Trends in College Spending

1999-2009

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

1999–2009

Where does the money come from?

Where does it go?

What does it buy?

Donna M. Desrochers

Jane V. Wellman

A report of the Delta Cost Project

Supported by Lumina Foundation for Education

Acknowledgments

The authors wish to acknowledge the involvement of many colleagues who contributed to this work, with particular thanks to the Delta Cost Project's Board of Directors: Robert Atwell, Kati Haycock, and Richard Legon; and to the members of our advisory committee: Alisa Cunningham, Vice President of the Institute for Higher Education Policy; Sandra Baum, Consultant to the College Board; Patrick Kelly, Senior Associate, National Center for Higher Education Management Systems; Kenneth Redd, Director of Research and Policy Analysis at the National Association of College and University Business Officers; and David Wright, Associate Executive Director of the Tennessee Higher Education Commission. Thanks go as well to Debby Friedman, the Administrative Director at the Delta Cost Project, and to our colleagues Rita Kirshstein and Steve Hurlburt at the American Institutes for Research. We also appreciate the design and editorial contributions of Betsy Rubinstein at InForm Communications and editor Deanna High. Special thanks go this year to Colleen Lenihan, for her painstaking work on the data and many contributions over the years. We wish her the best as she transitions from the Delta Project to a career in federal service.

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

A PDF of this report, which includes additional data not available in the print version, is available online at no charge: www.deltacostproject.org.

Contents

List of figures

Data appendix

Trends in college spending

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

Higher education at the beginning of the Great Recession

Trends in College Spending, 1999–2009: Where does the money come from? Where does it go? What does it buy? is the fourth in a series of reports on college and university spending from the Delta Cost Project on Postsecondary Education Costs, Productivity, and Accountability. The mission of the Delta Cost Project is to improve public accountability for spending in higher education through the presentation of measures that put financial information into context, showing how money is spent and how that spending relates to institutional performance. The findings presented in this report concentrate on the 1999 to 2009 academic years; 2009 is the last year for which spending data are available and the first year of the "Great Recession," whose effects are still reverberating through higher education.

Readers should be cautioned against viewing 2009 spending levels as emblematic of the fiscal situation facing institutions today. Consequences of this deep recession are only beginning to show up in the data in this report. Although the recession technically was declared over in mid-2009, sustained economic growth has yet to return, and the negative consequences on state budgets in particular won't play out until 2012 or 2013 when the state fiscal troughs will be at their lowest levels, and the federal stimulus funds will have been spent.[1]

Highlights of *Trends, 1999–2009*:

- The immediate effect of the recession was most evident at public community colleges. Spending per student fell in 2009, fueled by a combination of enrollment growth and revenue losses. As a result, community colleges fell further behind other institutions—public, non-profit, and for-profit—in their ability to serve growing populations of students with resources adequate to ensure access, attainment, and quality.
- Although non-profit private institutions experienced large paper losses on their financial investments, other sources of revenue grew and spending went up, continuing a twenty-year trend of widening differences between public and private institutions.

[1] National Association of State Budget Officers and the National Conference of State Legislatures, "A New Funding Paradigm for Higher Education," available at www.nasbo.org/LinkClick.aspx?fileticket=MEqFX1WtTPY%3d&tabid=38

About the Delta Cost Project IPEDS database

The data in this report were drawn from the Delta IPEDS database. This database was developed using publicly available data reported to the federal government through a series of annual IPEDS surveys on higher education finance, enrollments, completions, staffing, 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 for each institution are standardized by FTE enrollments. National estimates are derived for each sector from these institutional, FTE-adjusted data. Estimates are further adjusted for inflation.

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 (1999-2009) used in this report, which collectively accounts for about 90 percent of two- and four-year institutions in the public and private, non-profit 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, non-profit sectors. The institutions are classified as follows:

1) public research—152 institutions
2) public master's—229 institutions
3) public community colleges—797 institutions
4) non-profit private research—99 institutions
5) non-profit private master's—313 institutions
6) non-profit private bachelor's—470 institutions

For ease of data presentation, private non-profit two-year colleges, public bachelor's institutions, tribal colleges, and specialty schools are excluded from the presentation of financial data. They are included (along with for-profit institutions) in select measures on enrollments and completions.

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" *(see 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 rapid growth in this sector makes it difficult to generate a consistent sample over time. Improving the quality and reliability of public data about revenues and spending for this important, growing sector should be a priority for future federal attention to improvements in the IPEDS financial files.

- While public four-year institutions were unable to keep pace with spending increases at private non-profit institutions, they did protect educational spending per student even as overall revenues per student declined, spending about what they averaged in 2008.
- There is some good news: An uptick in the conversion of enrollments into degrees and lower numbers of student credit hours per degree or certificate signal improvement in educational degree productivity over the decade. These increases have not yet translated to decreased production costs, as spending continued to rise. Only community colleges have managed to lower their production costs per completion, largely through producing less-costly certificates rather than boosting degree output.
- Contrary to patterns in previous years, we see in 2009 public four-year institutions protecting instruction and student services by shifting spending away from administration and deferring maintenance. These spending changes suggest that institutions were managing budget reductions more strategically than in previous recessions, when across-the-board cuts were more common.
- The proportion of education and related spending financed from tuition revenues went up, exceeding even the jump following the 2001 recession. At public institutions, revenues from tuition rose to replace lost revenues from other sources, but in private non-profit institutions, increased revenues from tuition were redistributed primarily through tuition discounts. Almost everywhere, rising student tuition revenues did not translate into greater education and related spending, so students were paying for more while institutions were subsidizing less. This gap between prices and spending raises troubling questions about the sustainability of the funding model for the future and is the source of growing public and policy critiques of higher education.
- Disparities between rich and poor institutions in overall spending levels have never been larger. Since policy makers and the public often form impressions about higher education based on a relatively small handful of elite institutions, it is important to note that by far the largest majority of students are being served in institutions that spend on average around $10,000 per student per year—no more than we spend for elementary and secondary education.

The Delta Metrics

Improving cost accountability in higher education lies, in part, in the metrics of cost or expenditure analysis and in organizing information to spotlight where the money comes from, where it goes, and what it buys. Most fiscal indicators in higher education focus on revenues only or on tuition prices. This narrow focus fails to put resources into context by showing the proportion of revenues going to pay for core educational purposes and thus revealing changes over time relative to enrollments or in comparison with other institutions. Sloppy metrics about higher education finance contribute to confusion about costs and prices and obscure how resources are used.

To advance the discussion, the Delta Project has organized data already in the public domain, through the federal IPEDS (Integrated Postsecondary Education Data System) 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 each other.[3] This report focuses on national averages across sectors; more detailed data showing institutional measures can be found at the Delta Project on-line data base, at www.tcs-online.org. Metrics include:

Revenues

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

Spending

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

Spending, subsidies, and tuitions

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

---

[2] Enrollments are adjusted per full-time equivalent (FTE) student enrolled, and inflation using the CPI-U (fiscal-year basis). 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 and results

10. Total degrees and completions
11. The ratio of total degrees and completions relative to enrollments
12. Education and related spending per graduate or other completers
13. Credit hours per completion

Spending and equity

14. Spending compared against enrollment: where the money goes and where the students attend; and
15. Comparative changes in spending and enrollment over time.

Enrollments: Where do students attend?

Higher education finance data are most useful when put into context, beginning by looking at spending in relation to enrollments, and adjusting for changes over time. Enrollment-adjusted funding trends show very different patterns than when looking only at revenues or expenditures alone. So we begin this report by reflecting on the enrollment changes occurring across post-secondary education in 2009.

Enrollments at U.S. postsecondary institutions increased by more than 860,000 students between 2008 and 2009—nearly a 5 percent increase since 2008 and the single largest one-year increase since the mid 1970s.[4] These tremendous enrollment increases provide important context for the subsequent financial analyses because the patterns and trends on revenues and expenditures are all normalized by full-time equivalent (FTE) enrollment.[5]

Greatest enrollment growth was in public community colleges and for-profit institutions, but all types of institutions added new students. Community colleges had the greatest increase in enrollment in 2009, adding 341,000 students and growing by nearly 5.5 percent—a significant uptick relative to recent years *(see Figure 1, next page)*. Enrollment in for-profit institutions (two- and four-year) also rose substantially, growing at a faster *rate* than community colleges, albeit on a lower base; community colleges still enrolled many more new students and have a student body that is four-times as large as the for-profit sector. In four-year institutions enrollments grew between 1 to 2 percent in 2009. Despite the rapid gains in community colleges and for-profit enrollments, the share of students enrolled part-time in higher education has remained unchanged at about 38 percent since 2005.

[4] Enrollment grew by 960,000 students between 1974 and 1975, but attendance reached a historic high in academic year 2009-10, when an additional 1.3 million students enrolled in higher education. Thomas D. Snyder and Sally A. Dillow, 2011, *Digest of Education Statistics, 2010*. (Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education (NCES 2011-015, Table 197)).

[5] After converting enrollments to a "full-time equivalent" (FTE) basis to account for part-time students, the substantial enrollment increases in 2009 remain. FTE enrollments grew by 4.5 percent in 2009 and increased by more than 636,000 students—the largest increase during the 1999–2009 period. Although community colleges typically have a significantly larger share of part-time students, these institutions still grew faster and added more students than other sectors when comparing FTE-adjusted enrollments.

Figure 1

Public community colleges had the greatest enrollment increase in 2009, but private for-profit institutions grew at the fastest rate

Total enrollment by institutional sector and student level, AY1999-2009 (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, 1987-2009, unmatched set.

Change in market share. Over the past decade, there has been a palpable shift in sector shares of the undergraduate student market, with more than a 5 percent share loss among four-year institutions, and a 4.6 percentage point increase in the for-profit market *(see Figure 2)*. The shift has been even more pronounced in the graduate and professional market, where for-profit institutions increased their market share by more than 7 percentage points. Despite these shifts, the proportion of undergraduate and graduate/first-professional students remained steady over the 1999 to 2009 period, with undergraduates consistently accounting for 86 percent of all enrollments.[6]

Postsecondary education continues to become increasingly diverse. Enrollments increased among all race/ethnic groups in 2009, and all types of postsecondary institutions became more diverse. But with significantly faster growth rates among minority students, they represented 42 percent of postsecondary enrollments in 2009 *(see Figure 3)*, compared to 34 percent in 1999.

[6] The classification of students by graduate and first-professional levels in IPEDS was modified starting in the 2009 academic year. These two categories have been combined into post-baccalaureate students to provide consistent data over time.

Figure 2

Change in market share of enrollment

Distribution of undergraduate and graduate enrollments, AY1999-2009

	Undergraduate			Graduate		
	1999	2009	Change	1999	2009	Change
Public research	22.8%	20.4%	-2.4%	42.2%	36.9%	-5.3%
Public master's	14.9%	13.8%	-1.1%	17.9%	15.6%	-2.3%
Community colleges	41.9%	42.6%	0.7%	—	—	—
Private research	4.8%	4.1%	-0.7%	22.0%	19.8%	-2.3%
Private master's	6.4%	5.8%	-0.5%	14.0%	15.8%	1.8%
Private bachelor's	5.5%	4.9%	-0.5%	1.7%	2.4%	0.7%
Private for-profit sector (two- and four-year only)	3.7%	8.4%	4.6%	2.1%	9.4%	7.4%
Total enrollment	100%	100%	—	100%	100%	—

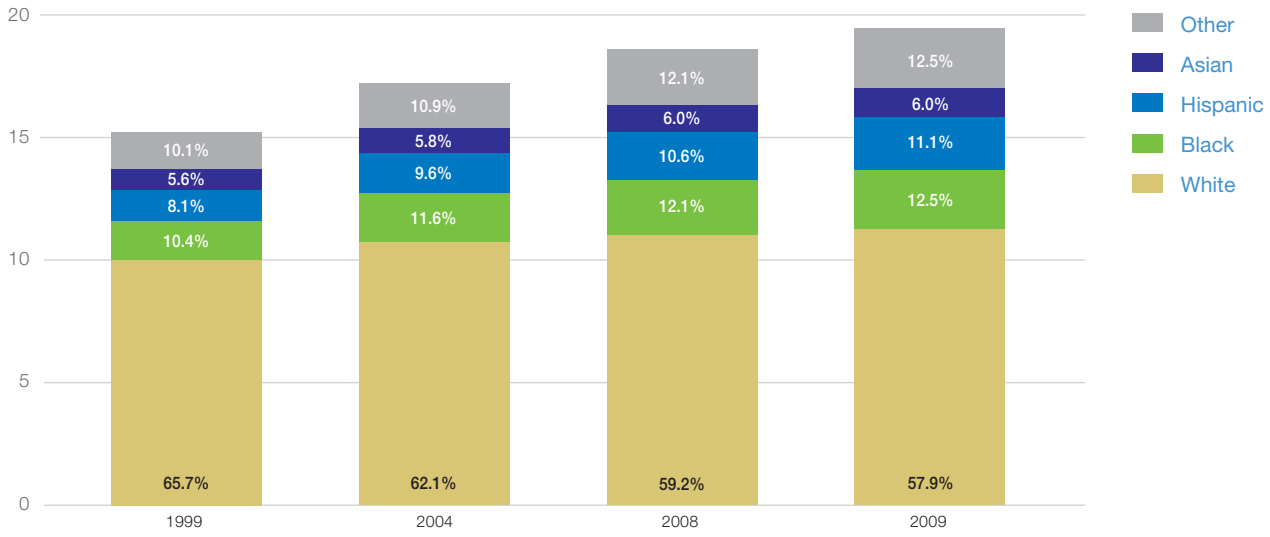
Note: Excludes "other" institutions (public baccalaureate, private associate's, and all specialty, tribal, less than two-year, and unclassified institutions).

Source: Delta Cost Project IPEDS database, 1987-2009, unmatched set.

Figure 3

Enrollments increased among all race/ethnic groups, and diversity continued to increase across institutional sectors

Fall headcount enrollment by race/ethnicity, AY1999-2009 (in millions)



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

Source: Delta Cost Project IPEDS database, 1987-2009, unmatched set.

Hispanic student enrollments have consistently grown the fastest, and were up by nearly 10 percent in 2009 alone. Though growth among Black students has been slightly slower over the period, they remain the largest group of minority students. The number of new White students enrolling each year is still greater than the number of new students from any other single race/ethnic group, but they accounted for only 58 percent of total enrollments in 2009, a decline of 8 percentage points in ten years.

Policy implications

For-profits' growth will increase policy interest in their performance. The shift in undergraduate market share from four-year to two-year institutions and from public and private non-profit institutions to for-profit institutions, is particularly relevant to federal policy, because of the heavy dependence of many for-profit institutions on tuitions supported by federal loans. It is not surprising from these trends that the federal government has started to pay more attention to measures of the market value of these degrees, a scrutiny we suspect will not be confined to the for-profit career colleges for long.

Change in market share for graduate and professional markets. The growth in the graduate/professional share of the market among non-profit master's and for-profit institutions bears deeper analysis. We suspect that most of this shift is occurring in the first-professional areas, where student and employer demand has been strong because of well-documented wage premiums paid to holders of professional degrees. As the undergraduate markets become increasingly pinched, the master's/professional market presents an opportunity for institutions to reach new "full-pay" student audiences, a decidedly attractive niche for institutions looking for new sources of net tuition revenue.

Revenues: Where does the money come from?

Revenue patterns and trends show the level of resources available over time as well as changes in the source of those revenues. Shifts in revenue sources are significant to spending patterns because the source often dictates how the money can be spent. To understand how revenues patterns may have shifted, we look at the following primary revenue metrics:

1. Total operating revenues by major sources;
2. The interaction between net tuitions revenues and state and local appropriations, which are the primary funding sources for the academic mission at public institutions; and
3. Patterns of tuition discounting and the differences between sticker price, gross tuition, and net tuition revenues.

The 2009 academic year was turbulent from a revenues perspective, reflecting significant impacts of the economic recession on state budgets and financial markets, which in turn affected institutions in different ways. Here are our primary findings on the ways the recession affected revenues:

1. **Public community colleges showed the deepest effects of the early recession in 2009, with declines in revenues per student deeper than in other public institutions.** Increases in tuition were not enough to offset sharp declines in state and local appropriations per student, and community colleges suffered absolute reductions in revenue per student in 2009 of

Where the money comes from: Revenue sources

- **Net tuition revenue:** Total revenue from tuition and fees (including grant and loan aid used by students to pay tuition); institutional student aid that is applied to tuition and fees is excluded.
- **State and local appropriations:** Revenues received through state or local legislative organizations (except grants, contracts, and capital appropriations).
- **Private gifts, investment returns, and endowment income (PIE):** Private gifts include revenues received from private donors, 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 (excluding Pell grants).
- **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" are 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" includes educational sales and services and miscellaneous revenues not covered elsewhere.

