THE SUPPORT OF PUBLIC HIGHER EDUCATION IN MASSACHUSETTS:

HOW DO WE COMPARE?*

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Often the argument is made that state support of higher education in the Commonwealth is low in comparison to other states and relative to what is needed to fund a high-quality system. The objective of this work is to investigate this assertion by bringing credible evidence and analysis to bear. In reality, ***how well does the Commonwealth support public higher education***, and ***how do the levels of support and expenditures compare to other states and peer institutions?*** The following issues will be examined:

- The relative level and role of state appropriations to public colleges and universities
- A comparison of student affordability focusing on tuition and required fees at public colleges and universities relative to family income and financial aid
- A overview of institutional operational expenditures in comparison to peer institutions

This report uses a number of sources including policy briefs, public data, and federal surveys of postsecondary institutions. The data focus on recent trends, though at times a longer time frame is shown to examine how Massachusetts has dealt with previous economic downturns.

While there is a wealth of possible measures and information to use in answering the key research questions, this report attempts to highlight the most relevant and significant indicators. However, along with the Appendix, accompanying this report is a number of additional resources with more information on the key indicators over time. These spreadsheets also include statistics for other states and institutions not shown in the report's main tables and figures. These additional resources could be used to do supplementary calculations. Also, as they are in electronic format, they could be updated periodically to allow one to extend forward this analysis in the future.

Relative to Whom? Constructing Comparison Groups

To give perspective on how Massachusetts is doing relative to others, I use multiple definitions of peers. In state-level comparisons, I highlight indicators for other New England states, particularly Connecticut, New Hampshire, and Rhode Island (comparisons to Vermont and Maine are less useful given significant state and higher educational differences). State-level comparisons are also made to the Mid-East states of New York, New Jersey, Pennsylvania, and

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Maryland (though some tables also include Delaware). The national average is also shown to give a sense of the country as a whole.

For individual institutional comparisons, I use two main sources to construct peer institutions. The first is the 2005 Basic Carnegie Classifications. Institutions are categorized according to the types and numbers of degrees offered, which gives a sense of the mission and populations of each school. These groupings allow for comparisons of similar institutional types. For instance, the Massachusetts state colleges, which are nearly all categorized as Public Master's Colleges and Universities, are compared to other institutions in the same Carnegie group as they offer similar degrees.

Second, for University of Massachusetts - Amherst (UMass-Amherst), I make comparisons with institutions determined to be peers using multiple indicators in a process developed by the Education Trust. As shown on the College Results Online website, these universities are similar according to a range of institutional and student characteristics, including Carnegie Classification, size, admissions indicators (percentage admitted and SAT scores), student body demographics, and percent who receive a Pell Grant. (See Appendix A for a more detailed description of the process and a comparison of the most similar 15 institutions to UMass-Amherst.)

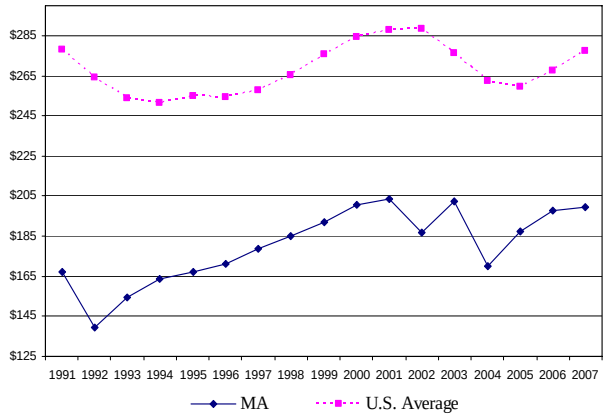
II. STATE SUPPORT OF HIGHER EDUCATION IN MASSACHUSETTS

State Support for Higher Education: Appropriations Indices

Two conventional measures of state support are State Appropriations per Capita (Figure 1) and State Appropriations per $1,000 of Average Personal Income in the State (Figure 2). Another common measure is the Percentage of State Tax Revenue given to Public Higher Education (Figure 3). These indicators suggest:

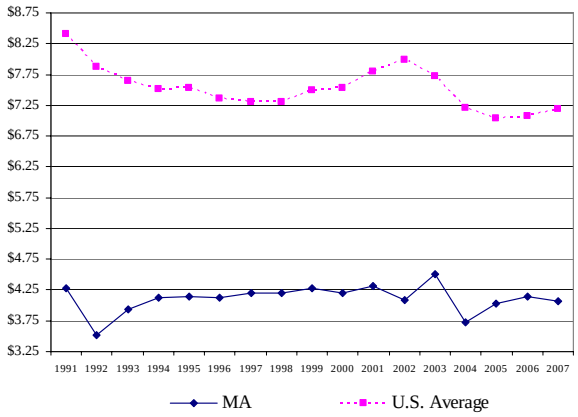
- Relative to the national average, Massachusetts supports its public institutions at a *much lower level*. This is true when standardizing appropriation levels per capita and personal income levels.
- The percentage of state tax revenue that goes to public higher education in Massachusetts is also *far below the national average*. Some interpret this indicator as the priority a state gives to its public higher education system thereby suggesting that the Commonwealth does not highly prioritize its schools.
- Since the early 1990s, the general *trends in state support have been similar* in Massachusetts as with the national as a whole. As shown in Figures 1 and 2, there was a large dip in the early 1990s, a recovery during the rest of the decade, a slight dip in the early 2000s, and a more recent increase.

Figure 1: State Support for Higher Education per Capita (constant 2007 dollars)[1]



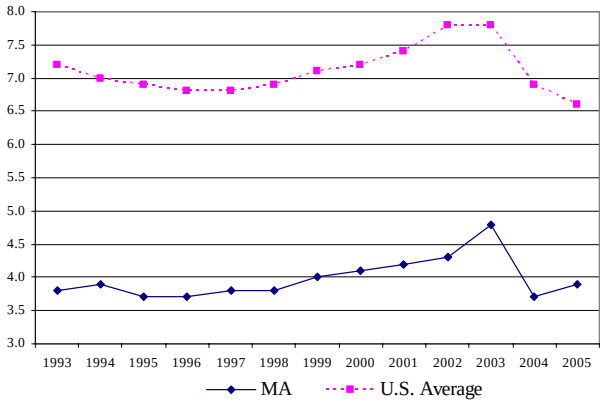
Source: SHEEO State Higher Education Finance (SHEF) study. Gross tax and nontax support for public and independent higher education.

Figure 2: State Support for Higher Education per $1000 of Personal Income[2]



Source: SHEEO State Higher Education Finance (SHEF) study. Gross tax and nontax support for public and independent higher education.

Figure 3: Percentage of Tax Revenue to Public Higher Education[3]



Source: SHEEO State Higher Education Finance (SHEF) study. Gross tax and nontax support for public and independent higher education.

While the above measures account for state differences in population and income levels, to truly understand the degree to which public institutions are supported by the state one must instead take into account postsecondary enrollment and cost of living. These are key measures in understanding costs and therefore result in better indicators of state support. Figures 4 and 5 report state appropriations per full-time equivalent (FTE) student.

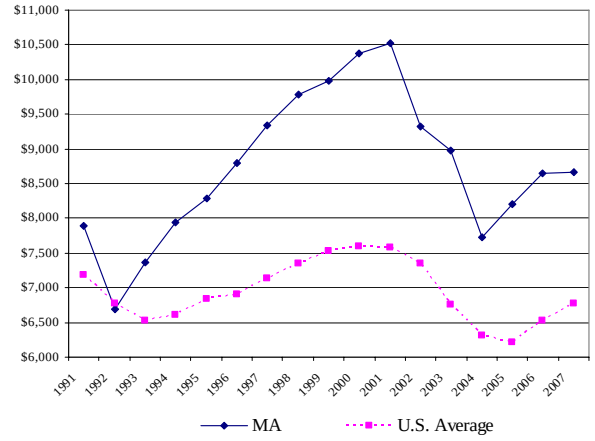
- Once accounting for the number of public college students in a state, the level of support appears to be *higher* in Massachusetts than the national average. The different conclusion from that discussed above is due to the fact that fewer students in the Commonwealth

[1] *Additional resource*: "BLong - State and Local Support for Higher Education Per Capita 1991-2007 (8-09).xls"
[2] *Additional resource*: "BLong - State and Local Support for Higher Education Per Personal Income (8-09).xls"
[3] *Additional Resource*: "BLong - Percentage of Tax Revenue to Public Higher Education (8-09).xls"

attend public colleges and universities relative to other states, and so state appropriation levels cover fewer students.

