measures are calculated as E&R spending per degree conferred and E&R per completion (total awards). Institutions with similar spending and enrollment patterns would have similar spending per student using the traditional enrollment-based metric, but an institution that is more successful in getting its

students out the door with a credential in hand would have a lower cost per degree or completion than a similar institution with lower degree/certificate output.

Major findings for the 1998–2008 period:

1. **Postsecondary institutions in the U.S. granted over 3.1 million degrees in 2008, which is 785,000 more degrees than were awarded in 1998—a 34 percent increase.**

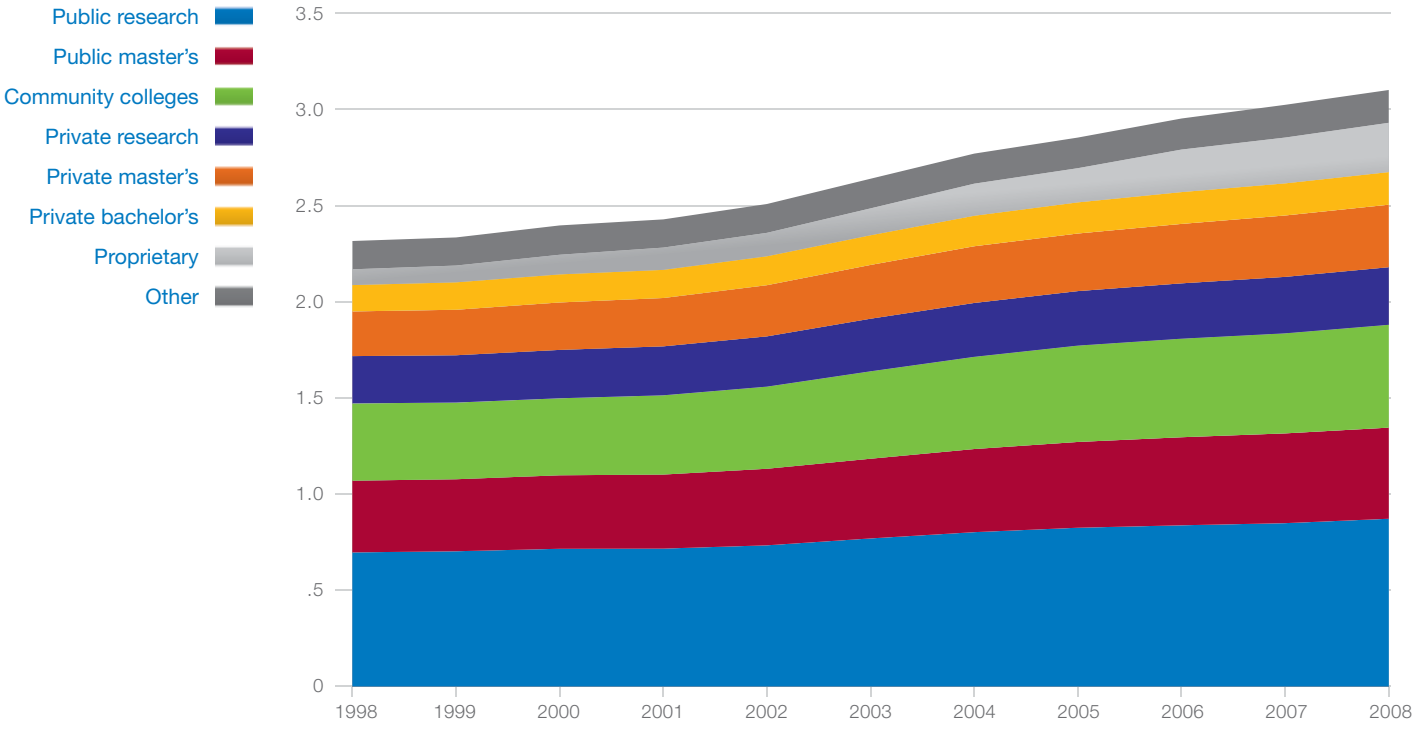
   - Public research institutions generated the most degrees in 2008, totaling more than 871,000, an increase of nearly 175,000 compared to ten years prior *(see Figure 15)*. Community colleges granted the second largest number of degrees at more than 534,000; followed closely by public master's institutions at nearly 474,000.

   - Among private nonprofit institutions, master's institutions produced the most degrees in 2008 (325,000), eclipsing private research institutions (299,000), which had been leading the nonprofit sector through 2001. In fact, the private master's institutions had the highest

Figure 15

Public research institutions generated the most degrees in 2008, an increase of 25 percent compared to ten years earlier

Total degrees awarded by institution type, AY1998–2008 (in millions)



Note: "Other" includes public baccalaureate, private associate's, and all specialty, tribal, less than two-year, and unclassified institutions.

Source: Delta Cost Project IPEDS database, 1987–2008, unmatched set.

growth rate of all public and private nonprofit institutions, increasing degrees awarded by 40 percent since 1998. Private bachelor's institutions granted the lowest number of degrees at almost 170,000 in 2008.

- Private for-profit institutions have had significant increases in degree production, growing by more than 210 percent over the ten-year period, granting 256,000 degrees in 2008.

Patterns and trends in the types of degrees conferred

The Carnegie 2005 classifications are determined, in part, by the types of degrees granted, but a large variance in the degree mix remains—with public institutions more focused on undergraduate education than their private nonprofit counterparts. One constant, however, is the shift to graduate degree production, with the undergraduate share of total degrees decreasing across most types of institutions in recent years.