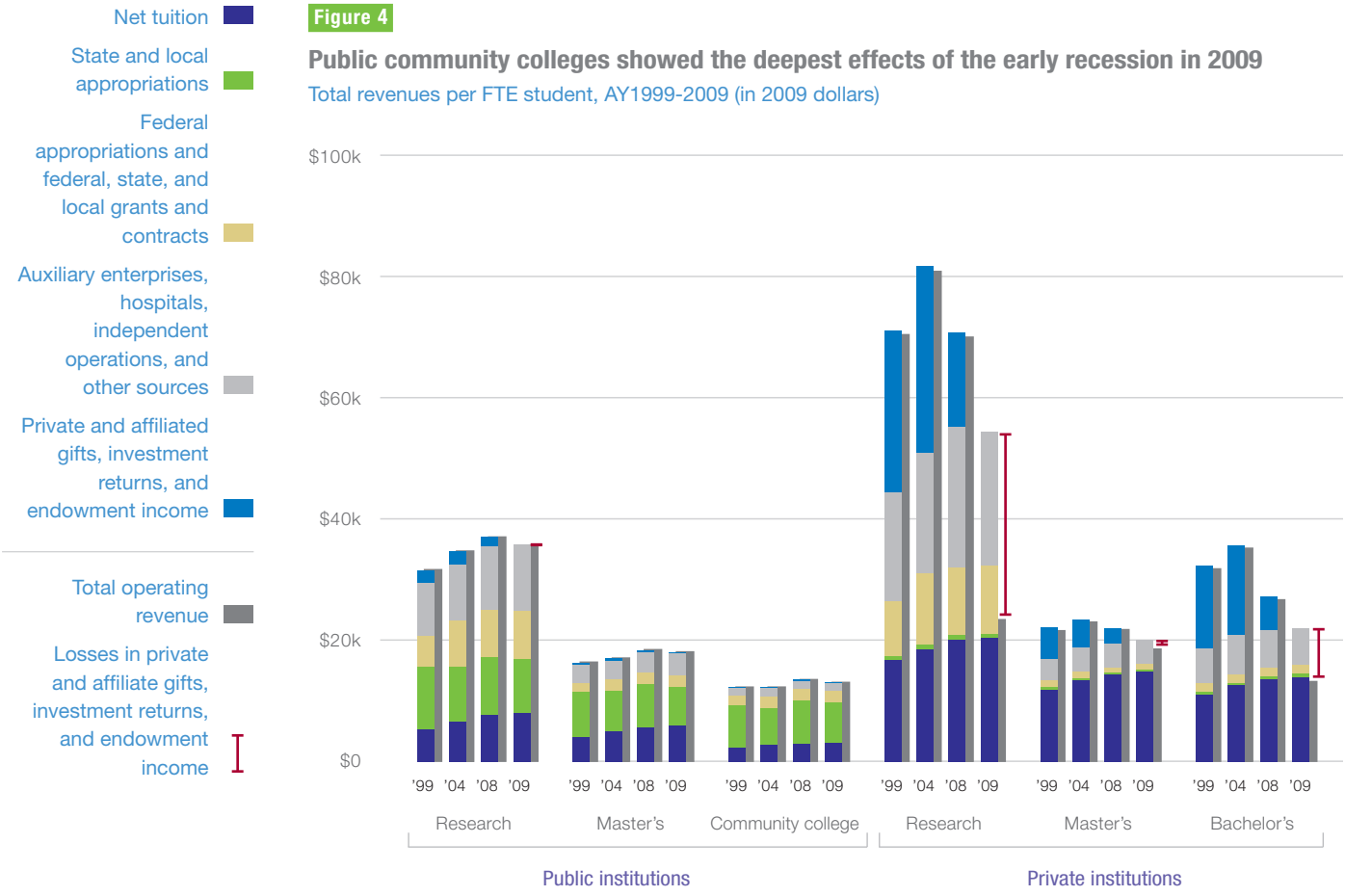
3.4 percent. Cuts in public master's institutions were slightly less, declining by 2 percent *(see Figure 4)*. But overall revenues per student in these sectors only reverted to roughly 2007 levels, and were well ahead of where they were five and ten years prior. Public research institutions also experienced declines in state and local revenues and in their investment portfolios. After factoring out declines in their investment portfolios (which may indeed reflect "unrealized" losses), revenues per student at public research institutions actually increased by almost 1 percent, on average, in 2009 as tuitions and other revenue sources made up for losses in state funding.

2. **Non-profit private institutions also suffered the effects of the recession in 2009 with declines in the value of their investment portfolios**. Non-profit institutions, which generally have larger investment portfolios than public institutions, were hit particularly hard by financial market declines in 2009. Investment returns across these institutions were negative *(see Figure 4)*. These investment returns, however, include both realized and *unrealized* gains, so the

Figure 4

Public community colleges showed the deepest effects of the early recession in 2009

Total revenues per FTE student, AY1999-2009 (in 2009 dollars)



Note: In 2009, some sectors had negative returns from "private and affiliated gifts, investment returns, and endowment income," which resulted in significant declines in average total revenues; because these returns include realized and unrealized losses, excluding this volatile revenue source provides a better representation of available operating revenues.

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

Figure 5

Tuition revenues at public four-year colleges almost equaled state and local appropriations in 2009

Net tuition revenues and state and local appropriations revenues per FTE student, AY1999-2009 (in 2009 dollars)

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

impact of these declines may turn out to be modest and temporary. We know from other sources that investment revenue returns became positive again in 2010, and financial markets were up again in 2011.[7] Excluding investments, total revenues per student at private non-profit master's and bachelor's institutions increased to a ten-year high in 2009, while in non-profit research institutions, they declined back to 2007 levels.

3. **Nationwide, tuition revenues are nearly equal to state/local appropriations in public four-year institutions.** Across the public sector, revenues were hit hard by recession-related state budget cuts. Declines in state revenues were widespread, with average state and local funding per student close to ten-year lows. State and local appropriations per FTE student declined by roughly 7 to 8 percent, on average, in 2009, bringing them down close to their 2005 levels *(see Figure 5)*. Increases in average net tuition revenue of 4 to 5 percent buffeted some of the cuts. The result is that in 2009, the share of revenues per student coming from state support and from tuition was closer than at any point over the 1999 to 2009 period, except at community colleges.

4. **ARRA cushioning some revenues in 2009.** We know that some institutions began to receive ARRA (American Recovery and Reinvestment Act) resources in the last part of fiscal 2009. But ARRA revenues are difficult to isolate within the IPEDS data, particularly in 2009 when relatively few states had yet dispersed any of the money to higher education *(see "Where's the ARRA Money?," next page, for more on ARRA)*.

[7] The NACUBO-Commonfund Study of Endowments reports that higher education endowments returned an average of 11.9 percent in FY2010 compared to an average -18.7 percent return in FY2009. Available at www.nacubo.org/Documents/research/2010NCSE_Full_Data_Press_Release_Final.pdf

Where's the ARRA money?

In February of 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA) as a response to the economic crisis of 2008. Nearly 800 billion dollars were made available over three years to preserve and create jobs, spur economic activity, and invest in long-term growth—with nearly 100 billion of the money reserved for education (pre-k through college). It is difficult to separately identify these funds in IPEDS because few states distributed money in fiscal year 2009, and this money was reported along with other miscellaneous revenues.* As a result, we rely on data from the State Higher Education Finance (SHEF) FY2010 report by SHEEO to quantify the impact of ARRA.

Though ARRA infused significant money into U.S. higher education, the SHEF report shows it accounts for a fairly small share of overall operating revenues: ARRA represented only 2 percent of total educational revenues in 2009, before increasing to 4 percent in 2010. The majority of educational funding continues to come from state appropriations, local taxes, and net tuition.

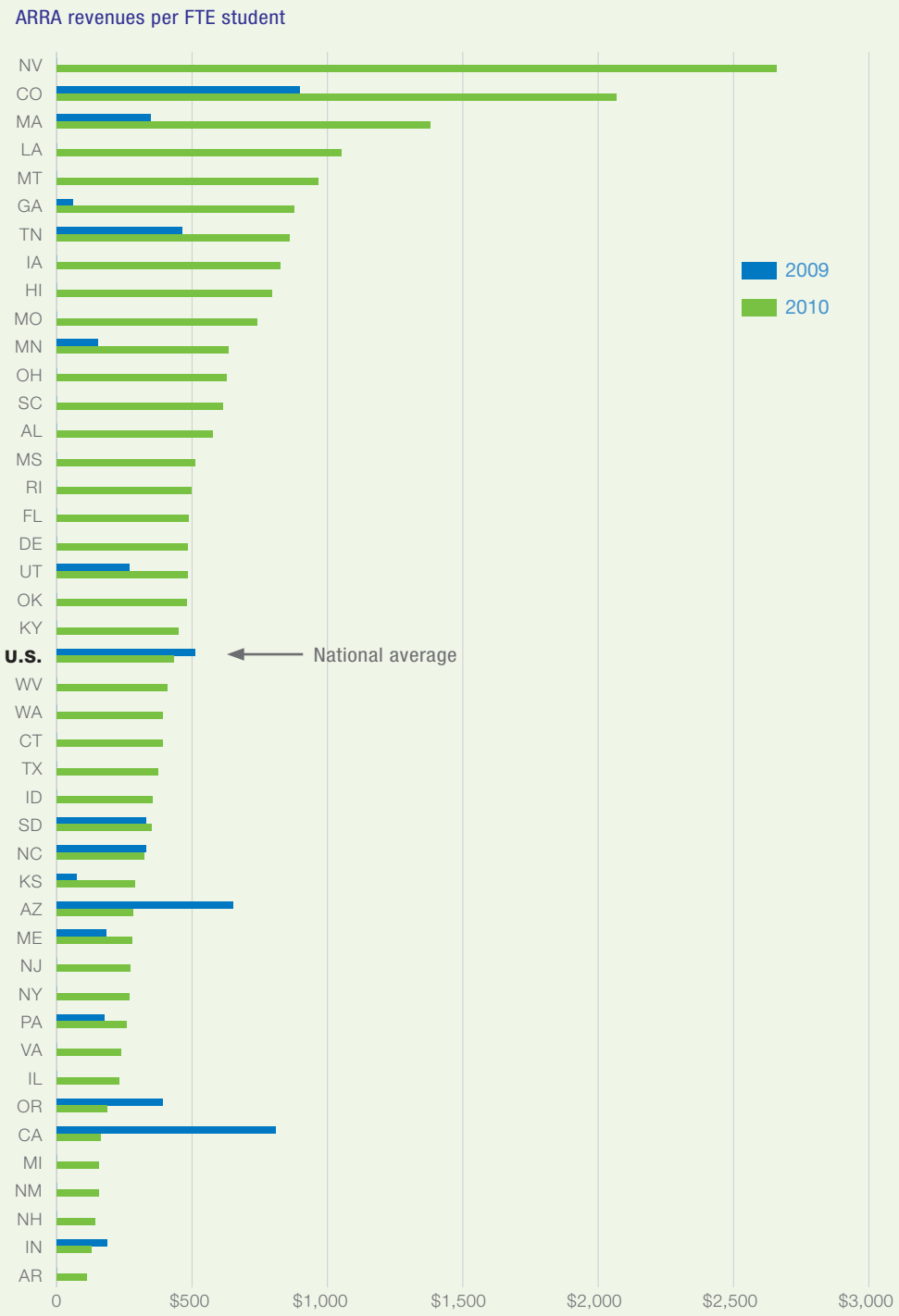
In 2009, 15 states used ARRA money for higher education, totaling 2.3 billion. The ARRA funds averaged $513 per FTE student across participating states, ranging from less than $100 per student in Kansas and Georgia to more than $800 per student in Colorado and California as shown in the graph on the facing page. But by 2010 most states were using ARRA money for higher education, totaling 4.7 billion in overall resources and averaging $433 per FTE student among participating states.

Some states relied more heavily on ARRA than others. In Colorado ARRA funds accounted for almost 20 percent of their total educational appropriations in 2009, rising to nearly one-half in 2010. California benefited early, with most of its ARRA funds coming in 2009 rather than 2010. Nevada also relied heavily on ARRA funds in 2010 to offset sharp cuts in state appropriations, with the funds accounting for more than one-third of total educational appropriations that year. By 2010, ARRA funds represented more than 10 percent of the total educational appropriations in 14 states.

---

* Rather than collecting ARRA funding as a separate line item in IPEDS, institutions were instructed to report ARRA funding in total revenues. It was then calculated as part of "other miscellaneous revenues," which is a derived residual. By the nature of its calculation this category has historically been quite volatile, and as a result it is difficult to isolate the extent of the ARRA resources in IPEDS in 2009. However, any reported ARRA funding should be included as "other revenues" rather than with state and local appropriations or as part of federal appropriations grants and contracts.

Sources: SHEEO, 2011, *State Higher Education Finance, FY2010* (Boulder, CO: State Higher Education Executive Officers), www.sheeo.org/finance/shef/SHEF_FY10.pdf and author's analysis of SHEF data files; www.ed.gov/recovery; www2.ed.gov/policy/gen/leg/recovery/presentation/index.html



Note: AK, MD, NE, ND, VT, WI, and WY did not report ARRA higher education revenues. The national average only includes states that received ARRA revenues in that year. All data are shown in 2009 dollars, adjusted using a fiscal-year CPI-U index.

Source: SHEEO, 2011.

5. **Both public and non-profit four-year institutions sharply increased student tuition revenues in 2009. Public institutions used the revenues to offset state budget cuts, while the non-profit institutions used them for student aid.** Public and private four-year institutions all responded to the recession through increases in sticker prices averaging roughly 4.5 percent in 2009 *(see Figure 6)*. While public sector increases were smaller than price increases after the 2001 recession, the private sector increases were the highest over the ten-year period examined.

Within the private, non-profit sector at research and bachelor's institutions, relatively less of the tuition revenue made it to the bottom line, as the majority of gross tuition revenues were channeled into increased institutional grant aid for students. As the tuition discount rate increased, private non-profit institutions were yielding much less between gross and net tuition revenues. In contrast, in the public sector, tuition discount rates held steady, and the majority of new tuition revenues went to pay for general fund purposes.

As in previous years, we see among public institutions a continuing pattern of published sticker prices going up much more slowly than gross tuition revenue (or total tuition and fee revenue before discounts). This is in stark contrast to pricing patterns in the non-profit private institutions, where sticker prices are typically higher than both gross and net tuition revenues. The posted, in-state undergraduate sticker price clearly no longer reflects average prices being charged to students in public institutions, as institutions are turning to out-of-state students, higher prices for graduate and professional students, and a variety of types of student fees.

Policy implications

Growing reliance on tuition revenues as state funding declines. The major theme in revenues continues to be the growing reliance on student tuition revenues for almost all parts of public and non-profit higher education, as institutional subsidies are declining and the student tuition share of costs is increasing. Decline in the state share of revenues in the public sector is being used by some to argue for a changed relationship between public institutions and state government through fewer regulatory controls on resources and greater flexibility for increasing tuitions. It is important to note that despite fewer public appropriations, public institutions are still chartered to serve public purposes (as are private non-profit institutions), and public funds still provide a significant portion of educational funding at most institutions.

Access may be threatened at community colleges. Another big message in these data is about the eroding capacity of community colleges to meet demands for access given limitations in state funding and constraints on tuition. If policy makers want to keep tuitions low in the community colleges, they will need to do more to protect subsidies to these institutions, as well as to look at ways to improve their cost effectiveness. This sector serves the largest

Figure 6

Pricing and discounting practices within institutions

Pricing versus revenues, AY1999-2009 (in 2009 dollars)

					2008-2009 change	
Public research sector	1999	2004	2008	2009	$	%
Sticker price	$4,440	$5,733	$6,609	$6,926	$317	4.8%
Gross tuition revenue	$6,351	$8,055	$9,405	$9,881	$476	5.1%
Net tuition revenue	$5,353	$6,640	$7,661	$8,030	$369	4.8%
Tuition discount rate	16%	17%	18%	18%		0%
Public master's sector						
Sticker price	$3,719	$4,705	$5,404	$5,666	$262	4.8%
Gross tuition revenue	$4,522	$5,661	$6,458	$6,748	$290	4.5%
Net tuition revenue	$4,075	$5,053	$5,698	$5,923	$225	4.0%
Tuition discount rate	10%	11%	12%	12%		0%
Community colleges sector						
Sticker price	$1,842	$2,179	$2,362	$2,429	$67	2.8%
Gross tuition revenue	$2,474	$2,970	$3,266	$3,385	$118	3.6%
Net tuition revenue	$2,307	$2,757	$3,005	$3,118	$113	3.8%
Tuition discount rate	11%	10%	11%	11%		0%
Private research sector						
Sticker price	$22,713	$25,960	$28,851	$30,093	$1,242	4.3%
Gross tuition revenue	$22,375	$25,406	$28,015	$29,007	$992	3.5%
Net tuition revenue	$16,825	$18,578	$20,071	$20,363	$293	1.5%
Tuition discount rate	24%	26%	27%	29%		2%
Private master's sector						
Sticker price	$16,239	$19,042	$21,252	$22,207	$955	4.5%
Gross tuition revenue	$15,373	$17,779	$19,433	$20,309	$876	4.5%
Net tuition revenue	$11,895	$13,415	$14,328	$14,864	$536	3.7%
Tuition discount rate	23%	24%	26%	26%		0%
Private bachelor's sector						
Sticker price	$16,860	$19,510	$21,464	$22,437	$973	4.5%
Gross tuition revenue	$16,285	$18,992	$20,965	$21,833	$868	4.1%
Net tuition revenue	$10,983	$12,575	$13,589	$13,969	$381	2.8%
Tuition discount rate	35%	33%	34%	35%		1%

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

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

share of poor students, many of whom graduate from high school lacking basic skills in reading, critical thinking, and math. If institutions do not have the basic capacity to offer courses or provide necessary services, maintaining access without resources proves to be a false promise.

Spending: Where does the money go?

Shifts among spending priorities that accompany changes in revenues are revealed in overall national spending patterns. We use the following expenditure measures to highlight differences in spending on various institutional activities:

1. Spending by standard expense categories *(see "Where the money goes," facing page),* showing spending in broad functional area such as instruction, student support, and research;
2. Spending aggregated into three different snapshots: *total* expenditures from all revenue sources and activities; *education and general (E&G) spending*—a subset that excludes auxiliary activities and hospitals; and *education and related (E&R) expenses*—a subset that focuses solely on the educational mission of institutions;
3. Spending within E&R, which is the proportion of E&R allocated to instruction, student services, and support/maintenance; and
4. Changes in employee compensation.

Traditional fiscal reports show "bottom line" or total spending from all sources of revenue, which overstates the amount of money that pays for the core educational missions of institutions. This naturally leads policy makers and consumers to believe that institutions have more money to spend than they do. Estimating the proportion of spending that goes for E&R focuses attention on the activities where funding priorities are set by the institution and its board rather than by external donors.