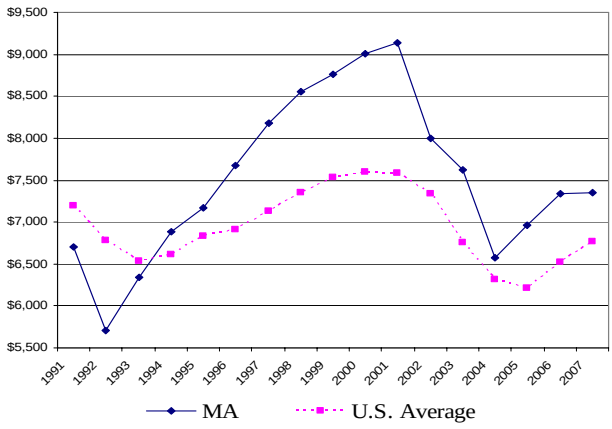
- While Figure 4 displays state appropriations adjusted per FTE, the numbers in Figure 5 reflect two additional adjustments. The first adjustment accounts for the particular public enrollment mix within a state as four-year institutions tend to be more costly than two-year institutions. The second adjustment accounts for differences in the cost of living by state. Given that Massachusetts is more expensive than most other states, this second adjustment effectively shifts the trend line down so that the gap between Massachusetts and the national average is much smaller in Figure 5 than Figure 4.
- Focusing on Figure 5, the trends overtime in Massachusetts are similar to the national average (with similar timing in decreases and increases). However, the swings in state support are much more dramatic within the Commonwealth. State support dipped below the national average in the early 1990s, but the rebound was much larger with the peak occurring in 2001. Since that time, state appropriations have declined, but there have been recent increases.

Figure 4: State Support for Higher Education per FTE (constant 2007 dollars)



Source: SHEEO State Higher Education Finance (SHEF) study. State and Local Appropriations minus support for research, agriculture, and medical centers.

Figure 5: *Adjusted* State Public Higher Education Support per FTE (constant 2007 dollars)



Source: SHEEO State Higher Education Finance (SHEF) study. State and Local Appropriations minus support for research, agriculture, and medical centers. *Adjusted for Massachusetts' public higher education enrollment mix and cost of living.*

Table 1 reports the exact figures for Massachusetts, the national average, and other key states in New England and the Mid-East.

- Again, the amount of state support in Massachusetts was higher than the national average during most of the period even after adjusting for public enrollment levels, the enrollment mix, and the cost of living.
- In terms of trends, the national average grew 16.4 percent from 1991 to 2007 while it grew only 9.6 percent in Massachusetts. Even before the current economic downturn, state support declined (3.7 percent from 2003 to 2007), but this percentage change is similar to that of the national average.

- While Massachusetts may appear to be more generous to its public institutions relative to the national average, three nearby states spend more adjusted state appropriations per FTE (Connecticut, New York, and Maryland), and one is close behind (New Jersey). With the exception of New York, these other states have also had recent reductions in state appropriations; meanwhile, New York has increased state appropriations 8.8 percent from 2003 to 2007.

Table 1: State and Local Support for Public Higher Education per FTE (constant 2007 dollars)[4]
Adjusted for public higher education enrollment mix and state cost of living
Massachusetts Relative to the National Average and Other Key States

	1991	1995	1997	1999	2001	2003	2005	2006	2007	Change 1991-2007	Change 2003-2007
Massachusetts	6,705	7,174	8,177	8,764	9,142	7,626	6,963	7,335	7,348	9.59%	-3.65%
U.S. Avg.	7,191	6,832	7,136	7,527	7,581	6,759	6,208	6,520	6,773	-5.81%	0.21%
Ratio to U.S. Avg.	0.932	1.050	1.146	1.164	1.206	1.128	1.122	1.125	1.085	16.35%	-3.84%
Connecticut	8,947	7,993	8,559	9,538	9,744	8,604	7,925	7,998	8,210	-8.24%	-4.58%
New Hampshire	3,307	3,111	3,265	3,302	3,727	2,983	2,791	2,629	2,685	-18.81%	-9.99%
Rhode Island	5,148	5,200	5,582	5,964	6,360	5,853	5,350	5,449	5,229	1.57%	-10.66%
New Jersey	8,694	9,145	9,724	9,463	9,494	8,648	7,351	7,582	7,275	-16.32%	-15.88%
New York	8,189	7,908	7,053	9,882	7,279	7,472	7,077	7,569	8,127	-0.76%	8.77%
Pennsylvania	6,740	6,742	6,834	6,971	6,810	5,790	5,302	5,282	5,227	-22.45%	-9.72%
Maryland	6,576	6,573	6,349	6,187	8,829	8,088	6,439	6,757	7,586	15.36%	-6.21%

Source: SHEEO State Higher Education Finance (SHEF) study.
Notes: State and Local Appropriations minus support for research, agriculture, and medical centers and adjusted for inflation (constant 2007 dollars), public higher education enrollment mix, and state cost of living

In summary, while several of the conventional measures suggest Massachusetts is doing a poor job supporting its public higher education system, measures with better adjustments tell a different story. Relative to the national average, Massachusetts does slightly better, though it has had more dramatic swings in support over time. However, several key states such as Connecticut and New York outspend Massachusetts per student at public colleges and universities.

II. STATE SUPPORT, TUITION, AND AFORDABILITY

Tuition Prices and State Appropriations

State appropriations play a critical role in determining the prices families face. As appropriations fall, tuition and fees increase. This pattern is evident as shown in Table 2 and Figure 6.

- As shown in Table 2, during the recession of the early 1990s, when real appropriations fell 15.3 percent, tuition and fees increased over 20 percent at each of the three segments. Similar trends are evident from the early 2000s.
- Meanwhile, when appropriations grew steadily (even after accounting for inflation), real

[4] See Appendix B for the complete list of states and each step of the adjustment calculation. *Additional resource*: "BLong - State and Local Support Per FTE with adjustments 1991-2007 (8-09).xls"

tuition and fees fell for several years stating in the mid-1990s.

- There is a clear inverse relationship between state appropriations and tuition revenue as shown more recently in Figure 6 for the State Colleges and Community Colleges.

Table 2: State Support and College Pricing in Massachusetts

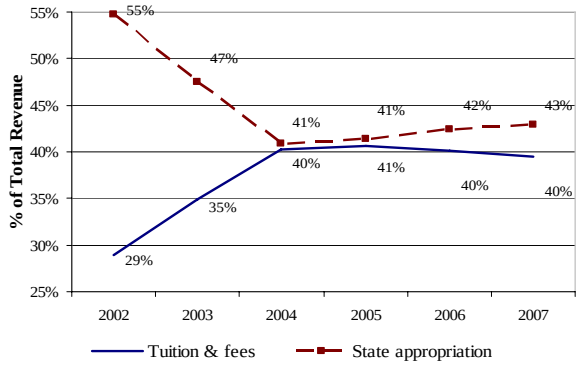
Year	Change in Real State Appropriations per FTE Student	Change in Real Tuition and Fees		
		UMass System	State Colleges	Community Colleges
1991-1992	-15.3%	20.4%	22.0%	21.4%
1992-1993	10.2%	0.5%	3.1%	0.4%
1993-1994	7.8%	3.4%	-0.3%	7.6%
1994-1995	4.4%	1.8%	-1.1%	10.8%
1995-1996	6.1%	-1.1%	0.3%	-0.8%
1996-1997	6.3%	-4.0%	-4.1%	-2.4%
1997-1998	4.7%	-3.0%	-4.6%	-5.7%
1998-1999	2.0%	-3.8%	-4.4%	-7.0%
1999-2000	3.9%	-3.2%	-6.5%	-7.7%
2000-2001	1.9%	-3.5%	-4.0%	-4.6%
2001-2002	-11.5%	-1.8%	-2.0%	3.7%
2002-2003	-4.0%	20.9%	24.0%	22.0%
2003-2004	-13.8%	14.8%	20.0%	12.8%
2004-2005	6.3%	20.4%	7.9%	0.5%

Source: Derived from the previous tables on tuition and fees and the SHEF appropriations numbers. Reported as Table 42 in Long (2006).[5]

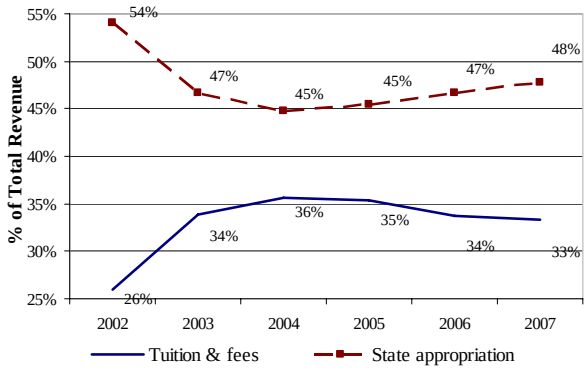
Notes: The percentage changes are relative to the previous year. Inflation adjustments are made using a producer price index for the real appropriations and the consumer price index for tuition and fees.