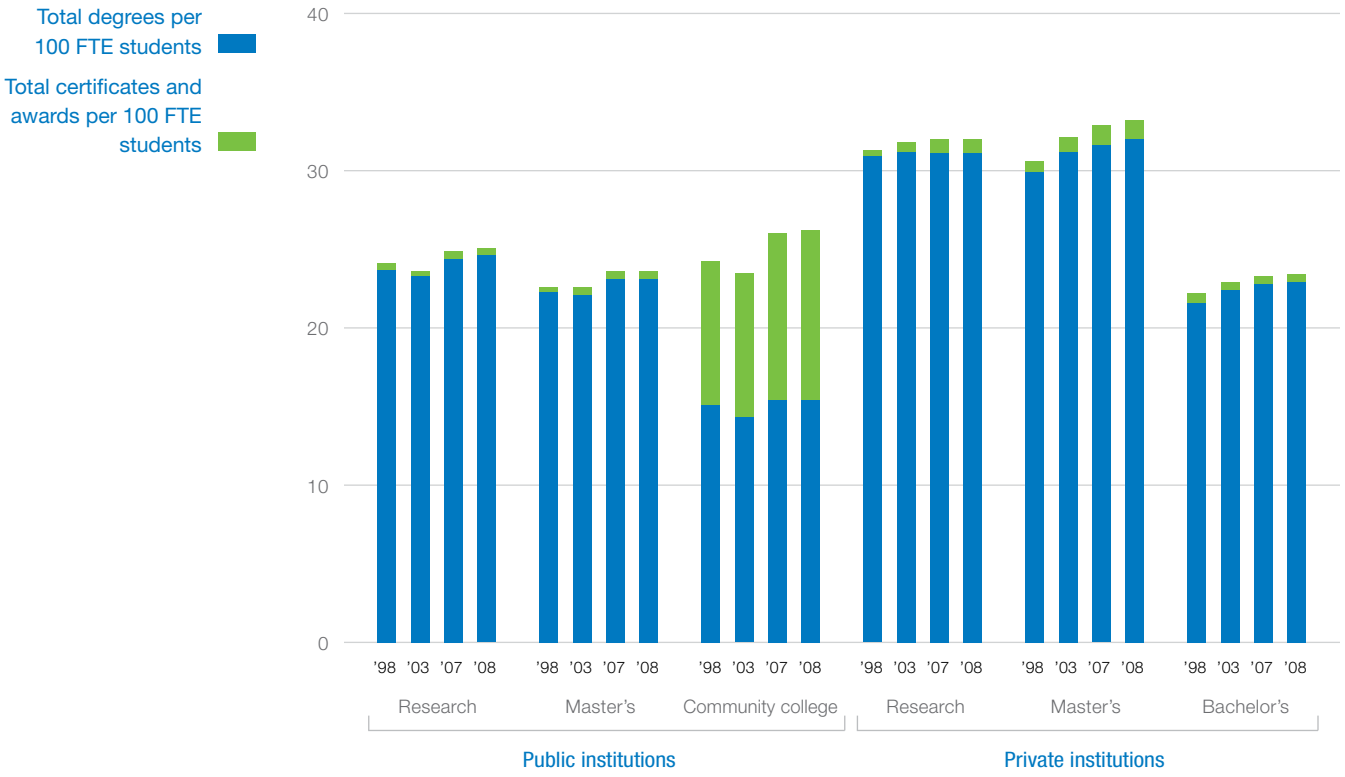
- At public research institutions, 68 percent of all degrees granted are bachelor's degrees, compared to only 46 percent of degrees granted at private research institutions. Moreover, the share of bachelor's degrees has been increasing slightly at the public research universities while falling modestly at the private research institutions.
- At master's institutions, 73 percent of degrees granted at public schools are bachelor's degrees, compared with only 56 percent of degrees granted at private nonprofit institutions. The bachelor's degree share of total degrees has fallen at both public and private master's institutions, though most precipitously at private institutions, and was offset by a significant increase in master's degrees. Although private master's institutions have fewer graduate students enrolled than their public peers, they grant more graduate degrees.
- As the name implies, private bachelor's institutions grant the largest share of bachelor's degrees—83 percent of total degrees. However, overall these institutions also have become less focused on subbaccalaureate degree production, with the number of associate's degrees actually declining, while graduate degree production has more than doubled.

2. **Degree productivity is highest at private institutions, on average.** Based on a measure of relative degree output, private nonprofit research and master's institutions show the greatest degree productivity in higher education—they produced more than 30 degrees for every 100 FTE students enrolled in 2008 *(see Figure 16, next page)*. But while private master's institutions have increased their degree productivity the most over the ten-year period, private research institutions have largely maintained their already high output relative to other sectors,

Figure 16

Degree productivity is highest at private institutions, on average

Total degrees and completions per 100 FTE students, AY1998–2008



Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

demonstrating the smallest gains over the decade. Public four-year and private bachelor's institutions all show similar levels of degree productivity—about 23 to 25 degrees per 100 FTE students in 2008—and gains, with each adding about one degree per 100 students compared to 1998. Community colleges conferred significantly more certificates over the 1998–2008 period, and when both certificates and degrees are included in comparative measures, community colleges produce slightly more awards per 100 FTE than other public institutions. These modest increases in degree productivity—one more degree per 100 students enrolled—are far below the increases that will be needed to meet future attainment goals.

3. **Spending per degree and completion continued to rise in four-year institutions; public and private master's institutions appear to be the most cost-effective institutions when considering degree productivity.** Master's level institutions—both public and private—were consistently the most cost-efficient institutions, spending just over $55,000 per degree in 2008 *(see Figure 17)*. Given that private master's institutions also had the highest degree production ratios, they appear to be the most cost-efficient *and* effective sector of higher education. However, recall also that the prior data on subsidies showed that students in these institutions are also paying the majority of their educational costs, receiving only small subsidies on average.

Figure 17

Public and private master's institutions appear to be the most cost-effective institutions when considering degree productivity

Total education and related spending per degree/completion, AY1998–2008 (in 2008 dollars)

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

Among public institutions, community colleges spend the most per degree ($73,700) while public research institutions are in the middle of the range ($64,000). However, many community college students are not seeking degrees, so when including both degrees and certificates, community colleges demonstrated the lowest cost per completion, on average, of any higher education sector. Community colleges are also the only sector where spending per completion (or degree) was *lower* in 2008 than both five and ten years prior. Nevertheless, if the goal is to increase degrees, enrolling more students in community colleges may not be the most cost-effective strategy, unless degree completion rates rise, or students successfully transfer and graduate from four-year institutions.