The derived E&R spending category is our single most important cost metric among the grouped expense categories. E&R offers the most robust measure of spending on student learning because it isolates spending related to the education mission. E&R includes spending on instruction, student services, and a portion of general support and maintenance costs associated with these functions.[8] Some analysts refer to this as a "full cost" measure, distinct from measures of "direct instructional" costs, which account for faculty salaries but exclude everything else. Because it includes spending for faculty salaries (except those paid from research contracts), E&R also includes spending for departmental or non-sponsored research. While some would prefer to exclude all research costs from E&R spending, it is a mission-related instructional cost in research institutions, as is the cost of graduate education, and so we include it within the measure. Whether paid from student tuitions or from other revenues, it is a cost of business and needs to be recognized as such.

[8] See Appendix Table A5 for a detailed explanation of the methodology for assigning expenses to E&R.

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 measure 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 and clinics, and independent and other operations:** User fee activities that do not receive general support. Auxiliary enterprises include dormitories, bookstores, and meal services.

Strained revenues created difficult spending choices for public institutions in 2009. While public four-year institutions managed to maintain spending on E&R functions, community colleges struggled with widespread spending cuts reminiscent of post 2001-recession years. Spending patterns at private non-profit institutions showed little effect from the economic downturn,

Figure 7

Institutions in the public four-year sectors nationwide weathered the recession fairly well

Spending per FTE student by standard expense categories, AY1999-2009 (in 2009 dollars)

					10-year change		1-year change	
Public research sector	1999	2004	2008	2009	$	%	$	%
Instruction	$9,086	$9,075	$9,860	$9,986	$900	9.9%	$127	1.3%
Research	$4,748	$5,478	$5,638	$5,799	$1,051	22.1%	$161	2.8%
Student services	$1,144	$1,223	$1,334	$1,365	$221	19.4%	$31	2.3%
Public service	$1,777	$1,897	$1,937	$1,975	$197	11.1%	$37	1.9%
Academic support	$2,555	$2,372	$2,811	$2,845	$291	11.4%	$34	1.2%
Institutional support	$2,167	$2,112	$2,486	$2,495	$328	15.2%	$9	0.4%
Operations and maintenance	$1,726	$1,934	$2,186	$2,073	$348	20.2%	-$112	-5.1%

					10-year change		1-year change	
Public master's sector	1999	2004	2008	2009	$	%	$	%
Instruction	$5,913	$5,891	$6,281	$6,291	$377	6.4%	$10	0.2%
Research	$350	$378	$413	$401	$51	14.4%	-$12	-2.9%
Student services	$1,199	$1,224	$1,379	$1,410	$211	17.6%	$31	2.2%
Public service	$551	$632	$629	$618	$67	12.1%	-$11	-1.8%
Academic support	$1,419	$1,382	$1,503	$1,542	$123	8.6%	$39	2.6%
Institutional support	$1,897	$1,977	$2,057	$2,033	$136	7.1%	-$24	-1.2%
Operations and maintenance	$1,326	$1,430	$1,675	$1,656	$330	24.9%	-$19	-1.1%

					10-year change		1-year change	
Public community college sector	1999	2004	2008	2009	$	%	$	%
Instruction	$5,242	$4,831	$5,251	$5,103	-$139	-2.6%	-$148	-2.8%
Research	$54	$39	$50	$64	$11	20.0%	$14	27.4%
Student services	$1,207	$1,156	$1,260	$1,258	$50	4.2%	-$2	-0.2%
Public service	$402	$368	$364	$351	-$51	-12.6%	-$13	-3.6%
Academic support	$1,027	$916	$1,013	$990	-$37	-3.6%	-$23	-2.2%
Institutional support	$1,794	$1,716	$1,890	$1,842	$48	2.7%	-$48	-2.5%
Operations and maintenance	$1,095	$1,092	$1,243	$1,224	$130	11.8%	-$19	-1.5%

albeit rates of increases in spending among private research institutions were somewhat lower than in prior years. Major findings reveal:

1. **In 2009, institutions in the public four-year sectors were, on average, weathering the recession fairly well.** Public research institutions managed their spending to protect increases across most areas, including instruction and student services, through deferring maintenance and holding administration costs steady *(see Figure 7)*. Public master's institutions displayed mixed spending patterns, but generally managed to preserve spending in instruction, student services, and academic support, with cuts in other areas. These 2009 spending patterns preserved a ten-year high in average E&R spending in contrast to spending after the 2001 recession, when cuts in E&R were immediately apparent and persisted for another two years before slowly rebounding.

Private research sector	1999	2004	2008	2009	10-year change $	10-year change %	1-year change $	1-year change %
Instruction	$16,251	$18,449	$19,790	$20,232	$3,981	24.5%	$443	2.2%
Research	$8,675	$11,270	$10,953	$11,262	$2,587	29.8%	$309	2.8%
Student services	$2,507	$2,832	$3,234	$3,390	$884	35.3%	$157	4.8%
Public service	$1,299	$1,404	$1,303	$1,305	$6	0.5%	$2	0.2%
Academic support	$4,385	$4,883	$5,582	$5,742	$1,357	31.0%	$160	2.9%
Institutional support	$5,349	$6,195	$6,924	$7,038	$1,689	31.6%	$114	1.6%
Operations and maintenance	$2,887	$3,356	$4,044	$4,270	$1,384	47.9%	$226	5.6%

Private master's sector	1999	2004	2008	2009	10-year change $	10-year change %	1-year change $	1-year change %
Instruction	$6,602	$6,924	$7,096	$7,280	$678	10.3%	$184	2.6%
Research	$869	$804	$642	$630	-$239	-27.5%	-$13	-2.0%
Student services	$2,193	$2,431	$2,707	$2,781	$588	26.8%	$75	2.8%
Public service	$547	$610	$442	$436	-$111	-20.2%	-$6	-1.4%
Academic support	$1,523	$1,664	$1,708	$1,753	$231	15.1%	$45	2.6%
Institutional support	$3,499	$3,685	$3,846	$3,947	$448	12.8%	$101	2.6%
Operations and maintenance	$1,365	$1,407	$1,489	$1,470	$105	7.7%	-$19	-1.3%

Private bachelor's sector	1999	2004	2008	2009	10-year change $	10-year change %	1-year change $	1-year change %
Instruction	$7,528	$8,086	$8,377	$8,524	$996	13.2%	$147	1.8%
Research	$636	$754	$718	$707	$72	11.3%	-$10	-1.4%
Student services	$2,982	$3,447	$3,832	$3,941	$958	32.1%	$109	2.8%
Public service	$628	$653	$607	$626	-$2	-0.3%	$18	3.0%
Academic support	$1,800	$1,992	$2,062	$2,112	$312	17.4%	$50	2.4%
Institutional support	$4,632	$4,934	$5,190	$5,205	$573	12.4%	$14	0.3%
Operations and maintenance	$1,938	$2,141	$2,236	$2,251	$313	16.1%	$15	0.7%

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

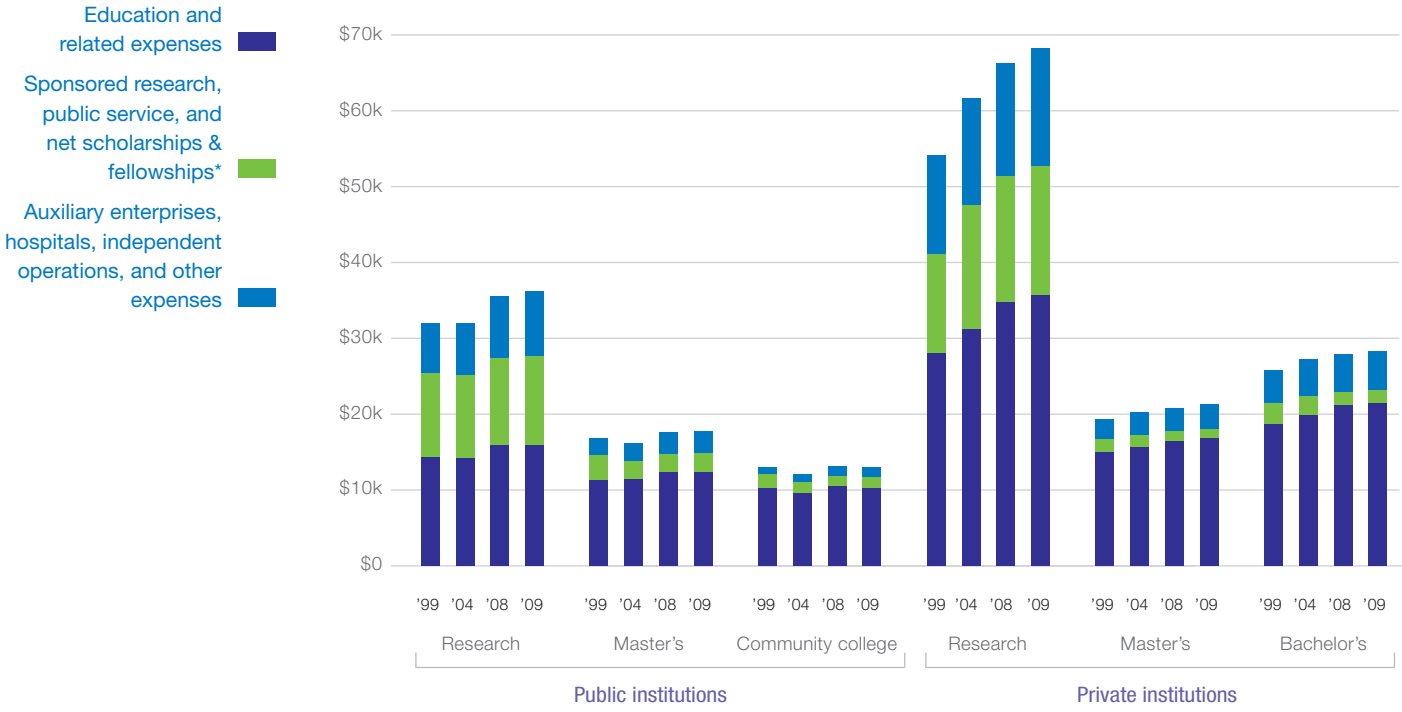
2. **Community colleges bore the brunt of the downturn in higher education spending in 2009.** Community colleges suffered across-the-board cuts in nearly all spending categories, particularly in instruction, though student services spending held steady. E&R spending dipped to recent 2007 levels, but was also the same as ten years earlier.

3. **Spending at private non-profit institutions was less affected by the recession and continued to increase almost unabated.** E&R spending rose between 1.5 and 2.5 percent, on average, at private non-profit institutions in 2009—a pace that was the same or faster than in 2008 at research and master's institutions *(see Figure 8, next page)*. At private non-profit research institutions, 2009 growth rates exceeded 2 percent in nearly all spending areas *(see Figure 7)*, posting a ten-year high in every category except research and public service.

Figure 8

Spending at private non-profit institutions was less affected by the recession and continued to increase almost unabated

Total expenditures per FTE student by grouped categories, AY1999-2009 (in 2009 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, 1987-2009, 11-year matched set.

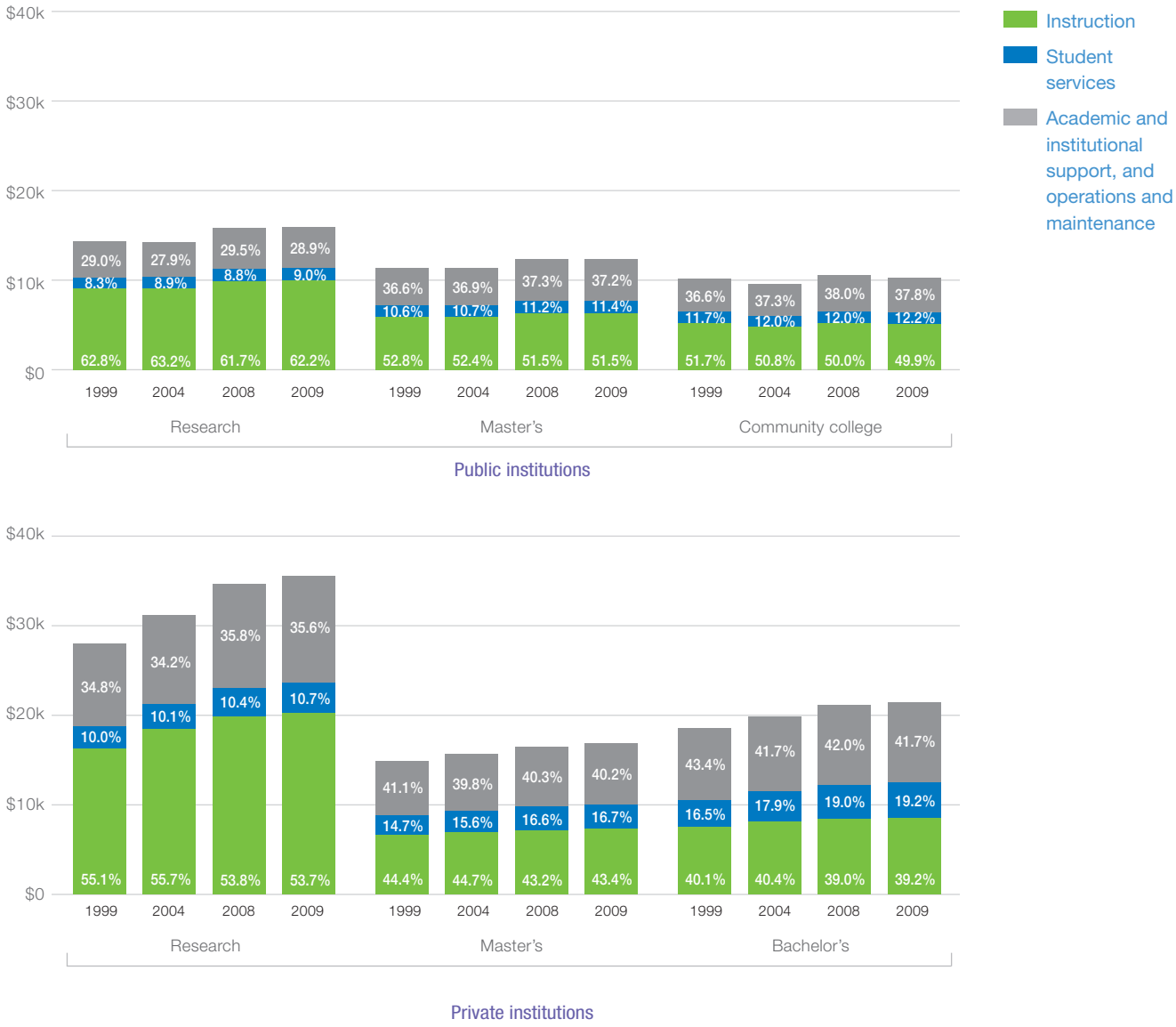
Like the public institutions, private master's and bachelor's institutions also held spending down on operations and maintenance.

4. **In all sectors, total spending grew faster than spending on E&R alone.** Total spending was boosted by spending on research (in research institutions) and auxiliary and other enterprises. Spending on research and its related administrative costs continued its steady increase at public institutions in 2009, but showed an uptick in private institutions after a several years of fairly steady spending. As evident from earlier economic downturns, research dollars—which are often awarded as multi-year contracts—tend to be more recession-proof than other types of resources. Spending on the public service mission continues recent patterns and was either steady or slightly declining across most sectors in 2009. Across all sectors, spending on auxiliaries, hospitals, and other independent operations grew faster than spending in most other areas in 2009, maintaining recent patterns across public institutions and in private research institutions.

Figure 9

Institutions halted a long-term decline in spending on instruction by cutting spending on administration/maintenance

Average education and related spending per FTE student by component, AY1999-2009 (in 2009 dollars)



Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

5. **Institutions dedicated a steady or increasing share of E&R spending toward instruction in 2009, halting a long-term decline by cutting spending on administration/maintenance.** Staving off a long-term trend, public master's and community colleges largely maintained the proportion of E&R dollars dedicated to instruction in 2009, while public research institutions increased it by one-half a percentage point *(see Figure 9)*. Nevertheless, instruction shares at non-research institutions remain at ten-year lows, while public research institutions

have returned to their 2006 levels. Public institutions continue to increase the share of spending on student services, evidently by reducing administrative/maintenance spending, reversing a ten-year trend of rising administrative/maintenance share of spending.

Similarly, at private non-profit institutions the share of spending on student services is increasing while steady or declining for administration/maintenance. Instruction shares increased slightly in public master's and bachelor's institutions. Even so, as in the public sector, instructional shares of total spending were at or near ten-year lows in 2009.

Trends in employee compensation, 2002-2009

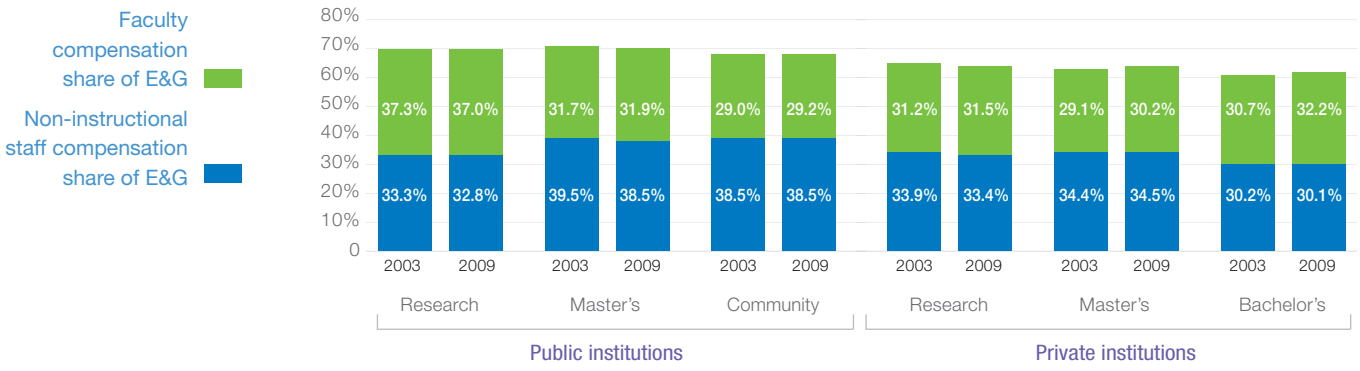
Colleges and universities are labor-intensive enterprises, and as such, spending on employee compensation—salaries and benefits—is a major driver of costs. Information on labor costs is most consistent beginning in the early 2000s, so we present these trends outside our normal Delta metrics, showing the most reliable years of available data. The patterns reveal how labor costs have changed over time:

- **Overall compensation comprises between 60 and 70 percent of education and general (E&G) spending in all sectors.** Among private non-profit institutions, the compensation share is slightly less than in public institutions *(see Figure 10)*. Only in private non-research institutions has the compensation share of costs noticeably increased.