Figure 6: Percentage of Revenue by Source, FY2002-2007

State Colleges



Community Colleges



Source: DHE Fiscal Office. Data from audited financial statements. Supplied by Jonathan Keller, Board of Higher Education (correspondence July 29, 2009).

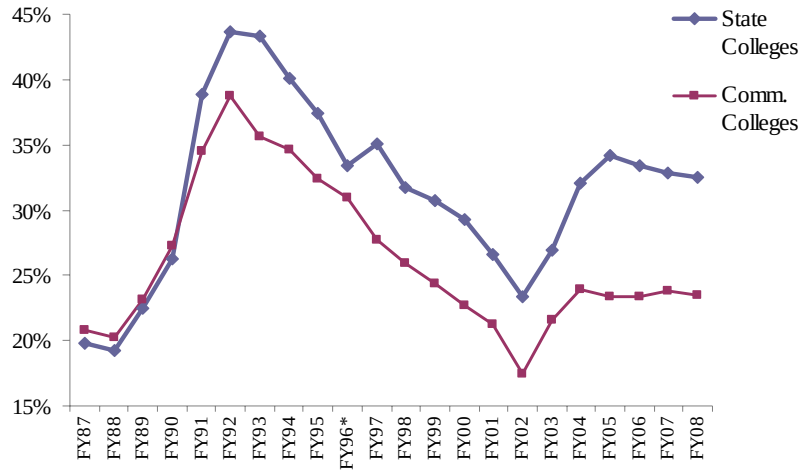
[5] Long, B. T. with Dana Ansel and Greg Leiserson. (2006) *Paying for College: The Rising Cost of Higher Education.* Boston, MA: MassINC.

Sources of Revenue: State Appropriations versus Tuition and Fee Revenue

Another indirect indicator of state support is the percentage of revenues derived from tuition and fees. This also serves as a measure of the degree to which families must cover the college costs. Figure 7 displays long-term trends for the state colleges and community colleges.

- As one would expect, the proportion of revenue from tuition and fees grew during periods of time state appropriations feel. During more stable time, the percentage of tuition and fees fell.
- In general, the state colleges have more of their revenue covered by tuition and fees than the community colleges.

Figure 7: Tuition and Fee Revenue as a Percentage of Total Revenue, FY1987-2008



Source: IPEDS Finance Survey. Supplied by Jonathan Keller, Department of Higher Education (correspondence July 29, 2009). Prior to 2002, the IPEDS reporting format did not reflect GASB 34/35 reporting standards. For FY96, two community colleges were missing data. Tuition and Fee Revenue is net student fees.

Tables 3-7 give information from FY2007 for specific Massachusetts postsecondary institutions and similar schools. It is important to remember that, unlike Table 1, these figures have not been adjusted for differences in the cost of living by state. Still, they give a sense of the relative level of support at each institution.

- *UMass-Amherst vs. Other Public Research Universities* (Table 3)
  - The level of state appropriations is *lower at UMass-Amherst* in comparison to other public research universities in New England and Mid-East states, but they cover about the same average share of total revenue. In particular, the Connecticut and two of the New York institutions receive far more state support.
  - Relative to its peer institutions as determined by the Education Trust's methodology, UMass-Amherst receives more state support, but many of the comparison schools are in less costly states. However, the peer institutions collect more in total revenues than UMass-Amherst.
  - With greater support from the state, research universities in the other states rely less on tuition revenue. About a quarter of the revenue at UMass-Amherst is from tuition revenue

while the share is much smaller for the New York institutions and slightly smaller fro the Connecticut and Maryland institutions.

- The comparison schools also tend to have greater total revenues per FTE student.

- *UMass-Boston and UMass-Lowell vs. Other Public Doctoral/Research Universities* (Table 4)
  - In contrast to UMass-Amherst, state support to UMass-Boston and UMass-Lowell is *relatively higher* than other institutions in the same Carnegie group. However, there is no information on institutions of this type in other New England or the Mid-East states. The share of revenue from state appropriations is similar to several other public doctoral/research universities.
  - Meanwhile, the amount of tuition revenue and share of revenue from tuition is *much higher* for UMass-Boston and UMass-Lowell. However, it is worth noting that total revenues are larger fro the Massachusetts schools, and the comparison schools are not in states with higher costs of living.

- *Massachusetts State Colleges vs. Other Public Master's Colleges and Universities* (Table 5)
  - Although it is part of the university system, Carnegie classifies UMass-Dartmouth as a public master's university along with the state colleges. Its state appropriation and tuition revenue levels suggest that is it in fact more similar to the state colleges than UMass-Boston or UMass-Lowell.
  - Within the group of public master's colleges and universities, the Massachusetts state colleges *receive relatively less* in state appropriations in comparison to schools in New England (especially those in Connecticut) and slightly less than those in Mid-East states.
  - Meanwhile, the Massachusetts state colleges *rely more on tuition* for their revenue, though the amount of tuition revenue per student is lower than that of most of the comparison schools.
  - Total revenues per FTE student are lower in Massachusetts.

- *Massachusetts College of Liberal Arts vs. Other Public Baccalaureate Colleges* (Table 6)
  - The Massachusetts College of Liberal Arts receives far more in state appropriations in comparison to peers. It received about the same or less in tuition than most of the comparison group.
  - Meanwhile, its total revenues are higher than peers in New England.

- *Massachusetts Community Colleges vs. Other Community Colleges* (Table 7)
  - There is a *great deal of variation* in the amount of state appropriations per FTE received by the Massachusetts community colleges. Some receive more than the average for other New England community colleges, but many do not. However, the state appropriation amounts to community colleges in Mid-East states tend to be much lower.
  - Similar differences are found in terms of tuition revenue and total revenues.

To summarize, UMass-Amherst appears to receive less state support than peers, particularly those in Connecticut and New York, while UMass-Boston and UMass-Lowell receive more funds relative to their comparison group. The UMass schools in general rely more on tuition

revenue than peers. The Massachusetts state colleges also receive relatively less in state support and rely more on tuition revenue than other Public Master's Colleges and Universities. Within the community college system, there is a great deal of variation with some receiving more support than regional peers and other receiving less.

Table 3: State Appropriations and Tuition Revenue – *Public Research Universities*

Institution Name	State Approp. per FTE	Share of Revenue from State Approp.	Tuition Revenue per FTE	Share of Revenue from Tuition	Total Revenues per FTE
University of Massachusetts Amherst	$11,267	31.80%	$8,731	24.64%	$35,433
NEW ENGLAND & MID-EAST STATES	$15,209	31.94%	$7,741	16.63%	$49,193
University of Connecticut	$14,288	34.09%	$8,568	20.44%	41,916
Rutgers University-New Brunswick	$14,091	26.93%	$13,101	25.04%	52,318
Stony Brook University	$22,195	27.74%	$4,829	6.04%	79,999
SUNY at Albany	$10,521	30.02%	$4,566	13.03%	35,044
University at Buffalo	$18,374	48.17%	$5,702	14.95%	38,142
University of Maryland-College Park	$11,784	24.68%	$9,680	20.28%	47,738
PEER INSTITUTIONS (*defined by Education Trust*)	$9,620	22.49%	$7,527	18.55%	$44,626
Colorado State University	$136	0.47%	$8,113	27.90%	29,075
Iowa State University	$11,081	28.02%	$7,243	18.32%	39,542
Louisiana State University	$11,774	36.29%	$5,672	17.48%	32,446
University of Arizona	$12,452	30.36%	$6,203	15.12%	41,013
University of California-Santa Barbara	$9,265	25.50%	$7,216	19.86%	36,336
University of California-Santa Cruz	$8,035	23.64%	$7,090	20.86%	33,985
University of Iowa	$12,954	15.36%	$9,044	10.73%	84,308
University of Missouri-Columbia	$9,668	13.76%	$8,399	11.96%	70,248
University of Nebraska-Lincoln	$13,295	29.25%	$6,376	14.03%	45,456
University of South Carolina-Columbia	$7,540	22.27%	$9,911	29.28%	33,853
OTHER RESEARCH UNIV. (mean)	$11,300	19.94%	$8,122	15.58%	$62,856