Policy relevance of the measures

Looking at the changes in degree output and the cost per degree/completion encourages institutions and policy makers to focus on degree productivity rather than just enrollment. Examining the relationship between spending and outcomes helps address questions such as:

- What types of institutions are better at moving students through the system and out with a credential, and are current policies aimed at enrolling students in these sectors?
- Which institution types are more or less cost-efficient, and are they also the most degree-productive?

Limitations of the metrics

Degree and completion ratios do not show changes that may have occurred in the types of degrees or certificates being awarded at an institution, nor do they address the *quality* of education, and therefore offer just a broad indication of degree productivity. Measures of cost per degree or completion are similarly affected by these limitations, and therefore can't be used as a pure "productivity" measure.

Spending and equity: Does the money go where students enroll?

This final section looks at a single metric that shows where students are enrolled relative to how much money is spent:

1. Comparisons of spending per student with headcount enrollment by institution type and sector.

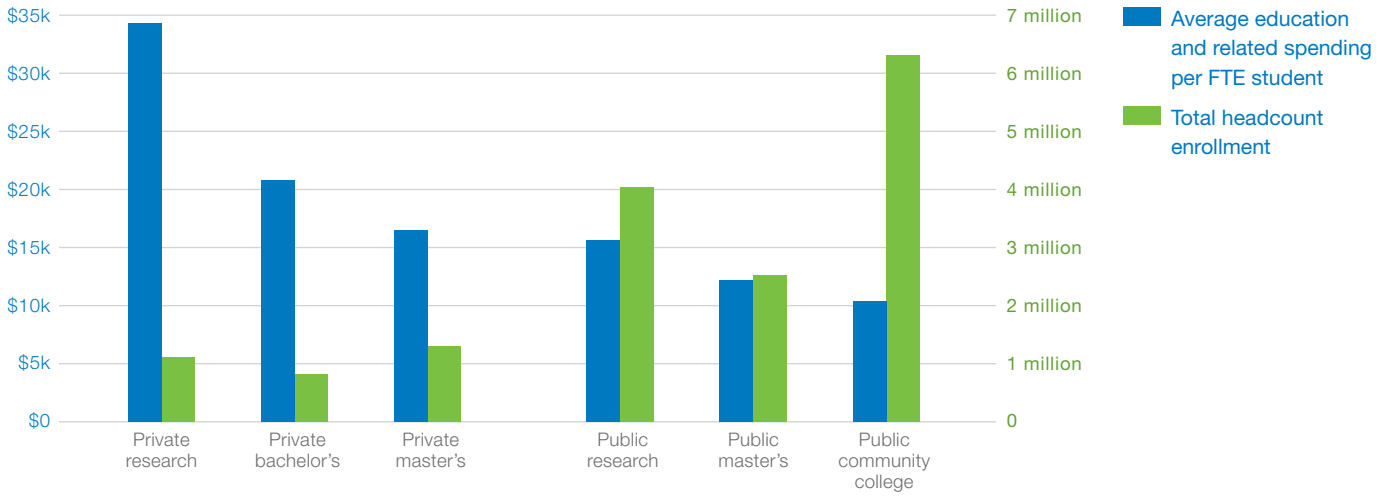
Institutions serving the most students spend the least amount on their education. The United States has long had the reputation of having the richest postsecondary institutions in the world—according to the Organisation for Economic Cooperation and Development—with average spending around $19,000 per student, compared to the OECD average of $8,400. But our analysis shows that these comparisons are misleading at best. While the United States has some of the wealthiest institutions in the world, it also has a "system" of postsecondary education with far more economic stratification than is true of any other country, with the majority of students enrolled in public community colleges spending closer to $10,000 per student a year *(see Figure 18)*. These institutions are also where the majority of low-income and first-generation students are enrolled, and where degree completion is far below where it needs to be if we are to meet national attainment goals.

While research shows that funding levels are not at all well correlated with degree production, surely we cannot expect to materially increase educational performance without ensuring that this sector has the capacity to meet student demand with sufficient resources to invest in

Figure 18

Institutions serving the most students spend the least amount on their education

Enrollment vs. spending, AY2008 (in 2008 dollars)



Source: Delta Cost Project IPEDS database, 1987–2008, spending data from 11-year matched set, enrollment data from unmatched set.

student success. The current recession will almost certainly increase these inequalities, just at a time when more students are forced to consider low-cost educational options, turning to our public higher education system just when their funding is most strained.

Policy relevance of the measure

In the absence of good objective indicators of funding sufficiency, policy makers often turn to measures of equity as a way to make judgments about funding levels. This measure should not be used as a single way to evaluate adequacy or equity; but if it is used alongside other measures—such as diversity and attainment goals, student academic preparation, retention and degree completion—it can help address whether funding patterns are reflective of policy priorities.

Conclusion: Cost management and the "new normal"

The United States is being challenged as never before by the imperative to increase educational access and performance to meet social and economic goals. The Obama administration and several foundations have set the goal to return the United States to a position of international leadership in postsecondary attainment within the next decade. This means moving attainment rates from the current rate of 40 percent of the population to closer to 60 percent. This cannot be done without closing access and equity gaps across the K-20 continuum. Achieving gains of this magnitude in a short period of time will require extraordinary focus and a sense of urgency and possibility that is shared between state and federal policy makers, and institutional leaders.