Figure 10

Compensation costs comprise between 60 and 70 percent of E&G spending

Compensation share of E&G spending, AY 2003-2009



Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

- **Spending on faculty compensation does not exceed 40 percent of total spending in any sector.** The proportion of compensation spent on faculty has remained steady or decreased slightly over time. Looking only at full-time faculty, there has been little or no increase in the average salaries (in inflation-adjusted dollars) at public institutions between 2002 and 2009; salaries

at private institutions increased modestly. Full-time professors, however, only represent between 40 to 60 percent of faculty at four-year institutions. A growing reliance on part-time rather than full-time faculty has likely kept full-time faculty costs down and has also trimmed overall salary costs per employee in most sectors *(see Figure 11)*.

Figure 11

Changes in spending on faculty compensation

Average annual percent change

	2002-2009	2002-2008		
Public institutions	Full-time faculty salaries	Salary outlay per employee	Benefit cost per full-time employee	Compensation per employee
Research	0.2%	0.9%	5.2%	1.7%
Master's	-0.1%	-0.6%	4.6%	0.4%
Community colleges	0.1%	0.7%	5.2%	1.5%
Private institutions				
Research	0.6%	-0.3%	1.6%	0.0%
Master's	0.6%	-0.8%	2.4%	-0.5%
Bachelor's	0.4%	-0.5%	1.3%	-0.2%

Source: Delta Cost Project IPEDS Database, 1987-2008; 11-year matched set.

- **In recent years, a notable difference in compensation patterns has emerged between public and private non-profit institutions.** Wage and benefit gaps have widened, with public institutions spending more on benefits at the expense of wage increases, while private institutions have managed a better balance between the two. Benefit costs per full-time public employee increased by about 5 percent per year, a rate that is two to three times the growth at private institutions, and far exceeds growth in the average salary per employee at public institutions *(see Figure 11)*. By 2009, benefits costs were approaching 25 percent of compensation costs at public institutions, up from less than 20 percent in 2002 *(see Figure 12, next page)*. In private institutions benefits cost shares have increased by far less.

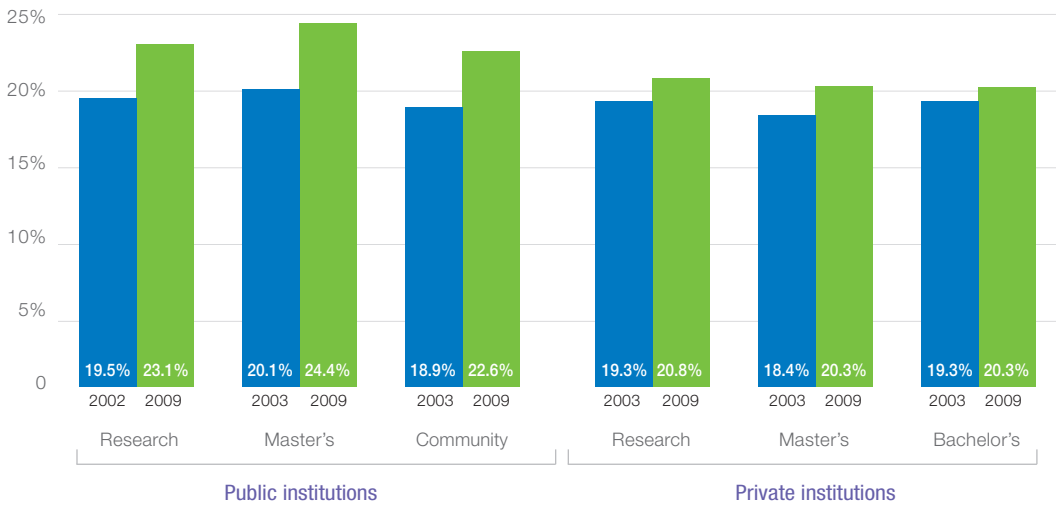
- **Total compensation costs per employee have continued to rise in public institutions, as increasing benefit costs offset any savings from holding salary costs down.** Private institutions, however, have been able to stabilize or cut total compensation per employee as smaller benefit cost increases were offset by staffing shifts that cut overall salary expenditures per employee.

- **Reliance on part-time faculty may lower overall costs per employee, but staffing increases can still contribute to rising costs per student.** Compensation costs *per student* have increased across all sectors, just as instruction and E&R costs per student increased through 2008. Though private institutions spent the same or less on compensation *per employee* in 2008 as in 2002, looking at compensation on a basis per FTE student shows that their costs actually

Figure 12

The benefit portion of compensation has increased sharply across the public sector

Benefit share of total compensation costs, AY2002-2009



Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

increased rapidly—by almost 11 percent in private research institutions and roughly 4 percent in non-research institutions. At public institutions, compensation increased on both a per employee and a per student basis. Despite controlling staff costs, if staffing hires outpace student enrollments, compensation costs per student can continue to rise.

Policy implications

Policy makers and others should focus on E&R spending as distinct from total spending including auxiliary enterprises and sponsored research. The traditional focus on total operating spending overstates the amount of resources that are under the control of most institutions, as well as those that can be reallocated to support general purposes. The measure of education and related spending is a more accurate reflection of general funds or unrestricted funds.

Improved budget strategies of four-year public institutions may fade as recession effects deepen. The protection of spending for instruction and student services in public research and master's institutions may be a sign that these institutions entered this recession more strategic and cautious about their management of budgets than in other recessions. As the 2009 recession was twice as deep and more than twice as long as the 2001 recession, it is unlikely that these institutions will be able to protect these spending areas in future years. Widespread reports of furloughs and layoffs in 2010 and 2011 will very likely show up in absolute declines in spending in future years, and spending reductions in maintenance will lead to greater spending demands down the road.

Rapidly rising benefit costs will continue to put public institutions at a competitive disadvantage unless these costs are brought under control. If benefit costs continue to escalate it will become even more difficult for public institutions to control costs and compete with private institutions for faculty—and the gaps between public and private institutions will continue to widen. Though private institutions have suppressed compensation costs per employee, these savings are lost as institutions have hired more staff. As a result, neither public nor private institutions have controlled compensation costs on a *per student* basis.

Changes in staffing patterns

All sectors of higher education have added new staff over the past decade as more employees were needed to accompany rising student enrollments. But hiring patterns didn't follow established employment patterns; the composition of staff changed as hiring favored part-time faculty and, to a lesser-extent, professional and technical staff. Because institutions are only required to report staffing data to IPEDS every other year, we focus on changes between 2000 and 2008, the most recent data collection year.

- **Hiring at public institutions has largely been in response to student enrollment increases.** The number of employees per student has remained quite steady at public institutions since 2000, averaging less than 20 employees per 100 FTE students at non-research institutions and about 30 at public research institutions. Private non-profit institutions average several more staff per student (reaching 45 employees per 100 FTE at private research institutions) and recent hiring has outpaced student growth—they added about 2 more employees per 100 FTE students between 2000 and 2008.

- **Faculty make up less than half of employees at four-year institutions, but hiring of part-time instructors is boosting the faculty presence on campus.** The faculty share of all employees increased by 2 to 6 percentage points across the sectors between 2000 and 2008. In non-research institutions this shift is fully attributable to the hiring of part-time faculty, though in the research sectors the proportion of full-time faculty has also increased. But across all institutions, part-time instructors are a growing share of faculty.

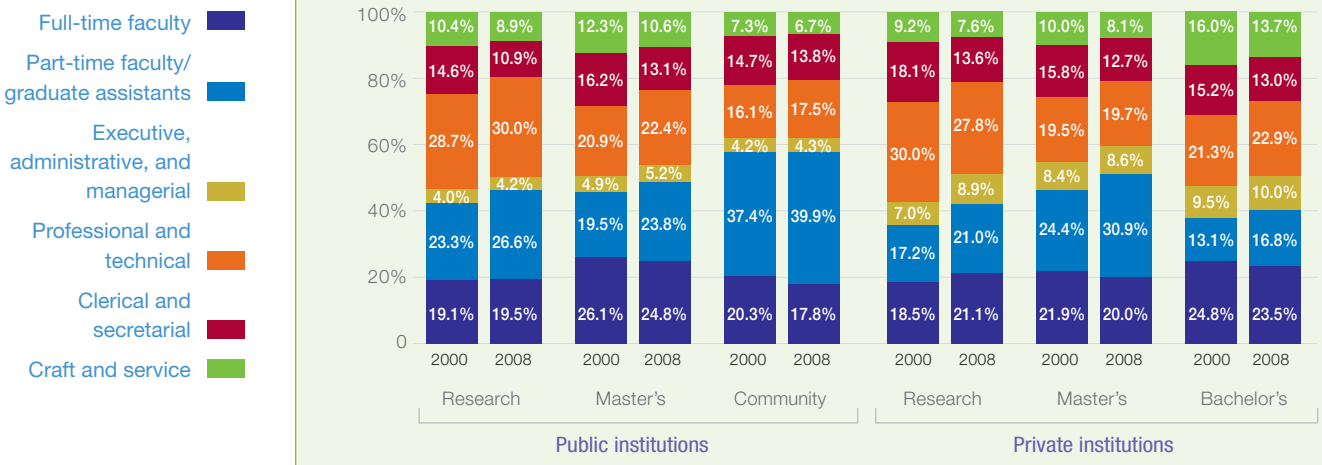
- **Full-time faculty hiring is keeping pace with enrollment growth, but part-time faculty hiring is much more rapid.** The number of full-time faculty per 100 FTE students has remained steady or declined slightly in most sectors through 2008, though private

(continued on next page)

(continued from preceding page)

Faculty make up a minority but growing share of employees, largely because of increases in part-time faculty

Distribution of employees by type of job, AY 2000-2008



Source: Delta Cost Project IPEDS database, 1987-2009; 11-year matched set.

research institutions averaged another 1.4 full-time faculty per 100 FTE students since the beginning of the decade. In contrast, four-year institutions averaged nearly 1 to 2 additional part-time faculty per 100 FTE students since 2000. It's unclear whether this is because more courses are being offered, or there are more instructors teaching fewer courses, or if full-time faculty course loads are being off-loaded onto part-timers.

- **Professional jobs are somewhat more prevalent on public campuses.** Professional and technical staff (such as accountants, human resource staff, and network administrators) are the largest group of staff, second only to faculty, and have increased modestly at public institutions, by less than 2 percentage points between 2000 and 2008. Executive-level positions continue to comprise a small and steady share of jobs on campus, only showing relative growth at private research institutions.

- **Clerical and craft/maintenance workers are serving more staff and students as growth occurs elsewhere on campus.** The absolute number of clerical and craft/maintenance jobs has remained fairly steady (though job cuts are evident in the research sectors), but because of job growth elsewhere across campus they comprise a smaller share of staff. As both employment and student enrollments grow elsewhere on campus, these workers are serving greater numbers of other staff and students than in the past.

Spending, subsidies, and tuition: Why are prices going up? And what are tuitions going to pay for?

We can differentiate between tuition increases that support more spending and increases that primarily cover other revenue losses by looking at changes in E&R spending as they relate to changes in tuitions and institutional subsidies. We examined two E&R metrics:

1. Subsidy and tuition share of costs, the relative portion of E&R costs paid by students through tuition revenues versus those that are subsidized by the institution; and

2. Spending changes compared to changes in tuitions, to see whether increased spending or cost-shifting is behind tuition increases.

These measures shed light on the most common question about higher education finance—why do college tuition prices keep rising? Is it because other sources of revenue are declining, or is it because the institutions are spending more? The analysis shows that, in 2009, except for private research institutions, tuitions were increasing almost exclusively to replace losses from state revenues or other private revenue sources. In public institutions, education is subsidized by state taxpayers; in private non-profit institutions, by tax-exempt resources such as private gifts, grants and endowments. The subsidy share of cost is an average share of costs within institutions, and includes all instruction levels and disciplines. The subsidy share also can vary dramatically by state and across different types of institutions within states, depending on policies adopted by the states.

In the economic downturn of 2009, all institutions clearly were relying more heavily on student tuitions to maintain or increase spending levels. Major findings include:

1. **Institutional subsidies per student at public colleges and universities in 2009 averaged close to 2007 levels, and were well below those provided earlier in the decade.** Across public institutions, average per student subsidy levels dropped by 3 to 5 percent in 2009. The sharpest declines in 2009 occurred at community colleges, but over the 1999 to 2009 period public research institutions experienced the largest decrease in average subsidy levels *(see Figure 13, next page)*.

   Average per student institutional subsidies at private non-research institutions were also lower in 2009, while private research institutions continued with steady increases. At non-profit master's institutions, the subsidy level declined by more than 8 percent, reaching a ten-year low after holding steady for five years.

2. **Tuition revenues are paying for a larger share of costs in all higher education sectors, with substantial increases at public institutions**. The tuition share of costs jumped up sharply across the public sector in 2009, increasing by 1.5 to 2.0 percentage points in just one year *(see Figure 14, page 33)*. These one-year increases are quite substantial and equal or exceed the cumulative increases of the past five years. Tuitions now pay more than one-half of the E&R costs at public research institutions, close to half at comprehensive institutions, and

Figure 13

Public institutional subsidies in 2009 were well below those earlier in the decade

Average education and related spending per FTE student, by net tuition and subsidies, AY1999-2009 (in 2009 dollars)

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

one-third of E&R costs at community colleges. After the 2001 recession, large jumps in the student share of costs were also immediately apparent and continued for several more years—at public non-research institutions, the 2009 increases are already larger than those in the year after the 2001 recession. In just ten years, the tuition share of costs has increased by 12 to 14 percentage points at public four-year institutions and 9 percentage points at community colleges.

Figure 14

Tuition revenues are paying for a larger share of costs in all educational sectors

Net tuition and subsidy shares of education and related costs, AY1999-2009 (in 2009 dollars)

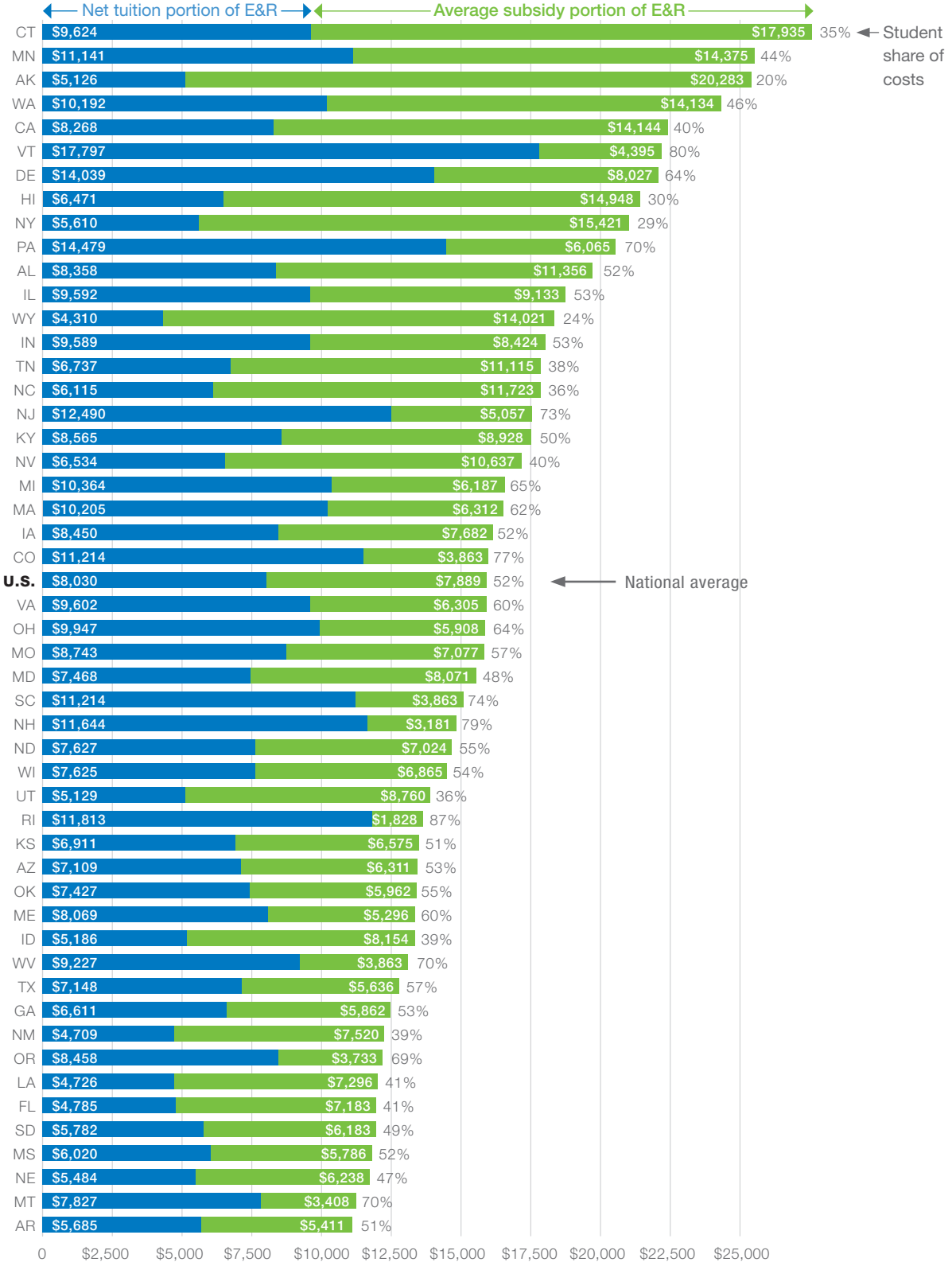
Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

The student share of costs also increased across private institutions. The greatest impact was at private bachelor's institutions where the student share rose by more than 1 percentage point in 2009, nearly double the cumulative increase for the five prior years. Increases at other private institutions averaged 1 percentage point or less, and equaled the cumulative increase over the previous five years. Tuitions now cover almost 90 percent of the costs, on average, at private master's institutions, and 70 to 75 percent of the costs at private research and bachelor's institutions.