Source: IPEDS Finance FY07 survey. The sample is limited to Title IV-participating institutions in the United States. Schools are categorized according to the Basic Carnegie Classifications. All in the "Very High Research Activity" group.
Notes: For the calculations and a complete list of colleges, see: “BLong - Institutional Finance FY07 data (8-09).xls”

Table 4: State Appropriations and Tuition Revenue – *Public Doctoral/Research Universities*

Institution Name	State Approp. per FTE	Share of Revenue from State Approp.	Tuition Revenue Per FTE	Share of Revenue from Tuition	Total Revenues per FTE
University of Massachusetts-Boston	$10,588	35.42%	$9,080	30.37%	$29,894
University of Massachusetts-Lowell	$10,890	40.10%	$8,813	32.45%	$27,159
OTHER DOCTORAL/RESEARCH UNIVERSITIES (*selected*)					
Ball State University	$7,437	36.21%	$5,325	25.93%	20,536
Cleveland State University	$5,531	26.85%	$8,838	42.91%	20,594
East Carolina University	$11,941	36.56%	$5,446	16.67%	32,659
East Tennessee State University	$8,376	36.05%	$4,466	19.22%	23,235
Indiana State University	$8,668	42.41%	$4,351	21.29%	20,438
South Carolina State University	$6,245	24.57%	$6,556	25.79%	25,421
Tennessee State University	$5,734	25.95%	$5,715	25.86%	22,099
Texas A & M University-Commerce	$5,292	35.27%	$4,632	30.88%	15,003
Texas A & M University-Kingsville	$7,293	33.66%	$3,991	18.42%	21,669
The University of West Florida	$8,883	44.87%	$3,023	15.27%	19,797
University of Arkansas at Little Rock	$6,744	36.94%	$4,917	26.93%	18,258
Univ. of North Carolina at Charlotte	$9,203	41.05%	$5,814	25.93%	22,420

Source: IPEDS Finance FY07 survey. The sample is limited to Title IV-participating institutions in the United States. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls."

Table 5: State Appropriations and Tuition Revenue – *Public Master's Colleges and Universities*

Institution Name	State Approp. per FTE	Share of Revenue from State Approp.	Tuition Revenue Per FTE	Share of Revenue from Tuition	Total Revenues per FTE
University of Massachusetts-Dartmouth	$7,733	31.05%	$7,539	30.26%	$24,909
Bridgewater State College	$5,990	40.09%	$5,957	39.87%	$14,942
Fitchburg State College	$6,296	46.05%	$4,049	29.61%	$13,674
Framingham State College	$5,758	39.86%	$4,358	30.17%	$14,445
Salem State College	$5,882	43.08%	$4,638	33.97%	$13,653
Westfield State College	$5,660	34.43%	$5,555	33.79%	$16,440
Worcester State College	$5,903	42.38%	$5,058	36.31%	$13,928
NEW ENGLAND STATES (*selected*)					
Central Connecticut State University	$7,312	36.70%	$6,400	32.12%	19,925
Eastern Connecticut State University	$8,299	34.55%	$5,304	22.08%	24,024
Southern Connecticut State University	$7,139	38.47%	$6,191	33.36%	18,559
Western Connecticut State University	$14,630	35.14%	$9,902	23.78%	41,633
University of Southern Maine	$6,082	23.76%	$6,665	26.04%	25,593
Rhode Island College	$6,456	36.46%	$4,933	27.86%	17,706
MID-EAST STATES (mean)	$6,479	32.57%	$5,301	28.48%	$19,175

Source: IPEDS Finance FY07 survey. The sample is limited to Title IV-participating institutions in the United States. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls."

Table 6: State Appropriations and Tuition Revenue – *Public Baccalaureate Colleges - Arts & Sciences*

Institution Name	State Approp. per FTE	Share of Revenue from State Approp.	Tuition Revenue per FTE	Share of Revenue from Tuition	Total Revenues per FTE
Massachusetts College of Liberal Arts	$10,028	45.34%	$4,420	19.98%	$22,118
NEW ENGLAND STATES					
Charter Oak State College	$3,138	28.14%	$6,110	54.80%	$11,149
Granite State College	$2,495	20.12%	$5,166	41.66%	$12,401
University of Maine at Machias	$6,115	37.62%	$3,918	24.10%	$16,256
University of Maine at Presque Isle	$5,290	34.20%	$4,265	27.58%	$15,465
Univ. of New Hampshire at Manchester	$2,267	24.41%	$6,311	67.93%	$9,290
MID-EAST STATES					
St Mary's College of Maryland	$8,086	22.81%	$9,983	28.16%	$35,446
SUNY at Purchase College	$13,081	47.04%	$4,896	17.61%	$27,808
SUNY College at Old Westbury	$11,471	50.07%	$3,067	13.39%	$22,910
OTHER BACCALAUREATE COLLEGES (mean)	$8,857		$4,410		$26,095

Source: IPEDS Finance FY07 survey. The sample is limited to Title IV-participating institutions in the United States. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls."

Table 7: State Appropriations and Tuition Revenue – *Public Two-year Colleges*

Institution Name	State Approp. per FTE	Share of Revenue from State Approp.	Tuition Revenue per FTE	Share of Revenue from Tuition	Total Revenues Per FTE
Berkshire Comm. College	$8,876	53.41%	$2,754	16.57%	$16,617
Bristol Comm. College	$4,775	44.09%	$2,917	26.93%	$10,830
Bunker Hill Comm. College	$4,963	44.25%	$3,051	27.20%	$11,214
Cape Cod Comm. College	$5,859	47.83%	$3,074	25.10%	$12,248
Greenfield Comm. College	$8,657	44.59%	$4,093	21.08%	$19,414
Holyoke Comm. College	$5,397	47.61%	$2,406	21.22%	$11,336
Massachusetts Bay Comm. College	$5,060	47.12%	$3,432	31.96%	$10,738
Massasoit Comm. College	$5,530	52.73%	$2,996	28.56%	$10,488
Middlesex Comm. College	$5,028	44.31%	$3,291	29.00%	$11,348
Mount Wachusett Comm. College	$6,253	42.05%	$3,384	22.76%	$14,872
North Shore Comm. College	$5,838	50.34%	$2,696	23.25%	$11,598
Northern Essex Comm. College	$4,996	46.70%	$1,586	14.83%	$10,698
Quinsigamond Comm. College	$4,879	41.57%	$3,275	27.90%	$11,737
Roxbury Comm. College	$9,257	58.74%	$2,398	15.22%	$15,758
Springfield Technical Comm. College	$7,139	47.20%	$2,646	17.50%	$15,126
NEW ENGLAND STATES: PUBLIC TWO-YEAR COLLEGES (mean)	$6,385	45.12%	$3,389	26.69%	$14,742
MID-EAST STATES: PUBLIC TWO-YEAR COLLEGES (mean)	$2,917	22.71%	$3,033	24.82%	$12,849

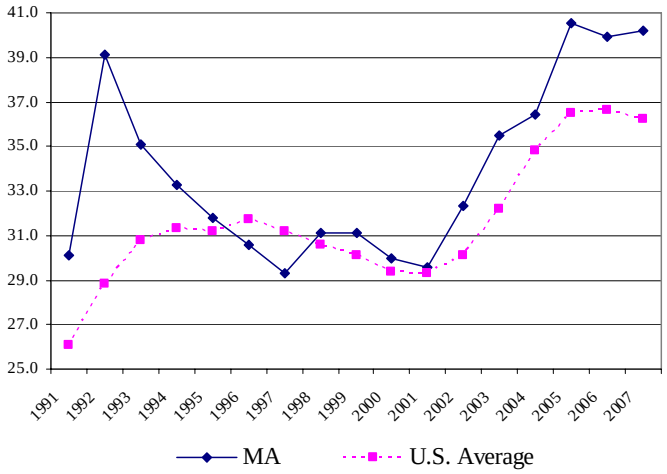
Source: IPEDS Finance FY07 survey. The sample is limited to Title IV-participating institutions in the United States. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls."

College Costs and Families

The above analysis already suggests that public institutions in Massachusetts rely on tuition revenue more than peer institutions. This naturally leads to questions about the burden of postsecondary costs on families in Massachusetts. Figure 8 displays the share of operating revenues covered by families from 1991 to 2007 while Table 8 gives the percentage of income needed to pay for different types of colleges.