Unfortunately, anyone looking from the outside in at postsecondary education in 2010 has to conclude that, as a country, we are moving in the opposite direction. Revenue shortfalls in both public and private institutions have become the occasion, once again, for steep increases in student tuitions, cutbacks in enrollments, and reductions in course offerings. Employee furloughs are becoming common, along with layoffs and program closures. The depth of the funding crisis is such that, more than ever before in our history, there is widespread consensus that the "cost model" for higher education is broken. Unfortunately, for too many institutions this translates to a search for new revenues—through increases in out-of-state enrollments in public research institutions, or to securing new federal funds for institutional operating support, or for new sources of tax dollars at the state level. And while the attainment goals justify some new investments in higher education, we can't expect enough "new money" to pay for the kinds of changes that are needed. The future investment strategy for higher education has to include regular, transparent attention to cost restructuring: reducing spending overall, while generating new sources of capital to pay for the instructional expansions and innovations that have to take place.

Public perceptions to the contrary, higher education leaders are no strangers to budget cutting. But the data in this report show yet again that the dominant model has been to manage revenue shortfalls through cost shifting and one-time budget cuts. The consequence is higher student tuitions, along with a slow erosion of resources to support the core academic program. The deeper work to permanently reduce spending—through changes in staffing structures, looking at how tenured faculty are used for teaching, by paring back benefit structures that aren't sustainable, and through economies of scale for academic and institutional support—is only now beginning in far too many institutions.

If current trends persist, in 2025 the United States will have lower levels of educational attainment than much of the rest of the developed world. Turning this trajectory around will require huge attention to the deep issues of educational inequality, and the leaky pipeline that persistently disadvantages first-generation and low-income students. Compared to that, solving the structural financial problem is small potatoes. But if we don't get the financing side straightened out, through permanent restructuring of costs and greater attention to productivity, the failures of our funding system will be the reason our country fails in academic performance. Surely we can do better than that.

Appendix

Definitions of variables included in aggregate spending measures and additional data details

Operating expenditures are presented at various levels of disaggregation, shown below. After excluding several layers of spending that aren't directly related to student learning, we arrive at a measure of education and related spending—often called the "full cost of education."

- **Total operating spending:** Total operating spending accounts for all college and university expenditures. It is comprised of E&G plus spending on auxiliaries, hospitals, independent, and other operations. Total operating expenses are a top-line budget number presented to trustees and state legislatures to show the total economic activity of colleges and universities; however, this isn't a pertinent cost metric as it relates to the core educational activities of the institution.

- **Education and general (E&G) spending:** Education and general spending excludes auxiliary enterprises but includes sponsored research. E&G measures are commonly used within the academy, but we feel that they present a distorted view of core activities since sponsored research funding cannot be used for discretionary spending. Spending for E&G can be increasing even as spending for instruction is declining. So although we report on E&G, we think the more pertinent measure is what we call education and related spending, or E&R.

- **Education and related (E&R) spending:** Education and related spending is the core spending measure used to examine student-related expenditures. E&R includes 100 percent of reported expenditures on instruction and student services, as well as the instructional share of costs for "general support, administration, and maintenance," including academic support, institutional support, and operations and maintenance (O&M). The difference between E&G and E&R is largely explained by sponsored research and public service, and their share of affiliated expenses for academic and institutional support and O&M. E&R includes spending from all revenue sources, and spending on all students (including undergraduates, graduates, and others) and disciplines. E&R also includes spending for "departmental" or nonsponsored research, since this is paid for as part of faculty salaries, and is tied to the educational mission of the institution.

Figure A1

Public institutions: Average revenues per FTE student, AY1998–2008 (in 2008 dollars)

Public research institutions	1998	2003	2004	2005	2006	2007	2008
Net tuition	$5,195	$6,036	$6,565	$6,941	$7,246	$7,411	$7,563
State and local appropriations	$9,981	$9,456	$8,918	$8,745	$9,047	$9,338	$9,492
Federal appropriations and federal, state, and local grants and contracts	$5,243	$8,073	$8,284	$8,579	$8,537	$8,462	$8,417
Auxiliary enterprises, hospitals, independent operations, and other sources	$7,465	$8,397	$8,798	$9,129	$9,364	$9,663	$9,879
Private and affiliated gifts, grants, contracts, investment returns, and endowment income	$2,055	$1,976	$2,085	$2,178	$2,367	$3,310	$1,561
Total operating revenue	$29,938	$33,939	$34,648	$35,572	$36,322	$37,938	$36,725

Public master's institutions							
Net tuition	$3,999	$4,507	$4,975	$5,224	$5,376	$5,492	$5,607
State and local appropriations	$7,141	$6,942	$6,540	$6,347	$6,577	$6,759	$7,022
Federal appropriations and federal, state, and local grants and contracts	$2,262	$3,139	$3,156	$3,139	$3,135	$3,172	$3,280
Auxiliary enterprises, hospitals, independent operations, and other sources	$2,725	$2,981	$2,978	$3,098	$3,068	$3,127	$3,149
Private and affiliated gifts, grants, contracts, investment returns, and endowment income	$383	$335	$321	$354	$450	$618	$449
Total operating revenue	$16,466	$17,904	$17,968	$18,161	$18,549	$19,110	$19,445

Community colleges							
Net tuition	$2,202	$2,577	$2,743	$2,813	$2,890	$2,983	$2,992
State and local appropriations	$6,747	$6,270	$6,148	$6,152	$6,580	$6,836	$7,054
Federal appropriations and federal, state, and local grants and contracts	$2,436	$3,155	$3,215	$3,063	$3,030	$3,027	$3,213
Auxiliary enterprises, hospitals, independent operations, and other sources	$1,094	$1,205	$1,196	$1,147	$1,144	$1,129	$1,189
Private and affiliated gifts, grants, contracts, investment returns, and endowment income	$219	$195	$163	$226	$290	$371	$291
Total operating revenue	$12,563	$13,343	$13,425	$13,367	$13,789	$14,203	$14,603

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

Note: Data may not sum to totals because revenues were summed at the institution level before calculating aggregate category averages.