Figure 15

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, AY2009



Source: Delta Cost Project IPEDS state database, 2004–2009.

3. **Subsidy and tuition patterns can vary significantly by state.** State economies, finances, and policies all impact costs and subsidy levels within states and result in very different financing strategies. Some states follow a high-spending/high-subsidy model while others adopt more measured approaches, either keeping costs low or relying heavily on student tuitions. Looking only at public research institutions, most state subsidies range between 45 and 60 percent of E&R costs *(see Figure 15; see also Appendix Figures A3 and A4 for public master's and public community college graphs)*.

   - Most states with high E&R costs in their public research sector also provide high subsidies. In the high-spending states of Connecticut, Minnesota, Washington, and California, tuition revenues only pay between 35 and 45 percent of educational costs; Alaska provides the most generous subsidy of all states, with tuitions only paying 20 percent of the costs in the public research sector.

   - The student share of costs is lowest in Alaska, Wyoming, New York, and Hawaii, where tuitions pay for 30 percent or less of public research E&R costs.

   - Vermont and Pennsylvania are both high-cost states, but have subsidies that are quite low—the student share of costs is between 70 and 80 percent of E&R costs in the public research sector. Tuition revenue also exceeds 70 percent of E&R costs in New Hampshire, Colorado, South Carolina, and New Jersey, though spending by the public research institutions in these states is closer to the national average.

   - Rhode Island is a relatively low-cost state but has the highest student share of costs across all states, at 87 percent. Other low-cost/low-subsidy states include Montana, Oregon, and West Virginia, where tuition revenues cover about 70 percent of costs on average, but the average tuition revenues in these states are not particularly high because their public research sectors are spending less overall.

4. **Public sector tuition increases in 2009 were almost entirely the result of cost-shifting to replace institutional subsidies, rather than to finance new spending.** Across all education sectors (except private research institutions), tuitions went up faster than E&R spending in 2009 *(see Figure 16, next page)*. In the public four-year institutions, E&R spending held fairly steady between 2008 and 2009, so nearly all of the new tuition dollars were used to replace other lost revenues. In community colleges average E&R spending declined, meaning that even tuition revenue increases were not enough to offset revenues lost from other sources. Across the whole public sector, students were paying more on average in 2009, but those dollars did not translate into significant new spending on their education.

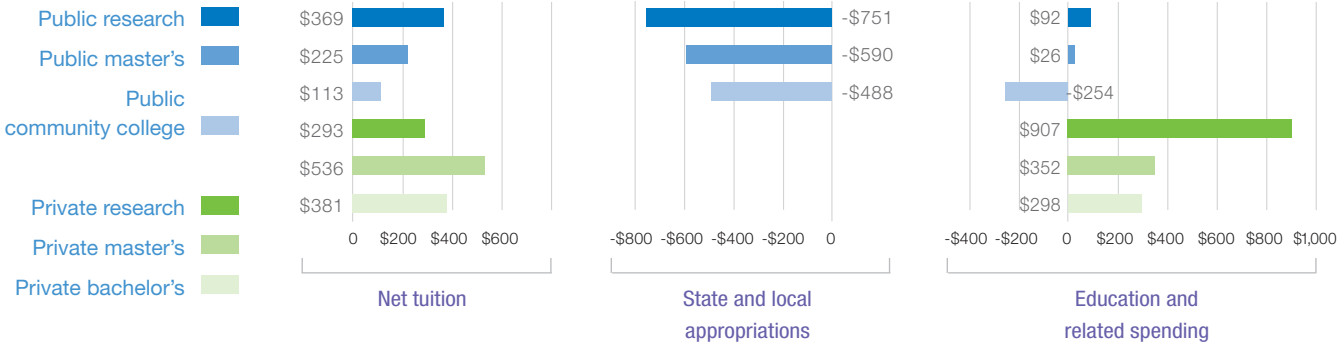
   Private non-research institutions also display some cost-shifting in 2009. In the private research institutions, however, students were benefiting from other sources of revenue, and average tuition increases were far below average increases in E&R spending.

   The dynamics of cost shifting are sensitive to analysis years and cyclical patterns. In the three years before 2009—when spending in public institutions was rebounding from cuts after the 2001 recession—increases in E&R spending exceeded the increases in tuition

Figure 16

Public sector tuition increases in 2009 were almost entirely the result of cost-shifting to replace institutional subsidies, rather than to finance new spending

Changes in net tuition, state and local appropriations, and education and related spending per FTE student, AY2008-2009 (in 2009 dollars)



Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

revenue, which suggests that there was little cost-shifting during these years. Instead, during this recovery period, increases in state and local appropriations were paying for a portion of the spending increases.

Policy implications

Transparency is key to public understanding of costs. Student tuition policies, and the share of costs that are being borne by students at different levels of instruction, need to become more transparent. The days when institutions could justify tuition levels by claiming that all students are being subsidized are numbered, if not over, for many students in all types of institutions. The reality is that many students are paying more than is being spent on them, making them "profit centers" and raising uncomfortable questions—especially given the increasing critical scrutiny of for-profit institutions. State and institutional policy makers need to maintain transparent metrics about the difference between average cost and price and the subsidy share of costs.

Spending and results: What does the money buy?

We evaluate higher education costs related to performance using four degree-related measures:

1. The number of total degrees awarded by level and type of institution;
2. Degree and completion ratios that compare the number of degrees or completions (total awards) to student enrollments, and how they have changed over time;
3. Cost per degree or completions, which looks at E&R costs through the lens of student outcomes rather than enrollments; and

4. The number of credit hours on average per completion.

Degree and completion ratios are a measure of education outcomes, expressed as the number of degrees or awards in a given year for every 100 FTE students enrolled. It is a comprehensive measure that shows the conversion of enrollments into degrees or certificates. Unlike cohort graduation rates, which only include first-time, full-time undergraduate students, this aggregate measure captures the outcomes of all students at all levels, including post-baccalaureate, part-time, and transfer students.

Cost per degree is a measure analogous to the "spending per FTE student" measure used throughout this report. Calculated as E&R spending per degree awarded, this measure allows us to view spending through the lens of student degree or certificate outcomes rather than inputs (such as FTE enrollments). The cost per completion measures is slightly more comprehensive because in addition to degrees, it also captures certificates and other awards. This is most relevant for community colleges because of their large credentialing function, but makes little difference for all other sectors.

These measures have a number of shortcomings: they are single-year snapshots of all spending against all degrees and completions, they do not show the real production costs of different types of degrees, and they say nothing about the quality of the education.[9] Community colleges do not get "credit" for costs of students who ultimately transfer to a four-year college, making their cost per degree outcomes higher than they would be if transfer students were properly accounted for; similarly, four-year colleges serving a high proportion of transfer students look more efficient because some portion of the costs were absorbed in a comunity college. Clearly these differences contribute to the overall cost differentials we see between different types of institutions. Nonetheless, trends within institutional groups should be less affected by these differences, and changes over time say something about whether production costs are going up or down.

Over the recent 1999 to 2009 period, both degree output and degree productivity have increased across higher education. Spending per degree has generally continued to rise across four-year institutions, but spending per completion is showing improvement in community colleges, largely because of increases in the production of certificates. All public sector institutions showed declines in the ratio of credit hours to degrees and completions. Taken together, these figures on performance translate to good news: American higher education is increasing degree performance, and it is doing so by getting a higher proportion of enrolled students

[9] We know from other cost studies that lower-division instruction costs less than upper-level and graduate instruction. The mix of programs offered is also a larger determinant of cost differences than the type of institution offering the course. For example, the difference in cost between a degree in engineering and humanities is larger than the cost difference in producing an engineering degree at a public research institution and a public master's institution. Michael F. Middaugh, Rosalinda Graham, and Abdus Shahid, 2003, *A Study of Higher Education Instructional Expenditures: The Delaware Study of Instructional Costs and Productivity* (Washington, DC: National Center for Education Statistics, Institute for Education Sciences, U.S. Department of Education (NCES 2003-161)); Sharmila Basu Conger, Alli Bell, and Jeff Stanley, 2009, "Four-state Cost Study" (Boulder, CO: State Higher Education Executive Officers (SHEEO) (revised, September 2010)); Paul Brinkman, 1985, "Instructional Costs per Credit Hour: Differences by Level of Instruction." (Boulder, CO: National Center for Higher Education Management Systems (NCHEMS)).

through to some type of a degree or certificate, and by increasing instructional productivity by reducing credit hours that do not attach to a degree.

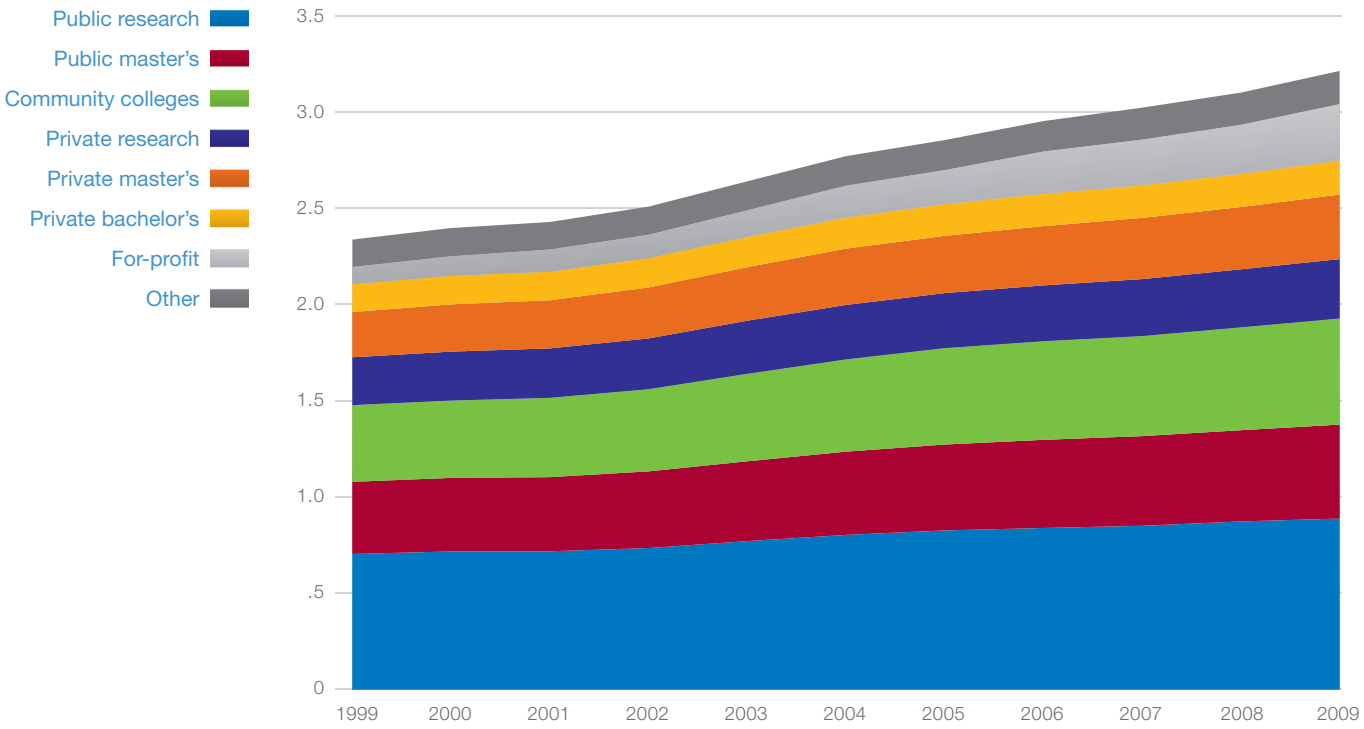
Primary findings on outcomes include:

1. **U.S. postsecondary institutions granted more than 3.2 million degrees in 2009, an increase of nearly 38 percent since 1999; for-profit institutions have had the most rapid increase in degree production.** Even though community colleges added the most new students, for-profit institutions increased their degree output more rapidly than non-profit institutions both in 2009 and over the prior decade *(see Figure 17)*. In just ten years, for-profit institutions more than tripled the number of degrees they awarded, though they still confer fewer degrees than most other types of institutions. Degrees from for-profit institutions now account for 9 percent of all degrees awarded. The proportion of degrees conferred by public and private non-profit institutions declined over the 1999 to 2009 period; the share of degrees awarded by public research institutions dropped the most, by 2.5 percentage points.

Figure 17

While community colleges added the most new students, for-profit institutions increased their degree output most rapidly

Total degrees awarded by institution type, AY1999-2009 (in millions)



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

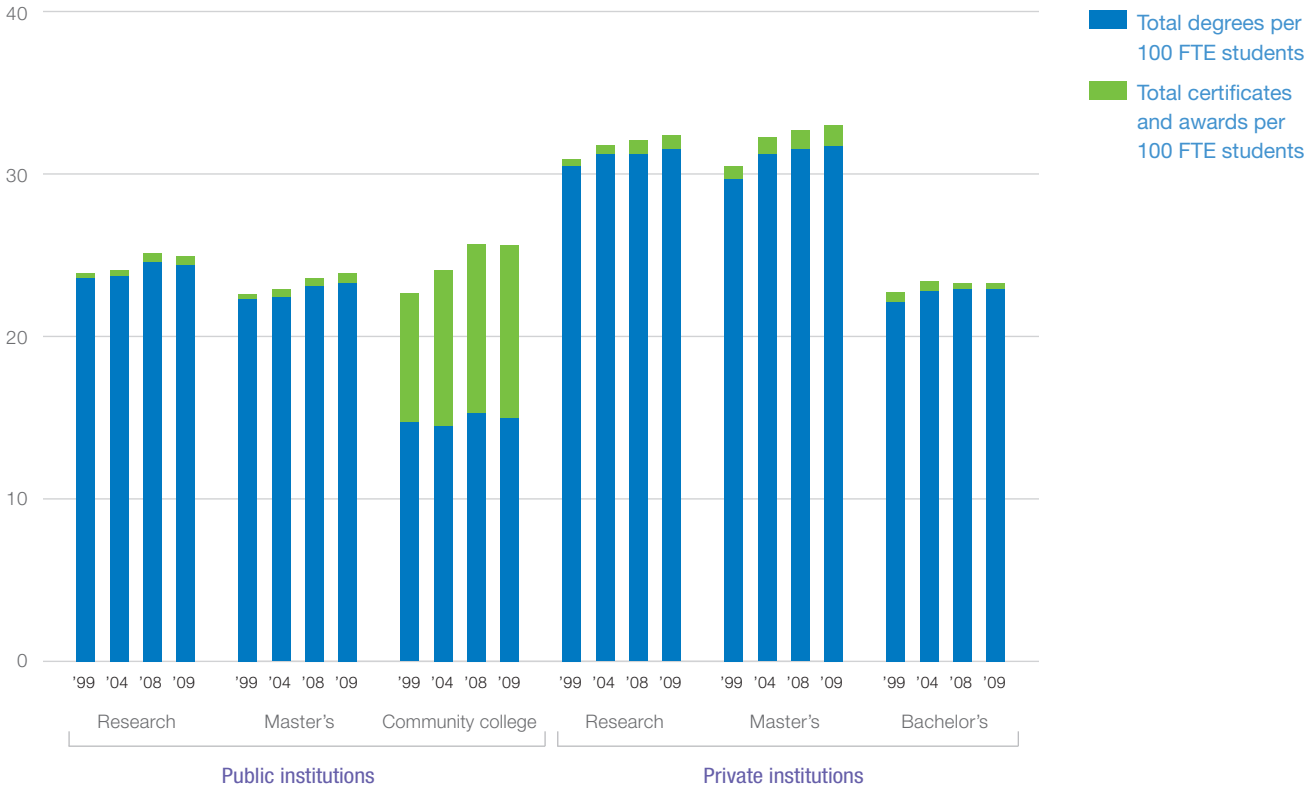
Source: Delta Cost Project IPEDS database, 1987-2009 (unmatched set).

2. **Private non-profit research and master's institutions have the highest degree productivity, measured as degrees or certificates compared to enrollments, but all sectors became more productive between 1999 and 2009.** We measure aggregate degree productivity by comparing overall production of degrees against enrollments. Private master's institutions had the greatest increase in degree productivity, on average, over the ten-year period ending in 2009 *(see Figure 18)*. They achieved this growth by boosting both degree and non-degreed credentials at a faster rate than they increased enrollments, even as their student body grew faster than other four-year institutions. While four-year institutions increased their average degree and certificate production between 1999 and 2009, production rates dipped slightly in 2009 at public research institutions but continued to increase at public master's institutions, even though they faced similar FTE enrollment rate increases. Community college production rates also dropped slightly in 2009, but this may reflect the substantial number of new students on their campuses rather than a decline in production. Throughout the 1999 to 2009 period, community colleges have relied on a tremendous uptick in the production of short-term certificates, rather than degrees, to boost overall performance outcomes.