- Trends in the share of revenues covered by families (i.e., net tuition revenue) mirror those discussed earlier concerning state appropriations: during times when appropriations fell, tuition revenue increased, and the share covered by families increased. However, during the most recent years (post-2004), when state appropriations per FTE have started to increase again, the share of revenue from tuition has continue to increase or leveled off rather than decreasing. This hints at a possibly new trend of increasing pressure on families *even while* state support increases.
- Relative to the national average, lower-income families in Massachusetts must spend more of their income to cover the costs of public institutions (Table 8). The difference is particularly large for those in the bottom 20 percent of the income distribution. However, in comparison to other New England and Mid-East states, Massachusetts requires a similar amount. The states that are relatively cheaper for most income quintiles are Connecticut, New York, and Maryland.

Figure 8: Family Share of Public Higher Education Operating Revenues (percentage)[6]



Source: SHEEO State Higher Education Finance (SHEF) study. Definition = (Public Higher Education Net Tuition Revenue) divided by (Appropriations for Public Higher Education + Public Higher Education Net Tuition Revenue).

[6] *Additional Resource*: "BLong - Family Share of Public Higher Education Operating Revenues (8-09).xls"

Table 8: Percentage of Family Income Needed to Pay for College by Type of Institution, 2008[7]

	% in First Income Quintile	% in Second Income Quintile	% in Third Income Quintile	% in Fourth Income Quintile	% in Fifth Income Quintile
Public Four-Year Colleges and Universities					
Massachusetts	73.9	37.1	25.4	16.4	9.5
U.S. Average	55.0	33.2	25.1	16.3	9.5
Ratio to U.S. Average	1.34	1.12	1.01	1.01	1.00
Connecticut	67.9	33.0	22.5	15.0	8.7
New Hampshire	83.9	38.9	26.9	18.1	11.3
Rhode Island	82.3	41.4	27.7	17.9	11.0
New Jersey	74.9	38.7	28.0	18.3	10.7
New York	54.1	32.1	25.0	16.4	9.0
Pennsylvania	87.4	48.1	34.6	22.5	13.0
Maryland	53.4	28.8	21.5	14.2	8.5
Public Two-Year Colleges					
Massachusetts	62.9	30.3	19.0	12.3	7.0
U.S. Average	48.9	29.2	19.8	13.0	7.4
Ratio to U.S. Average	1.29	1.04	0.96	0.95	0.95
Connecticut	57.4	28.6	17.8	12.1	6.9
New Hampshire	82.6	37.9	24.5	16.8	10.2
Rhode Island	78.6	37.2	22.6	14.8	8.9
New Jersey	62.1	30.5	20.0	13.0	7.5
New York	61.6	35.1	23.2	15.2	8.3
Pennsylvania	64.9	35.0	23.0	15.1	8.6
Maryland	51.5	26.0	17.4	11.6	6.8

Source: *Measuring Up: The State-By-State Higher Education Report Card.*
Notes: Definition = Net price (tuition and room and board less federal, state need and non need based aid, and institutional aid) by income quintile, as a percent of family income in that quintile. The figures for Private Four-year Colleges and Universities are shown in Appendix C.

State Financial Aid

An important way to help families is financial aid, and some states have deliberately chosen to reduce state appropriations while increasing aid targeted towards families, particularly those with lower incomes. While there are informational costs (in terms of student awareness about the aid program) and administrative considerations, financial aid can serve as an effective tool in supporting institutions via support for families. Table 9 and Figure 9 give a sense of the trends in financial aid in Massachusetts.

- The Federal Pell Grant is the primary need-based federal grant, and it is the first piece of financial aid most low-income students receive. Table 9 displays trends in state financial aid relative to this federal benchmark. For instance, in 2008, the total amount spent on state need-based aid in Massachusetts was 56.7 percent of the amount received by Massachusetts students from the Pell Grant. This was higher than the national average.
- However, the amount spent on state financial aid in Massachusetts was much smaller than that of key comparison states, namely Connecticut, New Jersey, New York, and Pennsylvania and similar to the amount spent by Maryland.

[7] *Additional Resource*: "BLong - Percentage of Family Income needed to Pay by Sector 2008 (8-09).xls"

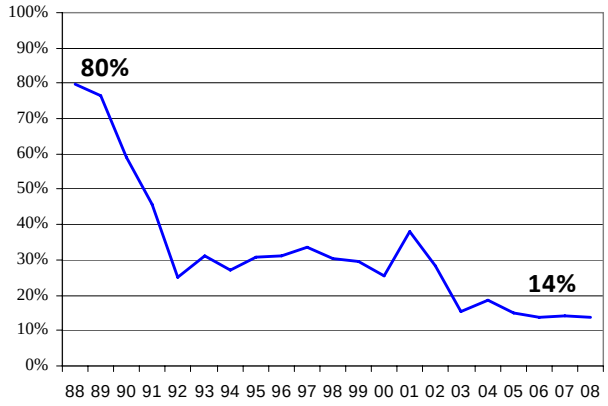
- Massachusetts has realized a very slight increase in state aid since 1995. However, during the most recent years, it has been outpaced in the growth of state financial aid.
- Figure 9 documents how the MassGrant has declined in how much it covers of average tuition and mandatory fees. While it covered 80 percent in 1988, the proportion was only 14 percent 2008.

Table 9: State Need-Based Aid as a Percentage of Federal Pell Grant Aid (percentage)[8]

	1995	1998	1999	2000	2001	2003	2004	2008
Massachusetts	55.9	64.3	72.1	84.5	90.1	61.6	51.2	56.7
U.S. Average	44.3	43.6	40.7	43.5	44.2	40.1	39.8	45.9
Ratio to U.S. Avg.	1.262	1.475	1.771	1.943	2.038	1.536	1.286	1.235
Connecticut	60.7	72.3	80.7	91.6	95.7	43.9	47.6	73.7
New Hampshire	8.4	7.4	8.7	7.7	6.9	12.1	11.8	13.1
Rhode Island	27.3	22.9	19.6	21.4	19.0	21.1	27.0	27.6
New Jersey	151.9	117.3	106.3	113.4	105.9	86.6	95.3	101.6
New York	118.3	105.3	91.9	91.3	92.3	90.1	88.7	88.3
Pennsylvania	102.6	104.1	98.4	104.2	110.6	85.8	82.6	85.7
Maryland	34.3	43.7	39.4	41.7	41.9	32.8	52.6	58.8

Sources: Pell grant information - Office of Postsecondary Education, Title IV/ Pell Grant End of the Year Report. Washington, D.C.: U.S. Department of Education, Table 21. State grant information – Kristen DeSalvatore, National Association of State Student Grant and Aid Programs Annual Survey, Academic Survey Report. Albany, NY: National Association of State Student Grant and Aid Programs, Table 1. Definition = Total amount of state need-based aid awarded to undergraduate students/ Federal Pell Grant aid by state of residence of students

Figure 9: Average MassGrant Award as a Share of Average Tuition and Mandatory Fees



Source: Supplied by Jonathan Keller, Department of Higher Education (correspondence July 29, 2009).

The above tables and figures highlight the fact that Massachusetts relies on tuition revenue more than its peers, and financial aid does not do much to allay the burden faced by families, particularly those who are low-income. Several key comparison states (Connecticut, New Jersey, New York, and Pennsylvania) offer far more in financial aid, though Massachusetts families are required to pay a similar proportion of their incomes to cover colleges prices. In recent years, although state appropriations have increased per FTE, the share of revenues

[8] *Additional Resource*: "BLong - State Grant Aid to Low-Income as Percent of Pell Grants 1995-2008 (8-09).xls"

from tuition has continued to remain high suggesting continued pressure on Massachusetts families.

IV. INSTITUTIONAL EXPENDITURES

What is the Commonwealth as well as families getting for their support? This section explores this question by examining expenditure levels for different institutions in Massachusetts. Tables 10-14 give expenditure information from FY2007 for specific Massachusetts postsecondary institutions and similar schools. [Also see Appendix D for additional comparisons between Massachusetts' institutions and their peers.]