Private institutions: Average revenues per FTE student, AY1998–2008 (in 2008 dollars)

1998	2003	2004	2005	2006	2007	2008	Private research institutions
$16,343	$18,203	$18,439	$18,870	$18,985	$19,586	$19,836	Net tuition
$507	$1,010	$758	$672	$739	$773	$813	State and local appropriations
$8,920	$10,947	$11,711	$12,016	$11,665	$11,342	$11,116	Federal appropriations and federal, state, and local grants and contracts
$15,197	$16,617	$17,264	$17,996	$18,528	$19,579	$19,930	Auxiliary enterprises, hospitals, independent operations, and other sources
$29,052	$15,473	$30,432	$30,587	$33,623	$45,732	$15,594	Private and affiliated gifts, grants, contracts, investment returns, and endowment income
$69,381	$61,184	$77,691	$79,411	$82,760	$96,213	$66,354	**Total operating revenue**
							Private master's institutions
$11,853	$13,043	$13,403	$13,635	$13,852	$14,224	$14,332	Net tuition
$462	$410	$404	$390	$358	$332	$349	State and local appropriations
$1,108	$1,241	$1,224	$1,152	$1,125	$1,072	$1,074	Federal appropriations and federal, state, and local grants and contracts
$3,405	$3,629	$3,741	$3,714	$3,981	$3,973	$3,782	Auxiliary enterprises, hospitals, independent operations, and other sources
$5,831	$2,890	$4,556	$4,040	$4,473	$5,679	$2,525	Private and affiliated gifts, grants, contracts, investment returns, and endowment income
$22,170	$20,762	$22,868	$22,485	$23,366	$24,894	$21,651	**Total operating revenue**
							Private bachelor's institutions
$10,751	$12,253	$12,590	$12,825	$12,962	$13,297	$13,515	Net tuition
$501	$439	$392	$363	$469	$499	$595	State and local appropriations
$1,659	$1,783	$1,675	$1,615	$1,549	$1,504	$1,438	Federal appropriations and federal, state, and local grants and contracts
$5,356	$5,755	$6,345	$5,787	$5,991	$6,112	$5,911	Auxiliary enterprises, hospitals, independent operations, and other sources
$17,392	$7,252	$14,195	$11,710	$13,529	$19,440	$5,475	Private and affiliated gifts, grants, contracts, investment returns, and endowment income
$34,987	$26,929	$34,646	$31,799	$33,949	$40,285	$26,269	**Total operating revenue**

Figure A2

Public institutions: Average expenditures per FTE student, AY1998–2008 (in 2008 dollars)

	Public research sector	1998	2003	2004	2005	2006	2007	2008
Standard expense categories	Instruction	$8,837	$9,112	$8,973	$9,131	$9,301	$9,516	$9,732
	Research	$4,528	$5,311	$5,419	$5,560	$5,509	$5,504	$5,567
	Student services	$1,097	$1,203	$1,209	$1,219	$1,253	$1,283	$1,318
	Public service	$1,635	$1,834	$1,877	$1,884	$1,849	$1,872	$1,912
	Academic support	$2,400	$2,342	$2,345	$2,383	$2,471	$2,534	$2,775
	Institutional support	$2,049	$2,121	$2,088	$2,137	$2,248	$2,339	$2,456
	Operations and maintenance	$1,704	$1,859	$1,905	$1,997	$2,138	$2,173	$2,147
	Net scholarships and fellowships	$2,018	$1,070	$1,009	$1,054	$1,058	$1,086	$1,099
	Education and general	$24,269	$24,827	$24,798	$25,338	$25,800	$26,272	$26,972
	Auxiliary enterprises, hospitals, independent and other operations	$6,490	$6,478	$6,614	$6,822	$6,976	$7,195	$7,661
	Total operating expenditures	$30,758	$31,304	$31,412	$32,160	$32,776	$33,467	$34,633
Grouped expense categories	Education and related	$13,921	$14,219	$14,056	$14,319	$14,779	$15,167	$15,619
	Research and related	$6,125	$7,120	$7,257	$7,466	$7,480	$7,505	$7,665
	Public service and related	$2,205	$2,448	$2,507	$2,530	$2,513	$2,553	$2,629
	Net scholarships and fellowships	$2,018	$1,070	$1,009	$1,054	$1,058	$1,086	$1,099
	Education and general	$24,269	$24,827	$24,798	$25,338	$25,800	$26,272	$26,972
	Auxiliary enterprises, hospitals, independent and other operations	$6,490	$6,478	$6,614	$6,822	$6,976	$7,195	$7,661
	Total operating expenditures	$30,758	$31,304	$31,412	$32,160	$32,776	$33,467	$34,633

	Public master's sector	1998	2003	2004	2005	2006	2007	2008
Standard expense categories	Instruction	$5,738	$5,916	$5,836	$5,816	$5,896	$6,035	$6,209
	Research	$449	$466	$546	$537	$508	$668	$664
	Student services	$1,150	$1,219	$1,212	$1,242	$1,256	$1,311	$1,365
	Public service	$501	$629	$626	$613	$623	$634	$629
	Academic support	$1,344	$1,380	$1,369	$1,386	$1,409	$1,439	$1,490
	Institutional support	$1,807	$1,982	$1,965	$1,879	$1,936	$1,999	$2,055
	Operations and maintenance	$1,298	$1,448	$1,427	$1,524	$1,617	$1,628	$1,661
	Net scholarships and fellowships	$1,779	$1,022	$963	$909	$883	$899	$949
	Education and general	$13,989	$13,987	$13,853	$13,826	$14,052	$14,525	$14,905
	Auxiliary enterprises, hospitals, independent and other operations	$2,328	$2,289	$2,153	$2,307	$2,357	$2,314	$2,486
	Total operating expenditures	$16,307	$16,276	$16,006	$16,133	$16,410	$16,838	$17,391
Grouped expense categories	Education and related	$10,885	$11,392	$11,254	$11,296	$11,553	$11,839	$12,185
	Research and related	$663	$706	$788	$792	$766	$939	$930
	Public service and related	$770	$970	$966	$943	$958	$971	$972
	Net scholarships and fellowships	$1,779	$1,022	$963	$909	$883	$899	$949
	Education and general	$13,989	$13,987	$13,853	$13,826	$14,052	$14,525	$14,905
	Auxiliary enterprises, hospitals, independent and other operations	$2,328	$2,289	$2,153	$2,307	$2,357	$2,314	$2,486
	Total operating expenditures	$16,307	$16,276	$16,006	$16,133	$16,410	$16,838	$17,391

Note: Public institutions reported gross scholarships and fellowships prior to 2002, with some institutions reporting gross amounts through 2004. Data may not sum to totals because expenditures were summed at the institution level before calculating aggregate category averages.