Figure 18

Private master's institutions had the greatest increase in degree productivity

Total degrees and completions per 100 FTE students, AY1999-2009



Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

3. **Cost per degree continued to rise in 2009 except at comprehensive and community colleges; only community colleges are spending less per degree or completion compared to ten years prior.** Much in line with spending trends already shown, cost per degree at public research institutions increased more slowly in 2009, while declining at non-research institutions *(see Figure 19).* Costs per degree/completion remain higher at four-year institutions than after the 2001 recession and compared to ten years prior. But community college costs per degree/completion are much lower than ten years before and approaching the lows reached after the 2001 recession. By increasing non-degreed credentials, community colleges over time have managed to lower their total costs per outcome.

At private non-profit institutions, average cost per degree continued to increase in 2009, though it slowed among private research institutions compared to recent years. Over the whole period, however, spending per degree and completion continues to rise, particularly at private research institutions, which already spend significantly more than other institutions to produce a degree.

Figure 19

Cost per degree increased more slowly than before at public research institutions and declined at non-research institutions

Average education and related spending per degree and completion, AY1999-2009 (in 2009 dollars)

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

Credit hours per completion, 2002–2009

In this year's report, we present a new measure to provide additional insight into the instructional production process and the efficiency by which institutions translate credits into degrees. Credit hours per completion is a measure of the number of credits completed relative to total degrees, certificates, and other credentials awarded. While not by any means a complete measure of institutional productivity, it does show how student credit hour (SCH) inputs are translated into degree outputs.

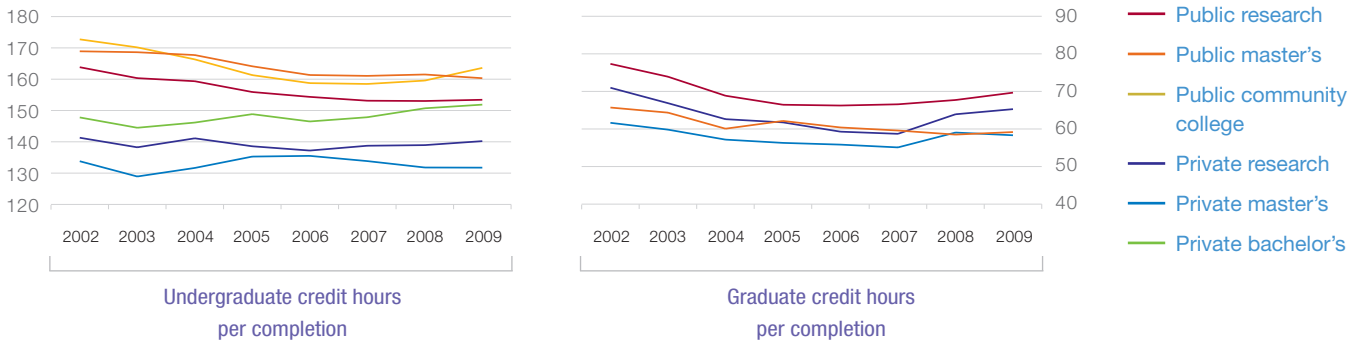
While aggregate SCH data were reported beginning in 1998, we believe the data after 2002 are most reliable, and so confine this measure to that seven-year time period. The measures allow us to look at SCH per completion comparisons separately for undergraduates and graduates, something we cannot do on the expenditure side. The data are not reported for first-professional students, so this is only a subset of graduate credits and students. It is a comprehensive measure, and includes all credit hours taken, including those earned by students who leave before receiving a degree or a credential (credits lost to student attrition), as well as credits taken by students who never intended to receive a credential. It is therefore not an accurate measure of the average number of credit units taken by students who complete the degrees. Improvements in this measure are shown through a reduction in credit hours against degrees, meaning fewer "lost" credits to either excess credits or to student attrition.

Public institutions appear to have improved their instructional productivity since 2002. Undergraduate credits per completion have declined across both two- and four-year public institutions by between 8 and 10 credit hours *(see Figure 20)*. This translates into "savings" of nearly a half a semester's worth of credits. Maintaining these improvements is critical as public higher education struggles to become more cost effective and efficient. At private non-profit institutions there

Figure 20

Public institutions have improved their instructional productivity at both graduate and undergraduate levels; private institutions have improved only at graduate level

Credit hours per completion, AY2002-2009



Note: Graduate data exclude first professional credits and completions; data were Winsorized to adjust for outliers.

Source: Delta Cost Project IPEDS Database, 1987-2009; 11-year matched set.

was little overall improvement in instructional productivity, albeit institutions in this sector remain well below public institutions in credits against all types of completions. An exception to this lack of improvement in the private non-profit sector occurred in private bachelor's institutions, where average credits to the degree actually increased by about four credit hours since 2002.

Instructional productivity among graduate programs has improved at both public and private institutions. At public institutions, the number of credit hours per completion was reduced by 7 to 8 credits since 2002; at private institutions, the improvements were slightly smaller, averaging between 3 and 6 credit hours *(see Figure 21)*. Since these programs typically have much higher costs per credit hour than undergraduate programs, even small changes in credit hours can have a large impact on overall expenditures.

Figure 21

Instructional productivity has improved most at public institutions

Credit hours per completion, AY2002-2009

	Undergraduate			Graduate		
Public institutions	2002	2009	2002-2009 change	2002	2009	2002-2009 change
Research	164	153	-10	77	70	-8
Master's	169	160	-9	66	59	-7
Community colleges	173	164	-9	—	—	—
Private institutions						
Research	141	140	-1	71	65	-6
Master's	134	132	-2	62	58	-3
Bachelor's	148	152	4	—	—	—

Note: Graduate data excludes first professional; data were winsorized to adjust for outliers.

Source: Delta Cost Project IPEDS Database, 1987-2009; 11-year matched set.

While the trends suggest credits are being used more efficiently, this metric does not necessarily mean that the average number of credits per graduate is also declining. From these aggregate data, we don't know if the gains are occurring because of declines in attrition, or reductions in "excess" credits beyond those required for the degree. As a result, the changes observed in the number of credits per completions are more telling than the levels themselves.

Policy implications

Increasing efficiency will require improvements at every stage of educational pipeline. Improvements in instructional efficiency and the translation of credit hours to degree and certificate completions are good news for higher education and for public policy makers. Many policy makers have set a goal to significantly increase the proportion of the population with some type of a high value certificate or degree. This will require improvements in educational

performance at every level of the educational pipeline, from high school graduation to college completion, averaging 4 percent per year. The gains in degree/credential completion reported here are closer to 1 percent per year, and by themselves are not enough to meet the attainment goals. But they are obviously a step in the right direction.

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

In consideration of the changes in enrollments and funding in higher education over the 1999 to 2009 period, we looked at overall E&R spending compared to enrollments through the lens of two metrics:

1. A snapshot comparison of spending per student in 2009 against headcount enrollments by sector and type of institution in that year; and
2. A comparison of changes in enrollments versus spending just since 2009—showing the growth in stratification and the growing disparity between public and private institutions.

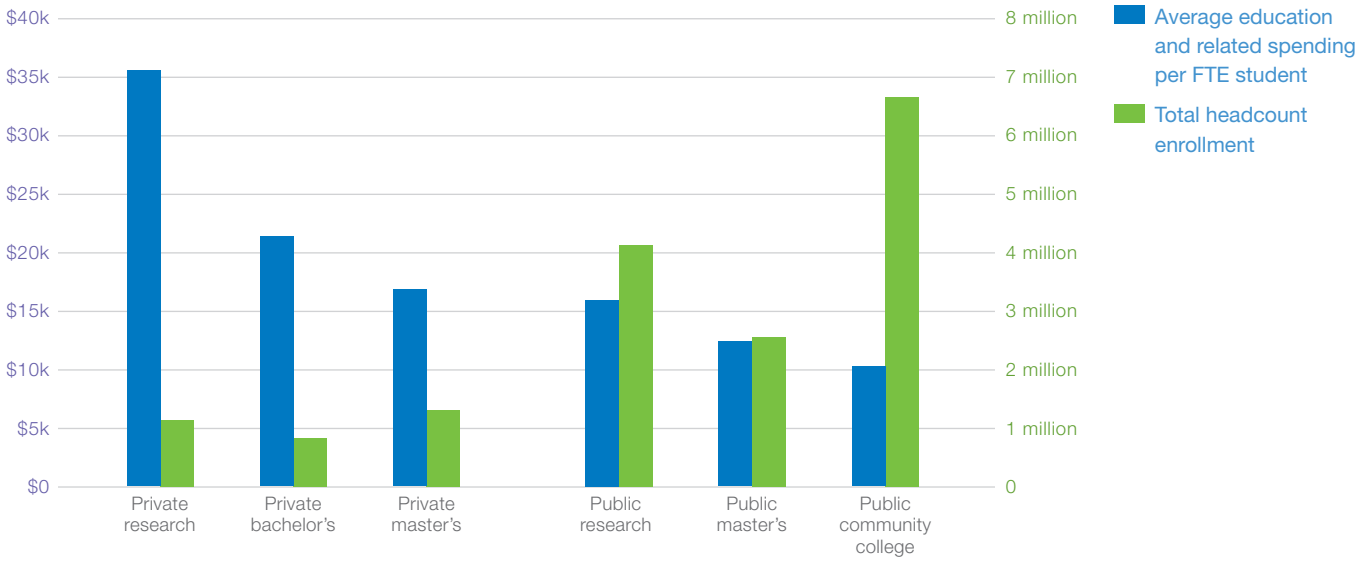
Major findings include:

1. **Institutions enrolling the most students spend the least on their education.** Stratification of higher education in the U. S. reaches far beyond access or prestige; institutions are significantly stratified by spending *(see Figure 22)*. Community colleges are educating the vast

Figure 22

Institutions enrolling the most students spend the least on their education

Enrollment vs. spending per student, AY2009 (in 2009 dollars)



Source: Delta Cost Project IPEDS Database, 1987-2009; spending data from the 11-year matched set; enrollment data from the unmatched set.

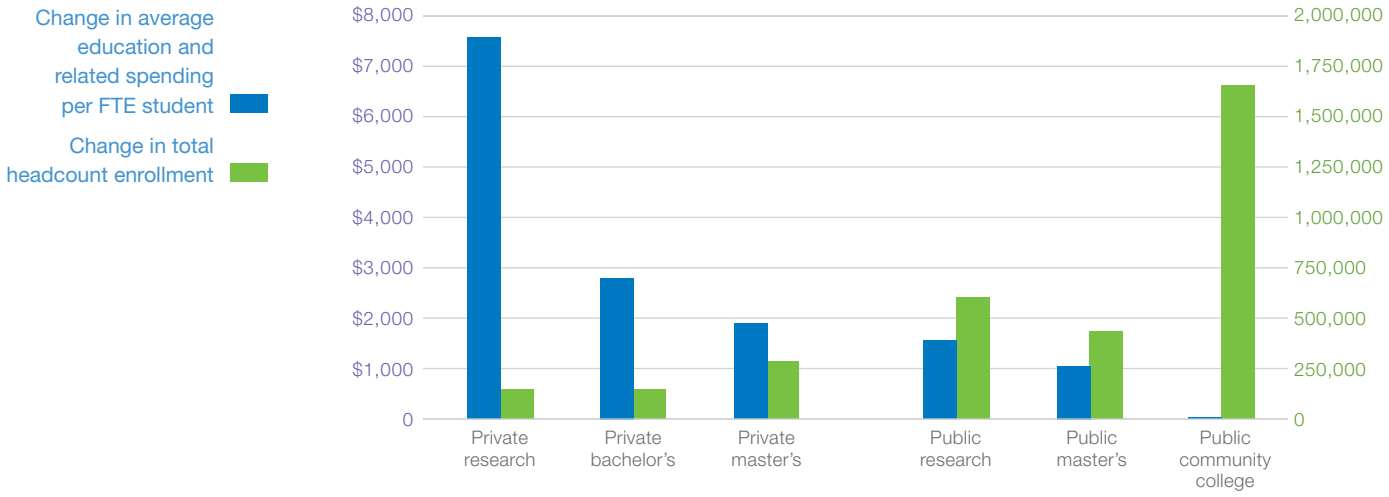
majority of our students, yet we spend the least amount on their education. Other public institutions educate most of the rest, and while they spend more than community colleges, they remain at a competitive disadvantage relative to non-profit private institutions. Private non-profit institutions have set the spending bar so high it will be almost impossible to public institutions to compete with them on the basis of resources and reputation. This problem is likely to get worse in the future if the state budget difficulties that began in 2009 follow the same pattern we saw after the much less severe recession of 2001.

2. **Growing disparity between public and private institutions.** If we look at shifts in spending and enrollments over the 1999 to 2009 period, we see an even starker picture of the disparities between public and private non-profit institutions *(see Figure 23)*. As private institutions have significantly increased their spending per student, they have added relatively few new students over the decade. Public institutions have been serving by far the greatest proportion of new students in higher education without anywhere near comparable levels of resources. Community colleges in particular have shouldered most of the increase in higher education enrollments over the period, and while acknowledging some cyclical changes in the intervening years, they now have no more money to spend to educate each student than they did ten years ago.

Figure 23

New money versus new students—enrollment growth is concentrated in public institutions, which have had less access to new resources

Ten-year change in enrollment vs. spending per student, AY1999–2009 (in 2009 dollars)



Source: Delta Cost Project IPEDS Database, 1987-2009; spending data from the 11-year matched set; enrollment data from the unmatched set.

Conclusions: Higher education and the Great Recession

The story behind the data in this report only touches the surface of changes in higher education finance that are occurring in this country. Between the relatively recent shock waves from the "great recession"—whose effects are only starting to show up in the data in this report—and the longer-term financial trends affecting all of higher education, no one can doubt that the future of higher education will look very different than the past. More than ever, the shape of that future will be dictated by money: who has it, where it goes, who benefits from it, and whether those resources advance national and state objectives or go increasingly to further institutional advantage or shareholder value.

The funding patterns that have been forming for the better part of the last twenty years are characterized by the twin themes of privatization and polarization. The "new money" coming into higher education is coming from either student tuitions or from user fees. Rich institutions are getting richer, and poor institutions are getting poorer. The distinctions between non-profit and public and for-profit institutions are increasingly blurred. Yet at the same time, public needs—and demand—for higher education have never been higher.

Our country has declining educational attainment levels, and needs to increase postsecondary access and degree production by somewhere around 4 percent per year.[10] In a time of constrained public investments, a key question both for policy makers and institutional leaders is whether we can expect to accomplish that primarily through expansions of private markets, whether for profit or not-for-profit, and through increases in productivity in the public sector. Most would say not: to make the huge increases in access and degree production that are needed in the future, we need to rekindle public willingness to invest in higher education, even as we increase cost effectiveness and reduce the trend toward higher tuitions. The productivity gains that are noted in this report are a positive beginning, but they are far from where we need to be, both in terms of increasing educational performance and reducing costs.

The economic, civic, and cultural future of our country depends in no small part on the capacity of our system of higher education to continue to serve public purposes, even as it is increasingly funded with non-public resources. We need an explicit investment strategy to do that, one that requires new approaches to public policy and institutional practice.

[10] Patrick J Kelly, 2010, "Closing the College Attainment Gap between the U.S. and Most Educated Countries, and the Contributions to be made by the States" (Boulder: CO: National Center for Higher Education Management Systems (NCHEMS)).

Appendix

Additional data details

Figure A1

Average revenues by FTE student, AY1999-2009 (in 2009 dollars)

Public research institutions	1999	2000	2001	2002	2003	2004
Net tuition	$5,353	$5,415	$5,456	$5,734	$6,078	$6,640
State and local appropriations	$10,370	$10,530	$10,690	$10,331	$9,523	$9,021
Federal appropriations and federal, state, and local grants and contracts	$4,940	$5,182	$5,510	$7,005	$7,383	$7,617
Auxiliary enterprises, hospitals, independent operations, and other sources	$8,747	$8,987	$9,138	$8,953	$8,722	$9,297
Operating revenues (excluding PIE)	$29,410	$30,113	$30,794	$32,023	$31,706	$32,575
Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)	$2,204	$2,339	$2,521	$1,324	$1,991	$2,109
Total operating revenue	$31,614	$32,452	$33,316	$33,347	$33,697	$34,685

Public master's institutions						
Net tuition	$4,075	$4,082	$4,138	$4,230	$4,554	$5,053
State and local appropriations	$7,411	$7,608	$7,687	$7,535	$6,948	$6,571
Federal appropriations and federal, state, and local grants and contracts	$1,493	$1,568	$1,738	$1,898	$1,918	$1,931
Auxiliary enterprises, hospitals, independent operations, and other sources	$3,009	$3,247	$3,126	$3,173	$3,112	$3,149
Operating revenues (excluding PIE)	$15,956	$16,504	$16,689	$16,836	$16,531	$16,705
Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)	$407	$459	$500	$365	$334	$323
Total operating revenue	$16,351	$16,953	$17,178	$17,199	$16,863	$17,027

Public community colleges						
Net tuition	$2,307	$2,316	$2,356	$2,397	$2,578	$2,757
State and local appropriations	$6,991	$6,971	$7,058	$6,720	$6,271	$6,185
Federal appropriations and federal, state, and local grants and contracts	$1,573	$1,595	$1,745	$1,711	$1,797	$1,833
Auxiliary enterprises, hospitals, independent operations, and other sources	$1,270	$1,250	$1,305	$1,397	$1,301	$1,344
Operating revenues (excluding PIE)	$12,071	$12,093	$12,422	$12,180	$11,898	$12,078
Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)	$210	$226	$218	$212	$193	$164
Total operating revenue	$12,233	$12,272	$12,593	$12,365	$12,083	$12,238

Note: The federal grants category excludes Pell grants; they are included in net tuition revenue. Investment returns include unrealized gains/losses.
Data may not sum to totals because revenues were summed at the institution level before calculating aggregate category averages.