- *UMass-Amherst vs. Other Public Research Universities* (Table 3)
  - UMass-Amherst spends far less than its peers in terms of total operating expenditures per FTE. This is true in comparison to public research universities in New England and the Mid-East states as well as the peer group defined by Education Trust. The amount spent is similar to that of UC-Santa Barbara, UC-Santa Cruz, and Louisiana State University.
  - While total operating expenditures are lower, instructional expenditures are more similar to peers, though still lower than the average for New England and institutions in the Mid-East states. Expenditures on research and academic support are also lower though the amount spend on student services is higher.

- *UMass-Boston and UMass-Lowell vs. Other Public Doctoral/Research Universities* (Table 4)
  - Expenditures at UMass-Boston and UMass-Lowell are higher than the peer institutions. This is true for all categories with an especially large difference in terms of instructional expenditures.

- *Massachusetts State Colleges vs. Other Public Master's Colleges and Universities* (Table 5)
  - The Massachusetts state colleges have expenditures in line with several peers in New England and the Mid-East. However, there are several key institutions that outspend the Massachusetts schools. Total operating expenditures are generally lower at the state colleges than the comparison group.

- *Massachusetts College of Liberal Arts vs. Other Public Baccalaureate Colleges* (Table 6)
  - Massachusetts College of Liberal Arts spends much more than its peers in New England and is more similar to similar institutions in the Mid-East states.

- *Massachusetts Community Colleges vs. Other Community Colleges* (Table 7)
  - While there is a great deal of variation in the expenditures of the Massachusetts community colleges, on average they seem to have similar expenditures levels to other community colleges in New England and the Mid-East states.

In general, Massachusetts institutions have lower total operating expenditures than similar peers (the exceptions are UMass-Boston, UMass-Lowell, and the Massachusetts College of Liberal Arts). It is unclear whether this reflects *greater efficiency* and/or *lower quality* within the Commonwealth. Among its closest 15 peers as defined by the Education Trust, UMass-Amherst has the fifth highest six-year graduation rate (see Appendix D), but this is only one, imperfect outcome measure.

Table 10: Institutional Expenditures per FTE – *Public Research Universities*

Institution Name	Instructional Expenditures	Research Expenditures	Academic Support Expenditures	Student Services Expenditures	Institutional Support Expenditures	Total Operating Expenditures
University of Mass. Amherst	$10,105	$4,081	$1,867	$1,793	$2,003	$30,885
NEW ENGLAND AND MID-EAST STATES	$12,483	$5,810	$2,923	$1,342	$3,593	$45,049
University of Connecticut	$11,959	$2,785	$3,840	$1,636	$3,145	$37,918
Rutgers Univ.-New Brunswick	$16,669	$6,769	$2,857	$2,105	$3,332	$45,970
Stony Brook University	$13,268	$4,622	$2,041	$1,245	$4,653	$76,502
SUNY at Albany	$9,135	$7,473	$2,169	$1,021	$4,247	$36,057
University at Buffalo	$12,933	$3,851	$2,941	$898	$3,994	$34,647
Univ. of Maryland-College Park	$10,932	$9,358	$3,691	$1,144	$2,189	$39,199
PEER INSTITUTIONS (*defined by Education Trust*)	$8,880	$7,271	$2,656	$1,364	$1,662	$40,456
Colorado State University	$6,964	$6,971	$1,604	$854	$928	$27,553
Iowa State University	$8,118	$6,777	$4,020	$1,324	$1,186	$36,072
Louisiana State University	$8,073	$7,443	$2,439	$580	$1,585	$30,812
University of Arizona	$9,614	$10,397	$2,830	$810	$2,318	$38,034
Univ. of California-Santa Barbara	$8,517	$6,106	$1,533	$2,650	$1,565	$30,541
Univ. of California-Santa Cruz	$7,470	$6,123	$1,906	$3,000	$1,947	$30,954
Univ. of Iowa	$11,885	$9,981	$4,426	$948	$2,588	$76,872
Univ.of Missouri-Columbia	$9,223	$6,521	$2,300	$1,475	$929	$62,673
Univ.of Nebraska-Lincoln	$9,072	$8,036	$3,157	$663	$1,917	$40,855
Univ.of South Carolina-Columbia	$9,863	$4,354	$2,341	$1,339	$1,653	$30,196
OTHER RESEARCH UNIVERSITIES (mean)	$12,547	$9,872	$3,279	$1,275	$2,450	$54,087

Source: IPEDS Finance FY07 survey. Schools are categorized according to the Basic Carnegie Classifications. All in the "Very High Research Activity" group. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls." Information on operations/maintenance expenditures is also available.

Table 11: Institutional Expenditures per FTE – *Public Doctoral/Research Universities*

Institution Name	Instructional Expenditures	Research Expenditures	Academic Support Expenditures	Student Services Expenditures	Institutional Support Expenditures	Total Operating Expenditures
University of Mass.-Boston	$9,917	$2,563	$2,338	$1,900	$3,198	$26,386
University of Mass.-Lowell	$9,595	$3,698	$2,438	$1,748	$3,383	$26,360
OTHER DOCTORAL/RESEARCH UNIVERSITIES (*selected*)	$6,615	$1,194	$1,486	$1,104	$1,820	$18,737
Ball State University	$6,866	$1,010	$2,012	$834	$1,691	$18,018
Cleveland State University	$7,114	$1,098	$1,723	$1,473	$1,947	$19,532
East Carolina University	$10,777	$960	$1,141	$499	$2,198	$30,592
East Tennessee State University	$10,415	$941	$1,625	$1,570	$1,586	$22,335
Indiana State University	$6,333	$1,112	$1,479	$917	$1,713	$18,229
South Carolina State University	$6,087	$2,062	$1,148	$2,541	$2,557	$25,584
Tennessee State University	$7,495	$1,341	$1,365	$1,879	$2,070	$20,405
Texas A & M Univ.-Commerce	$4,778	$221	$906	$763	$1,150	$13,028
Texas A & M Univ.-Kingsville	$5,414	$1,725	$1,141	$1,348	$1,530	$16,486
Univ. of Arkansas at Little Rock	$5,710	$1,390	$2,025	$703	$1,198	$17,089
Univ. of North Carolina at Charlotte	$8,256	$1,299	$1,460	$767	$1,285	$19,442

Source: IPEDS Finance FY07 survey. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls." Information on operations/maintenance expenditures is also available.

Table 12: Institutional Expenditures per FTE – *Public Master's Colleges and Universities*

Institution Name	Instructional Expenditures	Research Expenditures	Academic Support Expenditures	Student Services Expenditures	Institutional Support Expenditures	Total Operating Expenditures
University of Mass.-Dartmouth	$7,246	$2,287	$2,881	$1,016	$2,350	$23,262
Bridgewater State College	$5,003	n/a	$2,023	$1,739	$1,608	$14,322
Fitchburg State College	$4,818	$12	$1,020	$1,404	$1,334	$12,422
Framingham State College	$4,241	$2	$1,518	$1,328	$1,475	$12,090
Salem State College	$5,021	n/a	$2,006	$1,088	$2,251	$13,202
Westfield State College	$5,011	n/a	$1,068	$1,668	$1,228	$14,783
Worcester State College	$5,238	n/a	$965	$1,279	$1,637	$13,391
NEW ENGLAND STATES	$6,662	$670	$1,771	$1,877	$2,578	$21,596
Central Connecticut State Univ.	$5,591	$138	$1,897	$1,815	$2,448	$19,340
Eastern Connecticut State Univ.	$5,723	$62	$1,847	$2,074	$3,050	$21,554
Southern Connecticut State Univ.	$6,253	$240	$1,590	$1,914	$2,069	$18,326
Western Connecticut State Univ.	$10,372	$244	$2,372	$3,419	$6,184	$39,141
University of Southern Maine	$8,207	$2,381	$2,537	$1,701	$1,654	$24,533
Keene State College	$6,327	$290	$1,090	$1,778	$1,597	$18,349
Plymouth State University	$5,646	$406	$1,249	$1,259	$1,273	$15,203
Rhode Island College	$5,180	$1,595	$1,587	$1,052	$2,348	$16,323
MID-EAST STATES (mean)	$6,488	$405	$1,316	$1,377	$2,445	$17,850
OTHER MASTER'S COLLEGES AND UNIVERSITIES (mean)	$5,409	$545	$1,327	$1,121	$1,634	$15,685

Source: IPEDS Finance FY07 survey. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls." Information on operations/maintenance expenditures is also available.