Private institutions: Average expenditures per FTE student, AY1998–2008 (in 2008 dollars)

1998	2003	2004	2005	2006	2007	2008	Private research sector	
$15,946	$18,152	$18,236	$18,660	$18,690	$19,480	$19,520	Instruction	Standard expense categories
$8,523	$10,729	$11,343	$11,627	$11,409	$11,140	$11,216	Research	
$2,349	$2,775	$2,788	$2,937	$3,104	$3,185	$3,200	Student services	
$1,450	$1,465	$1,362	$1,382	$1,254	$1,259	$1,293	Public service	
$3,887	$4,803	$4,796	$4,835	$5,055	$5,207	$5,471	Academic support	
$5,065	$6,018	$6,165	$6,227	$6,350	$6,583	$6,894	Institutional support	
$2,815	$3,046	$3,123	$3,269	$3,637	$3,585	$3,858	Operations and maintenance	
$1,149	$1,391	$1,431	$1,478	$1,130	$1,198	$1,235	Net scholarships and fellowships	
$38,305	$45,081	$45,735	$46,866	$47,338	$48,440	$49,298	**Education and general**	
$12,260	$13,795	$13,813	$13,985	$14,252	$14,586	$14,703	Auxiliary enterprises, hospitals, independent and other operations	
$50,565	$58,738	$59,272	$60,572	$61,306	$62,735	$63,707	**Total operating expenditures**	
$27,061	$30,703	$30,905	$31,711	$32,415	$33,702	$34,332	Education and related	Grouped expense categories
$11,801	$15,100	$15,907	$16,261	$16,318	$15,871	$16,322	Research and related	
$2,031	$2,105	$1,964	$2,002	$1,840	$1,878	$1,936	Public service and related	
$1,149	$1,391	$1,431	$1,478	$1,130	$1,198	$1,235	Net scholarships and fellowships	
$38,305	$45,081	$45,735	$46,866	$47,338	$48,440	$49,298	**Education and general**	
$12,260	$13,795	$13,813	$13,985	$14,252	$14,586	$14,703	Auxiliary enterprises, hospitals, independent and other operations	
$50,565	$58,738	$59,272	$60,572	$61,306	$62,735	$63,707	**Total operating expenditures**	

1998	2003	2004	2005	2006	2007	2008	Private master's sector	
$6,369	$6,803	$6,811	$6,785	$6,894	$7,056	$7,056	Instruction	Standard expense categories
$836	$860	$832	$792	$710	$701	$684	Research	
$2,084	$2,360	$2,373	$2,404	$2,477	$2,603	$2,654	Student services	
$877	$820	$639	$525	$490	$468	$467	Public service	
$1,468	$1,628	$1,652	$1,643	$1,662	$1,701	$1,711	Academic support	
$3,383	$3,674	$3,691	$3,716	$3,737	$3,864	$3,873	Institutional support	
$1,315	$1,338	$1,311	$1,343	$1,354	$1,342	$1,401	Operations and maintenance	
$1,743	$1,329	$1,206	$1,225	$969	$1,091	$939	Net scholarships and fellowships	
$15,776	$16,671	$16,588	$16,556	$16,653	$17,080	$17,183	**Education and general**	
$2,697	$3,044	$3,052	$2,992	$3,202	$3,162	$3,172	Auxiliary enterprises, hospitals, independent and other operations	
$18,405	$19,677	$19,591	$19,501	$19,794	$20,172	$20,274	**Total operating expenditures**	
$14,319	$15,479	$15,538	$15,616	$15,864	$16,316	$16,458	Education and related	Grouped expense categories
$1,193	$1,292	$1,249	$1,207	$1,098	$1,079	$1,068	Research and related	
$1,280	$1,256	$1,021	$881	$832	$793	$778	Public service and related	
$1,743	$1,329	$1,206	$1,225	$969	$1,091	$939	Net scholarships and fellowships	
$15,776	$16,671	$16,588	$16,556	$16,653	$17,080	$17,183	**Education and general**	
$2,697	$3,044	$3,052	$2,992	$3,202	$3,162	$3,172	Auxiliary enterprises, hospitals, independent and other operations	
$18,405	$19,677	$19,591	$19,501	$19,794	$20,172	$20,274	**Total operating expenditures**	

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

Figure A2 (continued)

Public institutions: Average expenditures per FTE student, AY1998–2008 (in 2008 dollars)