2005	2006	2007	2008	2009	Public research institutions
$7,047	$7,314	$7,500	$7,661	$8,030	Net tuition
$8,879	$9,135	$9,453	$9,620	$8,868	State and local appropriations
$7,967	$7,939	$7,908	$7,839	$8,098	Federal appropriations and federal, state, and local grants and contracts
$9,588	$9,821	$10,139	$10,488	$10,915	Auxiliary enterprises, hospitals, independent operations, and other sources
$33,480	$33,968	$34,752	$35,418	$35,736	Operating revenues (excluding PIE)
$2,212	$2,390	$3,351	$1,582	-$387	Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)
$35,692	$36,358	$38,103	$36,999	$35,350	**Total operating revenue**
					Public master's institutions
$5,323	$5,457	$5,580	$5,698	$5,923	Net tuition
$6,395	$6,587	$6,772	$7,006	$6,416	State and local appropriations
$1,895	$1,958	$1,990	$2,037	$1,968	Federal appropriations and federal, state, and local grants and contracts
$3,326	$3,193	$3,308	$3,293	$3,527	Auxiliary enterprises, hospitals, independent operations, and other sources
$16,940	$17,138	$17,591	$17,972	$17,778	Operating revenues (excluding PIE)
$359	$456	$614	$443	$273	Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)
$17,299	$17,594	$18,205	$18,413	$18,050	**Total operating revenue**
					Public community colleges
$2,830	$2,898	$2,990	$3,005	$3,118	Net tuition
$6,195	$6,615	$6,900	$7,132	$6,645	State and local appropriations
$1,719	$1,767	$1,829	$1,879	$1,949	Federal appropriations and federal, state, and local grants and contracts
$1,247	$1,233	$1,244	$1,296	$1,253	Auxiliary enterprises, hospitals, independent operations, and other sources
$11,956	$12,373	$12,827	$13,186	$12,846	Operating revenues (excluding PIE)
$224	$292	$372	$293	$169	Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)
$12,176	$12,661	$13,193	$13,474	$13,012	**Total operating revenue**

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

(continued on next page)

Figure A1 (continued)

Average revenues by FTE student, AY1999-2009 (in 2009 dollars)

Private research institutions	1999	2000	2001	2002	2003	2004
Net tuition	$16,825	$17,341	$17,354	$17,994	$18,276	$18,578
State and local appropriations	$499	$508	$503	$512	$1,017	$767
Federal appropriations and federal, state, and local grants and contracts	$9,105	$9,273	$9,541	$10,398	$10,947	$11,767
Auxiliary enterprises, hospitals, independent operations, and other sources	$18,079	$18,316	$18,262	$18,649	$19,032	$19,875
Operating revenues (excluding PIE)	$43,777	$44,693	$44,914	$46,762	$48,201	$50,064
Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)	$26,612	$45,949	$7,567	$4,714	$15,465	$30,765
Total operating revenue	$70,389	$90,642	$52,481	$51,475	$63,666	$80,829

Private master's institutions						
Net tuition	$11,895	$12,223	$12,361	$12,736	$12,976	$13,415
State and local appropriations	$442	$532	$540	$453	$425	$422
Federal appropriations and federal, state, and local grants and contracts	$1,046	$1,003	$1,095	$1,193	$1,101	$1,075
Auxiliary enterprises, hospitals, independent operations, and other sources	$3,612	$3,861	$3,755	$3,890	$3,810	$3,873
Operating revenues (excluding PIE)	$16,458	$17,038	$17,163	$17,749	$17,871	$18,341
Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)	$5,096	$5,515	$3,079	$2,144	$2,925	$4,630
Total operating revenue	$21,537	$22,536	$20,231	$19,887	$20,796	$22,972

Private bachelor's institutions						
Net tuition	$10,983	$11,435	$11,673	$11,943	$12,196	$12,575
State and local appropriations	$485	$413	$479	$526	$427	$376
Federal appropriations and federal, state, and local grants and contracts	$1,523	$1,559	$1,709	$1,617	$1,630	$1,512
Auxiliary enterprises, hospitals, independent operations, and other sources	$5,632	$6,066	$6,002	$5,931	$5,932	$6,513
Operating revenues (excluding PIE)	$18,003	$18,952	$19,293	$19,405	$19,672	$20,500
Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)	$13,771	$16,725	$6,273	$4,002	$7,379	$14,649
Total operating revenue	$31,744	$35,676	$25,566	$23,407	$27,051	$35,149

Note: The federal grants category excludes Pell grants; they are included in net tuition revenue. Investment returns include unrealized gains/losses.
Data may not sum to totals because revenues were summed at the institution level before calculating aggregate category averages.

2005	2006	2007	2008	2009	Private research institutions
$19,092	$19,121	$19,780	$20,071	$20,363	Net tuition
$683	$747	$783	$825	$714	State and local appropriations
$12,126	$11,717	$11,431	$11,243	$11,273	Federal appropriations and federal, state, and local grants and contracts
$20,815	$21,255	$22,475	$23,092	$22,142	Auxiliary enterprises, hospitals, independent operations, and other sources
$51,974	$52,052	$53,661	$54,282	$53,617	Operating revenues (excluding PIE)
$31,047	$33,926	$46,342	$15,700	-$30,256	Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)
$83,021	$85,979	$100,004	$69,982	$23,361	**Total operating revenue**

					Private master's institutions
$13,725	$13,813	$14,242	$14,328	$14,864	Net tuition
$409	$374	$345	$363	$362	State and local appropriations
$991	$963	$906	$858	$892	Federal appropriations and federal, state, and local grants and contracts
$3,869	$4,105	$4,128	$3,965	$4,018	Auxiliary enterprises, hospitals, independent operations, and other sources
$18,569	$18,855	$19,255	$19,148	$19,762	Operating revenues (excluding PIE)
$4,129	$4,511	$5,778	$2,570	-$1,258	Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)
$22,698	$23,366	$25,033	$21,718	$18,504	**Total operating revenue**

					Private bachelor's institutions
$12,833	$12,960	$13,370	$13,589	$13,969	Net tuition
$348	$463	$493	$589	$576	State and local appropriations
$1,481	$1,437	$1,419	$1,350	$1,418	Federal appropriations and federal, state, and local grants and contracts
$6,056	$6,197	$6,333	$6,201	$6,163	Auxiliary enterprises, hospitals, independent operations, and other sources
$20,268	$20,527	$21,069	$21,099	$21,468	Operating revenues (excluding PIE)
$12,106	$13,900	$20,035	$5,539	-$8,321	Private and affiliated gifts, grants, contracts, investment returns, and endowment income (PIE)
$32,373	$34,427	$41,104	$26,638	$13,147	**Total operating revenue**

Source: Delta Cost Project IPEDS database, 1987-2009, 11-year matched set.

Figure A2

Average expenditures per FTE student, AY1999-2009 (in 2009 dollars)

Public research institutions	1999	2000	2001	2002	2003	2004
Standard expense categories						
Instruction	$9,086	$9,225	$9,444	$9,351	$9,177	$9,075
Research	$4,748	$5,024	$5,171	$5,195	$5,347	$5,478
Student services	$1,144	$1,181	$1,204	$1,230	$1,211	$1,223
Public service	$1,777	$1,843	$1,927	$1,874	$1,845	$1,897
Academic support	$2,555	$2,596	$2,667	$2,407	$2,359	$2,372
Institutional support	$2,167	$2,202	$2,170	$2,163	$2,136	$2,112
Operations and maintenance	$1,726	$1,789	$1,872	$1,980	$1,871	$1,934
Net scholarships and fellowships	$2,176	$2,173	$2,277	$1,166	$1,078	$1,021
Education and general	$25,378	$26,035	$26,719	$25,353	$24,999	$25,087
Auxiliary enterprises, hospitals, independent and other operations	$6,660	$6,661	$6,969	$6,839	$6,742	$6,968
Total operating expenditures	$32,038	$32,696	$33,688	$32,191	$31,740	$32,055
Grouped expense categories						
Education and related	$14,353	$14,561	$14,860	$14,683	$14,321	$14,222
Research and related	$6,450	$6,816	$7,007	$7,009	$7,167	$7,339
Public service and related	$2,399	$2,484	$2,591	$2,512	$2,463	$2,534
Net scholarships and fellowships	$2,176	$2,173	$2,277	$1,166	$1,078	$1,021
Education and general	$25,378	$26,035	$26,719	$25,353	$24,999	$25,087
Auxiliary enterprises, hospitals, independent and other operations	$6,660	$6,661	$6,969	$6,839	$6,742	$6,968
Total operating expenditures	$32,038	$32,696	$33,688	$32,191	$31,740	$32,055

Public master's institutions	1999	2000	2001	2002	2003	2004
Standard expense categories						
Instruction	$5,913	$5,992	$6,044	$6,027	$5,945	$5,891
Research	$350	$378	$401	$404	$378	$378
Student services	$1,199	$1,246	$1,265	$1,260	$1,226	$1,224
Public service	$551	$603	$634	$639	$631	$632
Academic support	$1,419	$1,481	$1,515	$1,413	$1,389	$1,382
Institutional support	$1,897	$1,975	$2,013	$1,993	$1,986	$1,977
Operations and maintenance	$1,326	$1,388	$1,425	$1,519	$1,443	$1,430
Net scholarships and fellowships	$1,922	$1,934	$2,101	$1,167	$1,021	$961
Education and general	$14,513	$14,948	$15,348	$14,352	$13,952	$13,798
Auxiliary enterprises, hospitals, independent and other operations	$2,339	$2,551	$2,488	$2,434	$2,469	$2,399
Total operating expenditures	$16,842	$17,500	$17,836	$16,786	$16,421	$16,198
Grouped expense categories						
Education and related	$11,305	$11,574	$11,716	$11,654	$11,460	$11,374
Research and related	$541	$587	$625	$641	$590	$587
Public service and related	$844	$930	$983	$989	$974	$978
Net scholarships and fellowships	$1,922	$1,934	$2,101	$1,167	$1,021	$961
Education and general	$14,513	$14,948	$15,348	$14,352	$13,952	$13,798
Auxiliary enterprises, hospitals, independent and other operations	$2,339	$2,551	$2,488	$2,434	$2,469	$2,399
Total operating expenditures	$16,842	$17,500	$17,836	$16,786	$16,421	$16,198

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.

2005	2006	2007	2008	2009	Public research institutions	
$9,270	$9,389	$9,629	$9,860	$9,986	Instruction	Standard expense categories
$5,642	$5,559	$5,567	$5,638	$5,799	Research	
$1,238	$1,264	$1,298	$1,334	$1,365	Student services	
$1,912	$1,866	$1,894	$1,937	$1,975	Public service	
$2,420	$2,494	$2,563	$2,811	$2,845	Academic support	
$2,169	$2,267	$2,365	$2,486	$2,495	Institutional support	
$2,034	$2,166	$2,211	$2,186	$2,073	Operations and maintenance	
$1,070	$1,069	$1,099	$1,113	$1,177	Net scholarships and fellowships	
$25,728	$26,047	$26,593	$27,332	$27,680	**Education and general**	
$7,190	$7,402	$7,609	$8,253	$8,510	Auxiliary enterprises, hospitals, independent and other operations	
$32,918	$33,449	$34,202	$35,585	$36,190	**Total operating expenditures**	
$14,542	$14,922	$15,353	$15,827	$15,919	Education and related	Grouped expense categories
$7,579	$7,551	$7,596	$7,767	$7,942	Research and related	
$2,567	$2,536	$2,584	$2,663	$2,683	Public service and related	
$1,070	$1,069	$1,099	$1,113	$1,177	Net scholarships and fellowships	
$25,728	$26,047	$26,593	$27,332	$27,680	**Education and general**	
$7,190	$7,402	$7,609	$8,253	$8,510	Auxiliary enterprises, hospitals, independent and other operations	
$32,918	$33,449	$34,202	$35,585	$36,190	**Total operating expenditures**	

2005	2006	2007	2008	2009	Public master's institutions	
$5,887	$5,945	$6,094	$6,281	$6,291	Instruction	Standard expense categories
$400	$400	$407	$413	$401	Research	
$1,258	$1,267	$1,318	$1,379	$1,410	Student services	
$622	$627	$640	$629	$618	Public service	
$1,403	$1,420	$1,448	$1,503	$1,542	Academic support	
$1,898	$1,927	$1,990	$2,057	$2,033	Institutional support	
$1,534	$1,623	$1,630	$1,675	$1,656	Operations and maintenance	
$909	$879	$892	$946	$1,030	Net scholarships and fellowships	
$13,842	$14,021	$14,349	$14,794	$14,874	**Education and general**	
$2,420	$2,451	$2,510	$2,772	$2,890	Auxiliary enterprises, hospitals, independent and other operations	
$16,261	$16,472	$16,859	$17,566	$17,764	**Total operating expenditures**	
$11,451	$11,646	$11,935	$12,337	$12,363	Education and related	Grouped expense categories
$627	$629	$643	$647	$627	Research and related	
$957	$965	$979	$969	$951	Public service and related	
$909	$879	$892	$946	$1,030	Net scholarships and fellowships	
$13,842	$14,021	$14,349	$14,794	$14,874	**Education and general**	
$2,420	$2,451	$2,510	$2,772	$2,890	Auxiliary enterprises, hospitals, independent and other operations	
$16,261	$16,472	$16,859	$17,566	$17,764	**Total operating expenditures**	

Source: Delta Cost Project IPEDS Database, 1987-2009, 11-year matched set.

Figure A2 (continued)

Average expenditures per FTE student, AY1999-2009 (in 2009 dollars)

Public community colleges	1999	2000	2001	2002	2003	2004
Instruction	$5,242	$5,288	$5,350	$5,103	$4,866	$4,831
Research	$54	$59	$41	$64	$55	$39
Student services	$1,207	$1,234	$1,219	$1,194	$1,175	$1,156
Public service	$402	$416	$439	$408	$393	$368
Academic support	$1,027	$1,041	$1,075	$1,020	$935	$916
Institutional support	$1,794	$1,815	$1,849	$1,770	$1,680	$1,716
Operations and maintenance	$1,095	$1,119	$1,158	$1,156	$1,112	$1,092
Net scholarships and fellowships	$1,533	$1,522	$1,662	$1,369	$1,204	$1,111
Education and general	$12,163	$12,298	$12,606	$11,879	$11,175	$10,997
Auxiliary enterprises, hospitals, independent and other operations	$886	$893	$908	$1,173	$1,010	$1,079
Total operating expenditures	$12,956	$13,109	$13,433	$12,977	$12,126	$12,026

Standard expense categories

Education and related	$10,204	$10,326	$10,472	$10,069	$9,613	$9,558
Research and related	$87	$93	$64	$100	$85	$62
Public service and related	$622	$647	$689	$648	$616	$583
Net scholarships and fellowships	$1,533	$1,522	$1,662	$1,369	$1,204	$1,111
Education and general	$12,163	$12,298	$12,606	$11,879	$11,175	$10,997
Auxiliary enterprises, hospitals, independent and other operations	$886	$893	$908	$1,173	$1,010	$1,079
Total operating expenditures	$12,956	$13,109	$13,433	$12,977	$12,126	$12,026

Grouped expense categories

Private research institutions	1999	2000	2001	2002	2003	2004
Instruction	$16,251	$16,546	$16,700	$17,652	$18,256	$18,449
Research	$8,675	$8,929	$9,227	$10,125	$10,829	$11,270
Student services	$2,507	$2,534	$2,625	$2,768	$2,786	$2,832
Public service	$1,299	$1,166	$1,094	$1,407	$1,477	$1,404
Academic support	$4,385	$4,343	$4,674	$4,827	$4,854	$4,883
Institutional support	$5,349	$5,589	$5,648	$5,857	$6,049	$6,195
Operations and maintenance	$2,887	$2,933	$2,950	$3,122	$3,056	$3,356
Net scholarships and fellowships	$1,145	$1,223	$1,381	$1,286	$1,402	$1,512
Education and general	$39,775	$40,433	$41,396	$43,929	$45,378	$46,245
Auxiliary enterprises, hospitals, independent and other operations	$13,057	$13,471	$13,591	$13,829	$13,976	$14,042
Total operating expenditures	$52,832	$53,904	$54,850	$57,619	$59,212	$60,004

Standard expense categories

Education and related	$28,021	$28,402	$28,852	$30,247	$30,873	$31,150
Research and related	$12,304	$12,765	$13,293	$14,394	$15,242	$15,785
Public service and related	$1,889	$1,708	$1,614	$2,016	$2,123	$2,019
Net scholarships and fellowships	$1,145	$1,223	$1,381	$1,286	$1,402	$1,512
Education and general	$39,775	$40,433	$41,396	$43,929	$45,378	$46,245
Auxiliary enterprises, hospitals, independent and other operations	$13,057	$13,471	$13,591	$13,829	$13,976	$14,042
Total operating expenditures	$52,832	$53,904	$54,850	$57,619	$59,212	$60,004

Grouped expense categories

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.