Table 13: Institutional Expenditures per FTE – *Public Baccalaureate Colleges - Arts & Sciences*

Institution Name	Instructional Expenditures	Research Expenditures	Academic Support Expenditures	Student Services Expenditures	Institutional Support Expenditures
Mass. College of Liberal Arts	$6,827	$1,698	$2,584	$3,127	$20,272
NEW ENGLAND STATES					
Charter Oak State College	$2,133	$1,731	$2,708	$2,717	$10,838
Granite State College	$4,514	$1,737	$1,273	$1,446	$10,874
Univ.of Maine at Machias	$4,771	$1,517	$2,141	$1,722	$16,422
Univ.of Maine at Presque Isle	$4,432	$1,689	$1,592	$1,379	$14,888
Univ. of NH at Manchester	$3,241	$2,154	$1,093	$1,818	$9,102
MID-EAST STATES					
St Mary's College of Maryland	$8,633	$973	$2,515	$5,089	$27,822
SUNY at Purchase College	$7,311	$1,867	$1,526	$2,828	$25,205
SUNY College at Old Westbury	$6,022	$583	$1,580	$3,105	$21,117
OTHER BACCALAUREATE COLLEGES (mean)	$5,811	$1,692	$1,743	$1,853	$18,022

Source: IPEDS Finance FY07 survey. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls." Information on operations/maintenance expenditures is also available.

Table 14: Institutional Expenditures per FTE – *Public Two-years Colleges*

Institution Name	Instructional Expenditures	Research Expenditures	Academic Support Expenditures	Student Services Expenditures	Institutional Support Expenditures
Berkshire Comm. College	$6,159	$1,849	$2,436	$2,147	$15,788
Bristol Comm. College	$4,689	$1,646	$1,276	$1,382	$10,402
Bunker Hill Comm. College	$4,246	$1,236	$1,726	$1,267	$10,701
Cape Cod Comm. College	$5,003	$1,471	$1,866	$1,304	$11,973
Greenfield Comm. College	$5,099	$2,146	$2,415	$2,583	$17,368
Holyoke Comm. College	$4,012	$929	$1,794	$1,472	$10,796
Massachusetts Bay Comm. College	$3,816	$1,762	$1,183	$1,470	$10,403
Massasoit Comm. College	$3,369	$1,884	$1,270	$1,516	$10,258
Middlesex Comm. College	$4,586	$1,368	$1,602	$1,427	$11,671
Mount Wachusett Comm. College	$4,609	$2,130	$2,853	$1,857	$14,583
North Shore Comm. College	$4,483	$1,539	$1,545	$1,371	$11,588
Northern Essex Comm. College	$3,778	$1,323	$2,038	$1,706	$10,966
Quincy College	$2,677	$677	$280	$1,383	$6,302
Quinsigamond Comm. College	$5,121	$1,109	$1,585	$1,094	$10,978
Roxbury Comm. College	$5,302	$1,495	$2,124	$2,081	$16,178
Springfield Technical Comm. College	$4,984	$1,833	$1,349	$1,382	$15,118
NEW ENGLAND: PUBLIC TWO-YEAR COLLEGES (mean)	$4,694	$1,309	$1,410	$2,376	$12,392
MID-EAST STATES: PUBLIC TWO-YEAR COLLEGES (mean)	$4,768	$960	$1,050	$1,899	$12,204

Source: IPEDS Finance FY07 survey. Schools are categorized according to the Basic Carnegie Classifications. For the calculations and a complete list of colleges, see: "BLong - Institutional Finance FY07 data (8-09).xls." Information on operations/maintenance expenditures is also available.

V. CONCLUSIONS

This study focused on two key questions:

1. *How well does the Commonwealth support public higher education in Massachusetts?*
2. *How do the levels of state support and expenditures compare to other states and peer institutions?*

Based on a variety of sources, the analysis suggests:

- Although some indicators suggest the state does a poor job support public institutions, once accounting for differences across states in the enrollment mix and cost of living, Massachusetts seems more in line with the national average. However, several key states, such as Connecticut and New York, outspend Massachusetts.
- UMass-Amherst appears to receive less state support than peers, particularly those in Connecticut and New York, while UMass-Boston and UMass-Lowell receive more funds relative to their comparison group. The State College system also receives relatively less in state support.
- Public institutions in Massachusetts tend to rely more on tuition revenue than peers. In recent years, even though state appropriations have increased, the share of revenues from tuition has continued to remain high suggesting continued pressure on Massachusetts families.
- Although Massachusetts offers less in state aid, Massachusetts families are required to pay a similar proportion of their incomes to cover college prices, though several key comparison states are more affordable for lower-income families.
- With a few exceptions, Massachusetts institutions have lower total operating expenditures than similar peers. It is unclear whether this reflects greater efficiency and/or lower quality within the Commonwealth. Much more study would be needed to gain perspective on this issue.

Rather than looking at past behavior, the key question going forward is *how should the Commonwealth deal with the current economic situation*? During the economic recession of the early 1990s, the state dramatically cut appropriations, and this had serious repercussions on public institutions and families. While there has been a great deal of progress in recovering from those cuts and the smaller reductions experienced in the early 2000s, that progress is in jeopardy now if the state does not at least maintain its level of support. Unfortunately, the Commonwealth has a history of dramatic swings in support over time, and this sort of upheaval can create additional complications for institutions and families.

However, even if Massachusetts were to maintain current levels of support, there is reason to be concerned. As noted above, Massachusetts families currently cover a greater share of revenue through tuition payments than comparison states and institutional peers. Costs are particularly high for those who are low-income, and several key comparison states (Connecticut, New Jersey, New York, and Pennsylvania) offer far more in financial aid to families. As always, there is room for improvement.

APPENDIX A: Identifying Peer Institutions

College Results Online (by Education Trust)

To identify which institutions are most similar to a chosen institution, College Results Online applies an algorithm in which every other four-year institution in the country is compared to the chosen institution. Each institution receives a "similarity score," ranging from 0 (least similar) to 1000 (identical), based on the degree of similarity to the chosen institution in terms of 11 selected institutional and student characteristics. In order to mitigate the effects of year to year variations on key indicators, The Education Trust averaged the three most recent years of data for the indicators used to identify similar institutions. These indicators include:

- Estimated Median SAT or ACT equivalent of freshman class (235 points)
- Admissions Selectivity, per *Barron's Profiles of American Colleges* (106 points)
- Carnegie Classification (60 points)
- Percent of undergraduates receiving Pell Grants (172 points)
- Sector (Public vs. Private) (111 points)
- Number of full-time equivalent undergraduates (40 points)
- Student-Related Expenditures / FTE student (27 points)
- Percent of FTE undergraduate students age 25 and over (49 points)
- Status as a Historically Black College or University (HBCU) (61 points)
- Percent of undergraduates who are enrolled part-time (81 points)
- Status as a commuter campus (58 points)

The number in parentheses next to the variable is the weight assigned to the variable, and the sum of all the weights is 1,000.

Once the baseline similarity score is calculated, College Results Online applies additional "filters" to each institution, excluding an institution from possible comparison if it greatly deviates from the chosen institution on any one of a number of factors. This prevents, for example, an institution with 2,500 undergraduates from being compared to an institution with 25,000 undergraduates, even if they are otherwise very similar. Once dissimilar institutions are filtered out, the remaining institutions with the highest similarity scores are used by College Results Online to present the 15 "most similar" institutions for the chosen institution.

Appendix Table A1: Peer Institutions of UMass-Amherst as defined by College Results Online