	Community colleges	1998	2003	2004	2005	2006	2007	2008
Standard expense categories	Instruction	$5,043	$4,880	$4,821	$4,824	$4,967	$5,131	$5,216
	Research	$51	$55	$39	$46	$62	$53	$50
	Student services	$1,127	$1,157	$1,130	$1,148	$1,182	$1,232	$1,234
	Public service	$379	$393	$368	$365	$372	$354	$367
	Academic support	$946	$912	$892	$900	$933	$957	$982
	Institutional support	$1,709	$1,659	$1,680	$1,676	$1,742	$1,799	$1,863
	Operations and maintenance	$1,097	$1,145	$1,122	$1,146	$1,232	$1,269	$1,273
	Net scholarships and fellowships	$1,408	$1,211	$1,104	$1,016	$951	$924	$1,004
	Education and general	$11,588	$11,170	$10,931	$10,890	$11,208	$11,503	$11,732
	Auxiliary enterprises, hospitals, independent and other operations	$840	$952	$1,018	$1,002	$986	$1,050	$1,149
	Total operating expenditures	$12,350	$12,054	$11,878	$11,828	$12,128	$12,486	$12,812
Grouped expense categories	Education and related	$9,774	$9,600	$9,496	$9,551	$9,907	$10,247	$10,396
	Research and related	$81	$85	$63	$75	$100	$83	$79
	Public service and related	$586	$615	$583	$573	$591	$561	$582
	Net scholarships and fellowships	$1,408	$1,211	$1,104	$1,016	$951	$924	$1,004
	Education and general	$11,588	$11,170	$10,931	$10,890	$11,208	$11,503	$11,732
	Auxiliary enterprises, hospitals, independent and other operations	$840	$952	$1,018	$1,002	$986	$1,050	$1,149
	Total operating expenditures	$12,350	$12,054	$11,878	$11,828	$12,128	$12,486	$12,812

Note: Public institutions reported gross scholarships and fellowships prior to 2002, with some institutions reporting gross amounts through 2004. Data may not sum to totals because expenditures were summed at the institution level before calculating aggregate category averages.

Private institutions: Average expenditures per FTE student, AY1998–2008 (in 2008 dollars)

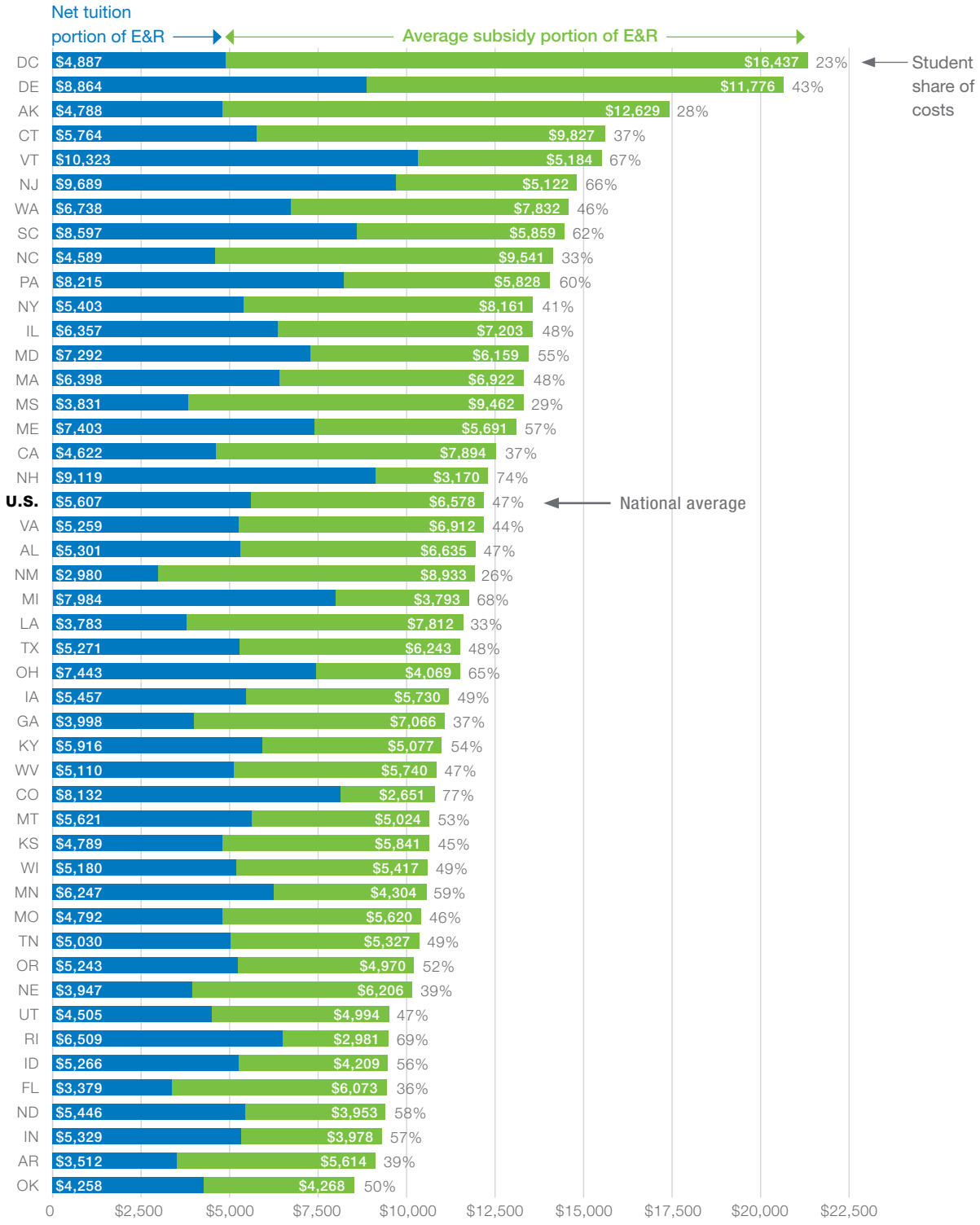
1998	2003	2004	2005	2006	2007	2008	Private bachelor's sector	
$7,232	$7,972	$7,963	$7,986	$7,936	$8,062	$8,172	Instruction	Standard expense categories
$746	$715	$747	$729	$731	$740	$725	Research	
$2,845	$3,352	$3,381	$3,442	$3,542	$3,660	$3,740	Student services	
$588	$748	$710	$699	$679	$692	$628	Public service	
$1,692	$1,953	$1,948	$1,953	$1,958	$1,994	$2,017	Academic support	
$4,548	$4,854	$4,807	$4,783	$4,957	$4,973	$5,091	Institutional support	
$1,923	$1,932	$1,929	$1,992	$2,035	$2,070	$2,110	Operations and maintenance	
$3,159	$2,692	$2,668	$2,685	$1,687	$1,529	$1,692	Net scholarships and fellowships	
$19,894	$21,170	$21,122	$21,150	$21,136	$21,397	$21,676	**Education and general**	
$4,349	$4,943	$4,863	$4,851	$4,929	$4,989	$4,953	Auxiliary enterprises, hospitals, independent and other operations	
$24,150	$26,050	$25,912	$25,898	$25,961	$26,270	$26,503	**Total operating expenditures**	
$17,909	$19,705	$19,665	$19,804	$20,090	$20,407	$20,750	Education and related	Grouped expense categories
$1,263	$1,223	$1,285	$1,262	$1,260	$1,279	$1,232	Research and related	
$1,002	$1,307	$1,233	$1,191	$1,148	$1,162	$1,048	Public service and related	
$3,159	$2,692	$2,668	$2,685	$1,687	$1,529	$1,692	Net scholarships and fellowships	
$19,894	$21,170	$21,122	$21,150	$21,136	$21,397	$21,676	**Education and general**	
$4,349	$4,943	$4,863	$4,851	$4,929	$4,989	$4,953	Auxiliary enterprises, hospitals, independent and other operations	
$24,150	$26,050	$25,912	$25,898	$25,961	$26,270	$26,503	**Total operating expenditures**	