2005	2006	2007	2008	2009	Public community colleges	
$4,843	$4,969	$5,147	$5,251	$5,103	Instruction	Standard expense categories
$46	$63	$53	$50	$64	Research	
$1,175	$1,204	$1,256	$1,260	$1,258	Student services	
$365	$370	$353	$364	$351	Public service	
$925	$954	$981	$1,013	$990	Academic support	
$1,691	$1,754	$1,823	$1,890	$1,842	Institutional support	
$1,110	$1,195	$1,232	$1,243	$1,224	Operations and maintenance	
$1,019	$949	$923	$1,008	$1,163	Net scholarships and fellowships	
$10,939	$11,221	$11,552	$11,837	$11,713	**Education and general**	
$1,069	$1,054	$1,135	$1,237	$1,308	Auxiliary enterprises, hospitals, independent and other operations	
$11,960	$12,222	$12,624	$13,018	$12,957	**Total operating expenditures**	
$9,595	$9,922	$10,298	$10,496	$10,242	Education and related	Grouped expense categories
$76	$102	$83	$79	$98	Research and related	
$574	$587	$560	$579	$560	Public service and related	
$1,019	$949	$923	$1,008	$1,163	Net scholarships and fellowships	
$10,939	$11,221	$11,552	$11,837	$11,713	**Education and general**	
$1,069	$1,054	$1,135	$1,237	$1,308	Auxiliary enterprises, hospitals, independent and other operations	
$11,960	$12,222	$12,624	$13,018	$12,957	**Total operating expenditures**	

2005	2006	2007	2008	2009	Private research institutions	
$18,954	$18,909	$19,714	$19,790	$20,232	Instruction	Standard expense categories
$11,602	$11,348	$11,135	$10,953	$11,262	Research	
$2,979	$3,133	$3,224	$3,234	$3,390	Student services	
$1,429	$1,288	$1,277	$1,303	$1,305	Public service	
$4,939	$5,144	$5,316	$5,582	$5,742	Academic support	
$6,273	$6,371	$6,595	$6,924	$7,038	Institutional support	
$3,502	$3,822	$3,751	$4,044	$4,270	Operations and maintenance	
$1,569	$1,205	$1,246	$1,269	$1,383	Net scholarships and fellowships	
$47,566	$47,783	$49,021	$49,981	$51,253	**Education and general**	
$14,273	$14,479	$14,681	$14,957	$15,649	Auxiliary enterprises, hospitals, independent and other operations	
$61,551	$61,970	$63,554	$64,636	$66,744	**Total operating expenditures**	
$32,075	$32,618	$33,975	$34,689	$35,596	Education and related	Grouped expense categories
$16,205	$16,181	$15,822	$15,901	$16,473	Research and related	
$2,062	$1,880	$1,893	$1,943	$1,943	Public service and related	
$1,569	$1,205	$1,246	$1,269	$1,383	Net scholarships and fellowships	
$47,566	$47,783	$49,021	$49,981	$51,253	**Education and general**	
$14,273	$14,479	$14,681	$14,957	$15,649	Auxiliary enterprises, hospitals, independent and other operations	
$61,551	$61,970	$63,554	$64,636	$66,744	**Total operating expenditures**	

Source: Delta Cost Project IPEDS Database, 1987-2009, 11-year matched set.

Figure A2 (continued)

Average expenditures per FTE student, AY1999-2009 (in 2009 dollars)

Private master's institutions	1999	2000	2001	2002	2003	2004
Instruction	$6,602	$6,561	$6,603	$6,801	$6,851	$6,924
Research	$869	$836	$922	$1,024	$882	$804
Student services	$2,193	$2,240	$2,283	$2,349	$2,392	$2,431
Public service	$547	$538	$531	$692	$684	$610
Academic support	$1,523	$1,532	$1,561	$1,597	$1,624	$1,664
Institutional support	$3,499	$3,453	$3,503	$3,663	$3,685	$3,685
Operations and maintenance	$1,365	$1,334	$1,329	$1,354	$1,353	$1,407
Net scholarships and fellowships	$1,659	$1,631	$1,532	$1,597	$1,350	$1,242
Education and general	$16,104	$16,022	$16,138	$16,671	$16,710	$16,680
Auxiliary enterprises, hospitals, independent and other operations	$2,726	$3,298	$3,173	$3,276	$3,060	$3,026
Total operating expenditures	$18,770	$19,278	$19,260	$19,884	$19,721	$19,657

Standard expense categories

Education and related	$14,908	$14,858	$14,999	$15,433	$15,584	$15,612
Research and related	$1,275	$1,213	$1,351	$1,490	$1,326	$1,212
Public service and related	$887	$885	$885	$1,110	$1,071	$959
Net scholarships and fellowships	$1,659	$1,631	$1,532	$1,597	$1,350	$1,242
Education and general	$16,104	$16,022	$16,138	$16,671	$16,710	$16,680
Auxiliary enterprises, hospitals, independent and other operations	$2,726	$3,298	$3,173	$3,276	$3,060	$3,026
Total operating expenditures	$18,770	$19,278	$19,260	$19,884	$19,721	$19,657

Grouped expense categories

Private bachelor's institutions	1999	2000	2001	2002	2003	2004
Instruction	$7,528	$7,517	$7,733	$7,795	$8,012	$8,086
Research	$636	$669	$722	$714	$711	$754
Student services	$2,982	$3,050	$3,182	$3,242	$3,376	$3,447
Public service	$628	$645	$667	$692	$736	$653
Academic support	$1,800	$1,818	$1,911	$1,941	$1,961	$1,992
Institutional support	$4,632	$4,770	$4,998	$4,879	$4,896	$4,934
Operations and maintenance	$1,938	$1,889	$1,933	$1,893	$1,959	$2,141
Net scholarships and fellowships	$3,129	$2,903	$3,115	$2,916	$2,731	$2,757
Education and general	$20,418	$20,363	$21,094	$20,971	$21,337	$21,391
Auxiliary enterprises, hospitals, independent and other operations	$4,406	$5,086	$5,315	$5,224	$4,990	$4,941
Total operating expenditures	$24,720	$25,384	$26,353	$26,150	$26,275	$26,279

Standard expense categories

Education and related	$18,588	$18,743	$19,433	$19,421	$19,864	$19,875
Research and related	$1,093	$1,156	$1,236	$1,215	$1,216	$1,294
Public service and related	$1,077	$1,128	$1,182	$1,235	$1,291	$1,119
Net scholarships and fellowships	$3,129	$2,903	$3,115	$2,916	$2,731	$2,757
Education and general	$20,418	$20,363	$21,094	$20,971	$21,337	$21,391
Auxiliary enterprises, hospitals, independent and other operations	$4,406	$5,086	$5,315	$5,224	$4,990	$4,941
Total operating expenditures	$24,720	$25,384	$26,353	$26,150	$26,275	$26,279

Grouped expense categories

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.

2005	2006	2007	2008	2009	Private master's institutions	
$6,925	$6,937	$7,119	$7,096	$7,280	Instruction	Standard expense categories
$772	$658	$648	$642	$630	Research	
$2,473	$2,528	$2,653	$2,707	$2,781	Student services	
$489	$456	$445	$442	$436	Public service	
$1,666	$1,649	$1,705	$1,708	$1,753	Academic support	
$3,718	$3,690	$3,840	$3,846	$3,947	Institutional support	
$1,444	$1,449	$1,443	$1,489	$1,470	Operations and maintenance	
$1,242	$982	$1,084	$942	$868	Net scholarships and fellowships	
$16,714	$16,624	$17,134	$17,202	$17,523	**Education and general**	
$2,997	$3,157	$3,100	$3,113	$3,315	Auxiliary enterprises, hospitals, independent and other operations	
$19,654	$19,731	$20,185	$20,256	$20,743	**Total operating expenditures**	
$15,753	$15,822	$16,350	$16,458	$16,810	Education and related	Grouped expense categories
$1,176	$1,021	$1,004	$1,004	$1,000	Research and related	
$802	$761	$743	$727	$719	Public service and related	
$1,242	$982	$1,084	$942	$868	Net scholarships and fellowships	
$16,714	$16,624	$17,134	$17,202	$17,523	**Education and general**	
$2,997	$3,157	$3,100	$3,113	$3,315	Auxiliary enterprises, hospitals, independent and other operations	
$19,654	$19,731	$20,185	$20,256	$20,743	**Total operating expenditures**	

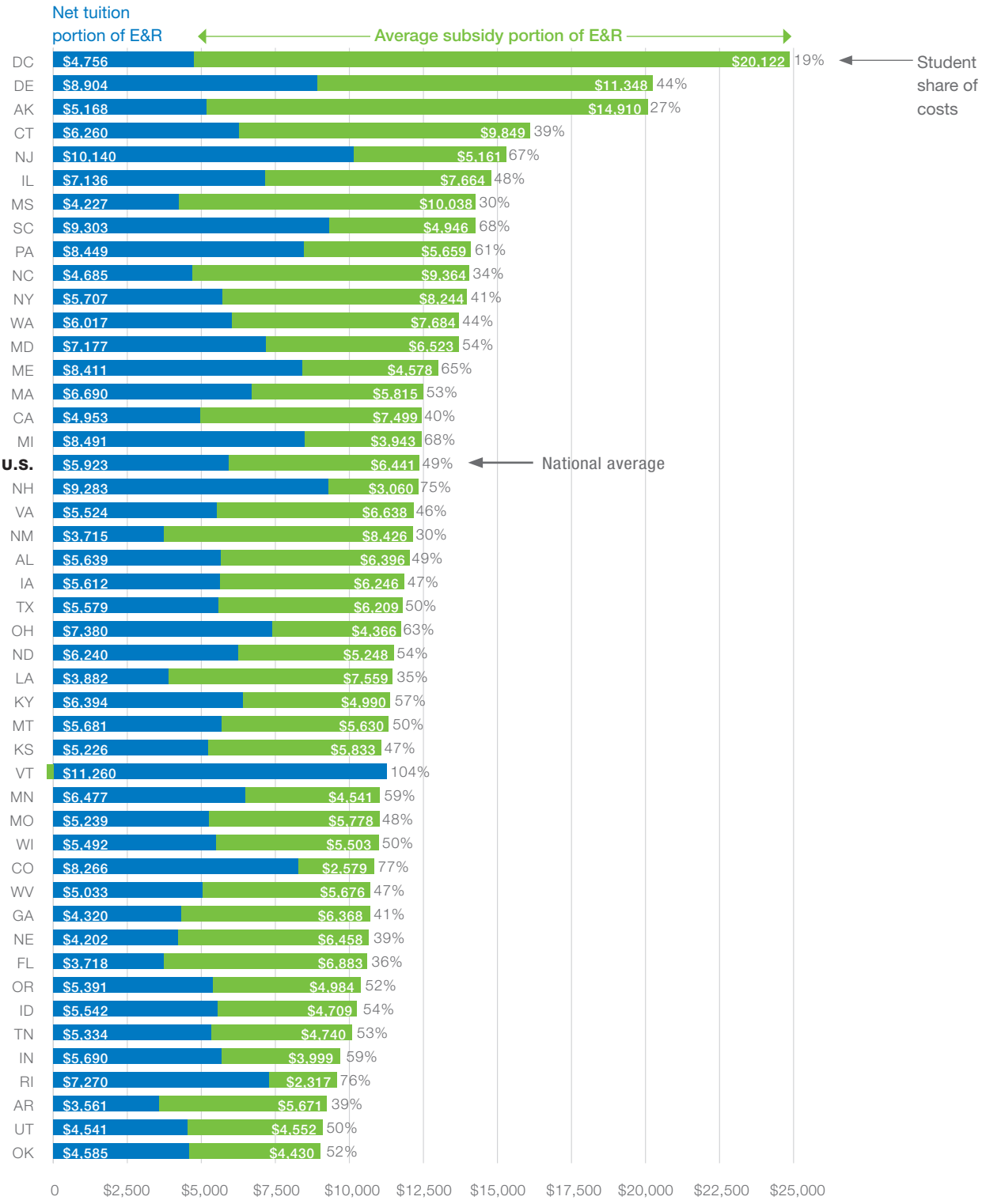
2005	2006	2007	2008	2009	Private bachelor's institutions	
$8,136	$8,086	$8,258	$8,377	$8,524	Instruction	Standard expense categories
$750	$745	$742	$718	$707	Research	
$3,526	$3,622	$3,758	$3,832	$3,941	Student services	
$640	$631	$662	$607	$626	Public service	
$1,986	$2,002	$2,052	$2,062	$2,112	Academic support	
$4,871	$5,014	$5,030	$5,190	$5,205	Institutional support	
$2,149	$2,167	$2,221	$2,236	$2,251	Operations and maintenance	
$2,751	$1,721	$1,552	$1,654	$1,853	Net scholarships and fellowships	
$21,388	$21,330	$21,702	$22,071	$22,404	**Education and general**	
$4,861	$4,963	$5,022	$5,011	$5,111	Auxiliary enterprises, hospitals, independent and other operations	
$26,177	$26,219	$26,638	$27,008	$27,439	**Total operating expenditures**	
$19,992	$20,243	$20,673	$21,094	$21,392	Education and related	Grouped expense categories
$1,276	$1,263	$1,271	$1,218	$1,207	Research and related	
$1,081	$1,055	$1,101	$1,002	$1,042	Public service and related	
$2,751	$1,721	$1,552	$1,654	$1,853	Net scholarships and fellowships	
$21,388	$21,330	$21,702	$22,071	$22,404	**Education and general**	
$4,861	$4,963	$5,022	$5,011	$5,111	Auxiliary enterprises, hospitals, independent and other operations	
$26,177	$26,219	$26,638	$27,008	$27,439	**Total operating expenditures**	

Source: Delta Cost Project IPEDS Database, 1987-2009, 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, AY2009

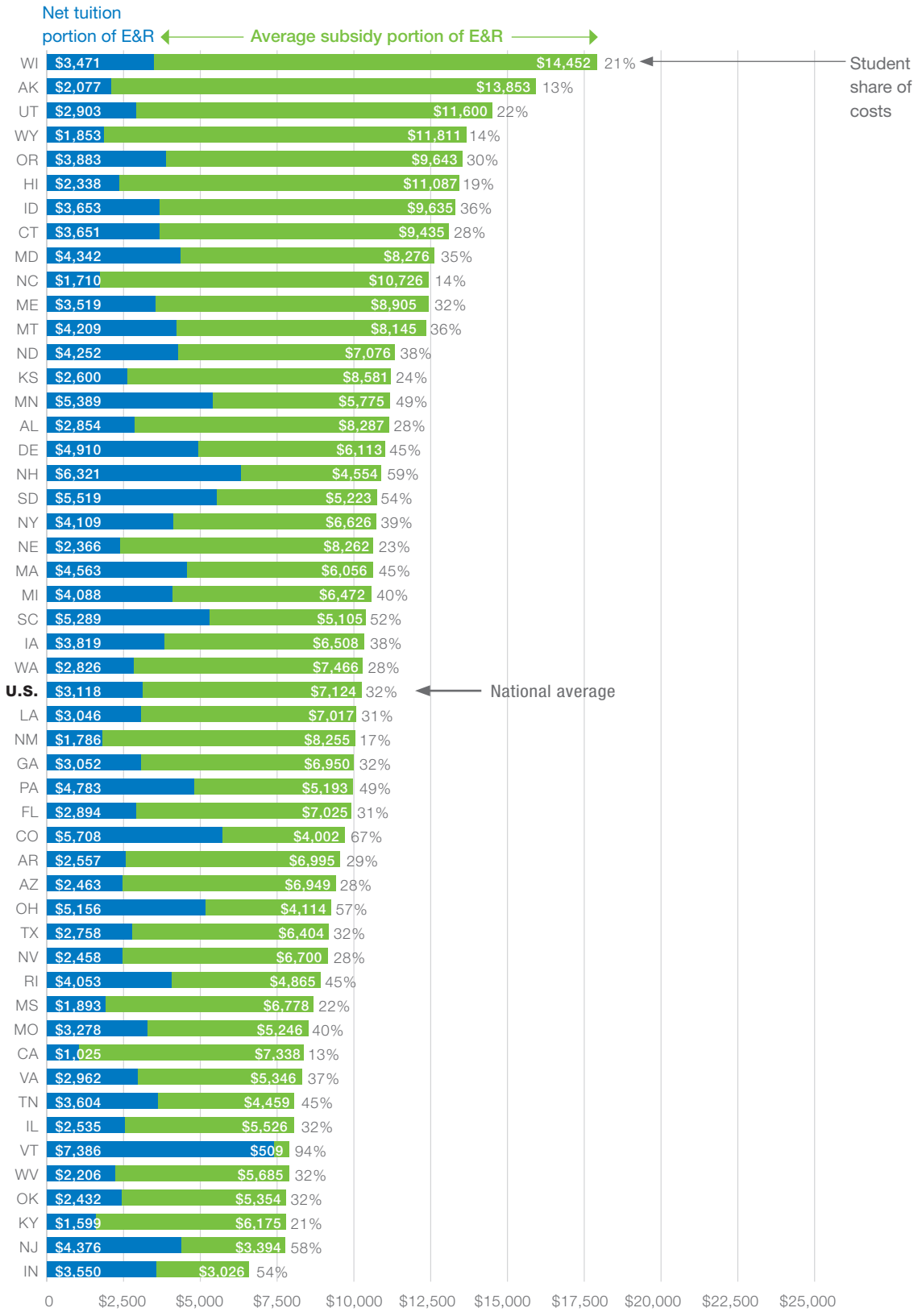


Source: Delta Cost Project IPEDS state database, 2004–2009.

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 public community colleges by state, AY2009



Source: Delta Cost Project IPEDS state database, 2004–2009.

Figure A5

Assignment of expenditures to the education and related (E&R) spending measure

An example of the E&R calculation per student for University X with 2000 FTE students

Expenditure category	Expenditure amount	Portion assigned to E&R	Expenditures assigned to E&R
Instruction	$10,000,000	100%	$10,000,000
Organized research	$2,500,000	0	0
Public service	$750,000	0	0
Student services	$3,500,000	100%	$3,500,000
Subtotal	$16,750,000		$13,500,000
Pro-rata share (Instruction and student services share)*	80%		
Academic support	$3,000,000	Pro-rata share**	$2,400,000 **
Institutional support	$3,000,000	Pro-rata share**	$2,400,000 **
Operation and maintenance	$4,000,000	Pro-rata share**	$3,200,000 **
Net scholarships and fellowships	$2,400,000	0	0
Auxiliary enterprises	$4,000,000	0	0
Hospitals and clinics	0	0	0
Total expenditures	$30,750,000		
Less auxiliaries (equals E&G)	$26,750,000		
E&R Total			$21,500,000
E&R per FTE student			$10,750

*Pro-rata share formula to assign "overhead" expenditures to E&R:

$$\frac{\text{Instruction and student services}}{\text{Instruction + research + public service + student services}}$$

**80% of total spending in this category, using the instruction and student services share of total spending.


DELTA PROJECT
on Postsecondary Education Costs,
Productivity, and Accountability