Source: Delta Cost Project IPEDS database, 1987–2008, 11-year matched set.

Figure A3

A snapshot of state subsidy patterns for education and related expenses—public master's sector

Average E&R spending, net tuition, and subsidy per FTE student at public master's institutions by state, AY2008

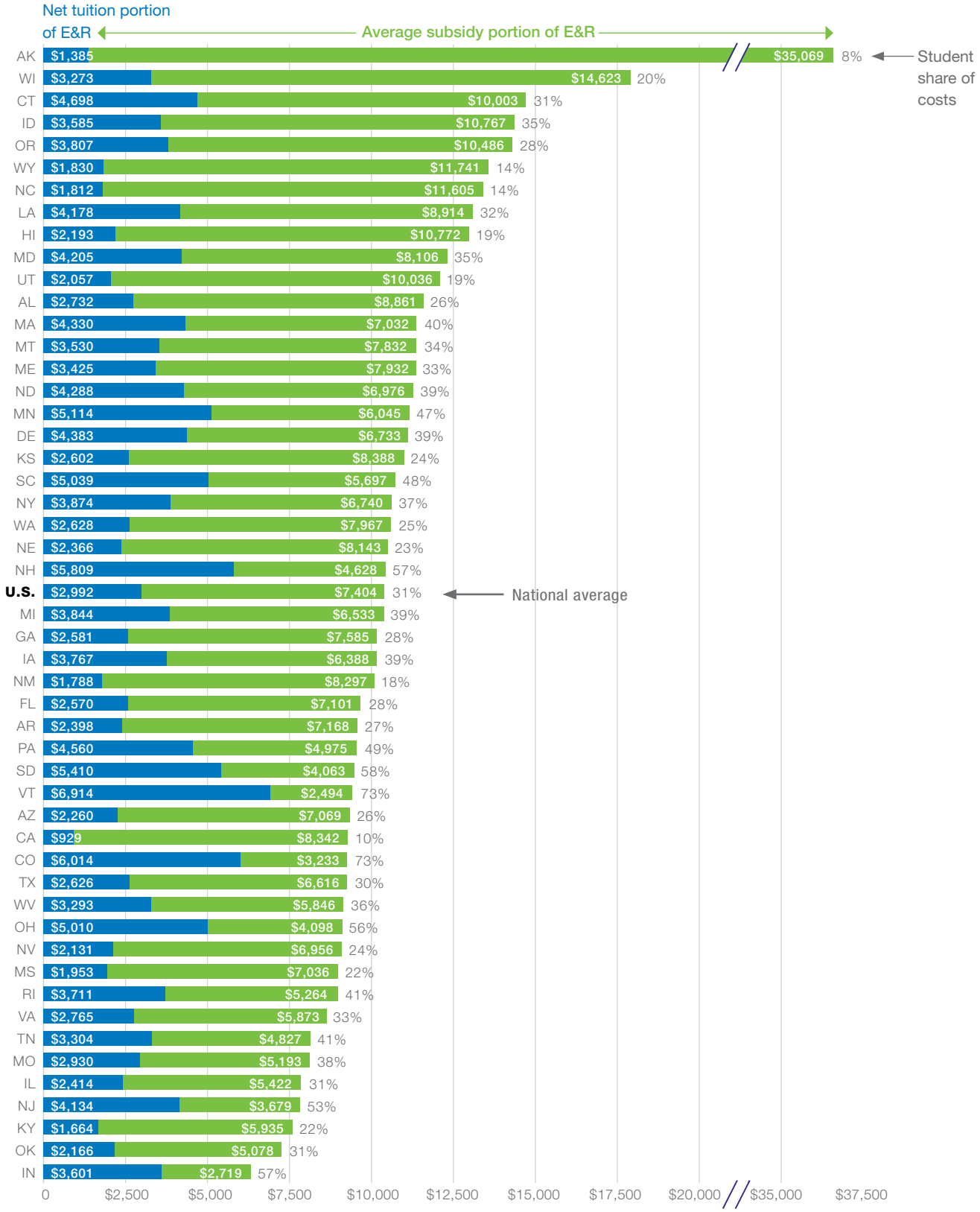


Source: Delta Cost Project IPEDS state database, 2003–2008.

Figure A4

A snapshot of state subsidy patterns for education and related expenses—community colleges

Average E&R spending, net tuition, and subsidy per FTE student at community colleges by state, AY2008



Source: Delta Cost Project IPEDS state database, 2003–2008.


DELTA PROJECT
on Postsecondary Education Costs,
Productivity, and Accountability