	State	Carnegie Class	Pct Admitted	FTE Undegrads	Pct Female	Pct Underrep. minority	Pct Receiving Pell Grant	Median SAT	SAT Math 25th Pctile	SAT Math 75th Pctile	Pct Part-Time	Pct Age 25+
Univ. of Cal.-Santa Barbara	CA	Research Very High	53.1	17,647	55.5	21.2	25.2	1,180	540	660	3.6	3.7
Univ. of California-Santa Cruz	CA	Research Very High	68.6	13,301	54.0	18.2	25	1,165	530	640	3.6	4.8
Univ. of Missouri-Columbia	MO	Research Very High	82.7	20,422	51.7	8.2	15.6	1,165	540	650	6.4	4.0
Iowa State Univ.	IA	Research Very High	90.3	19,866	43.6	5.4	22.0	1,105	550	690	6.3	6.9
UMass-Amherst	MA	Research Very High	80.4	18,501	49.6	8.0	22.0	1,140	520	630	6.9	7.9
Univ. of Iowa	IA	Research Very High	84.0	18,896	53.4	5.1	16.8	1,125	540	660	10.4	8.4
Illinois State Univ.	IL	Doctoral/Research	77.1	17,043	57.7	9.7	19.0	1,105	n/a	n/a	6.8	8.1
Colorado State Univ.	CO	Research Very High	88.4	20,018	52.2	9.6	17.0	1,105	510	620	11.0	10.6
Univ. of Oregon	OR	Research High	90.9	15,488	52.7	6.0	24.4	1,115	500	620	9.0	11.0
The Univ. of Alabama	AL	Research High	73.9	16,405	53.1	13.7	20.9	1,065	500	630	9.8	10.9
Univ. of SC –Columbia	SC	Research Very High	67.4	17,053	54.5	15.5	21.9	1,150	530	630	10.7	8.6
Univ. of Nebraska at Lincoln	NE	Research Very High	75.4	16,191	47.0	5.4	20.5	1,145	540	670	7.4	7.5
Oklahoma State Univ. (main)	OK	Research High	51.0	17,532	48.4	15.1	27.6	1,125	510	620	12.4	13.0
Louisiana State Univ.	LA	Research Very High	78.2	26,529	51.9	14.1	19.1	1,125	540	660	8.3	7.3
Univ. of Arizona	AZ	Research Very High	87.7	25,971	53.4	20.0	23.9	1,125	500	630	13.1	11.9
Texas Tech Univ.	TX	Research High	70.9	21,548	45.1	15.2	20.2	1,130	530	620	9.5	7.2

Notes: All of the institutions are public universities. The full name of Louisiana State University is Louisiana State University and Agricultural & Mechanical College.

APPENDIX B: State Appropriations – Additional Information

Appendix Table B1: State and Local Support for Public Higher Education per FTE (2007 dollars)
No Adjustments (see Table 1 for the adjusted figures)

	1991	1995	1997	1999	2001	2003	2005	2006	2007	Change 1991-2007	Change 2003-2007
MA	7,893	8,284	9,345	9,980	10,525	8,969	8,207	8,652	8,666	9.79%	-3.38%
U.S. Avg.	7,191	6,832	7,136	7,527	7,581	6,759	6,208	6,520	6,773	-5.81%	0.21%
Ratio to U.S. Avg.	1.098	1.213	1.310	1.326	1.388	1.327	1.322	1.327	1.279	16.57%	-3.58%
CT	11,665	9,962	10,670	11,499	11,601	10,561	9,737	9,819	10,079	-13.60%	-4.56%
NH	4,457	4,171	4,238	4,265	4,723	3,787	3,508	3,299	3,370	-24.39%	-11.01%
RI	6,692	6,568	6,960	7,329	7,770	7,315	6,699	6,822	6,548	-2.15%	-10.49%
NJ	9,964	10,185	10,752	10,385	10,439	9,664	8,180	8,416	8,076	-18.95%	-16.43%
NY	8,778	8,313	7,308	10,260	7,667	7,973	7,532	8,062	8,657	-1.38%	8.58%
PA	7,265	7,226	7,217	7,487	7,490	6,414	5,868	5,849	5,788	-20.33%	-9.76%
MD	6,841	6,708	6,503	6,229	8,688	7,975	6,337	6,641	7,456	8.99%	-6.51%

Source: SHEEO State Higher Education Finance (SHEF) study.
Notes: State and Local Appropriations minus support for research, agriculture, and medical centers and adjusted for inflation (constant 2007 dollars).

Appendix Table B2: State and Local Support for Public Higher Education per FTE (FY 2007)

State and Local Appropriations minus support for research, agriculture, and medical centers. The Adjusted Appropriations figures include adjustments for public higher education enrollment mix and state cost of living

	Support for Public Higher Education General Operating Expenditures		State and Local Appropriations for Public Higher Education	Public FTE Enrollment minus Medical FTE	State and Local Approp. per FTE Enrollment	Rank	Adjusted for Higher Education Enrollment Mix	Adjusted for State Cost of Living	State and Local Appropriations Per FTE with Adjustments	Rank	Ratio to U.S. Average
	State Gov. Support	Local Gov. Tax Approp.									
Wyoming	331,622,832	36,730,690	342,039,764	22,569	$15,155	1	$14,215	$15,682	$14,709	1	2.17
Alaska	285,178,000	716,731	257,906,054	18,656	$13,824	2	$14,038	$11,350	$11,525	2	1.70
New Mexico	940,347,489	72,586,700	802,739,289	83,020	$9,669	5	$9,087	$10,127	$9,518	3	1.41
Hawaii	502,703,000	-	426,961,535	35,010	$12,195	3	$11,163	$10,012	$9,165	4	1.35
Georgia	2,758,352,748	1,040,152	2,450,919,621	297,755	$8,231	9	$8,307	$8,807	$8,888	5	1.31
North Carolina	3,049,626,976	171,812,537	2,721,062,855	344,056	$7,909	11	$8,224	$8,514	$8,854	6	1.31
Nevada	593,775,719	-	526,719,406	61,323	$8,589	8	$8,454	$8,469	$8,336	7	1.23
Connecticut	905,271,888	-	755,426,404	74,951	$10,079	4	$9,867	$8,386	$8,210	8	1.21
New York	4,164,258,000	656,143,500	4,405,485,900	508,909	$8,657	7	$9,315	$7,553	$8,127	9	1.20
Texas	6,058,374,000	770,733,185	5,626,353,529	794,211	$7,084	17	$7,153	$7,997	$8,074	10	1.19
Idaho	365,031,384	11,437,100	339,037,384	43,552	$7,785	12	$7,400	$8,138	$7,736	11	1.14
Kentucky	1,188,804,100	12,857,500	1,011,258,700	145,605	$6,945	20	$6,932	$7,676	$7,662	12	1.13
Tennessee	1,492,476,500	-	1,235,568,900	168,187	$7,346	14	$6,989	$8,043	$7,651	13	1.13
Maryland	1,378,361,263	284,332,649	1,472,786,224	197,521	$7,456	13	$7,575	$7,467	$7,586	14	1.12
Oklahoma	1,025,383,590	33,445,903	883,899,579	132,093	$6,691	23	$6,532	$7,549	$7,369	15	1.09
Massachusetts	1,259,547,780	-	1,210,598,780	139,688	$8,666	6	$8,950	$7,115	$7,348	16	1.08
Arkansas	796,303,595	17,498,042	637,440,914	103,369	$6,167	30	$6,468	$6,952	$7,292	17	1.08
New Jersey	1,876,836,000	202,719,000	1,825,736,000	226,072	$8,076	10	$8,683	$6,767	$7,275	18	1.07
California	11,034,458,000	1,857,421,000	11,808,998,000	1,686,828	$7,001	18	$7,719	$6,424	$7,083	19	1.05
Louisiana	1,445,096,584	-	1,106,675,165	166,671	$6,640	24	$6,368	$7,368	$7,066	20	1.04
Illinois	2,558,198,060	729,416,370	2,803,612,202	387,758	$7,230	15	$7,388	$6,882	$7,032	21	1.04
Nebraska	586,023,163	81,510,779	529,754,319	73,940	$7,165	16	$7,104	$7,085	$7,025	22	1.04
Alabama	1,653,368,814	597,319	1,209,138,562	182,409	$6,629	25	$6,314	$7,350	$7,001	23	1.03
Arizona	1,189,579,700	586,520,700	1,537,041,600	221,635	$6,935	21	$6,627	$7,190	$6,871	24	1.01
United States	72,207,439,610	7,346,647,781	69,346,279,265	10,237,893	$6,773	--	$6,773	$6,773	$6,773	--	--
Washington	1,596,527,000	-	1,454,251,000	214,847	$6,769	22	$7,040	$6,476	$6,736	25	0.99
Mississippi	902,642,708	47,833,006	685,878,338	115,739	$5,926	36	$5,735	$6,714	$6,498	26	0.96
South Carolina	1,004,493,222	52,543,142	850,690,006	145,724	$5,838	38	$5,781	$6,378	$6,317	27	0.93
Missouri	959,909,293	127,851,570	1,058,317,439	174,650	$6,060	31	$6,236	$6,076	$6,253	28	0.92
Florida	3,376,615,397	-	3,033,603,385	518,086	$5,855	37	$5,714	$6,357	$6,203	29	0.92
Wisconsin	1,146,590,961	410,661,979	1,399,052,992	215,098	$6,504	27	$6,365	$6,311	$6,176	30	0.91
Delaware	224,489,583	-	217,959,383	31,269	$6,970	19	$5,873	$7,018	$5,914	31	0.87
Minnesota	1,335,975,000	-	1,145,995,000	191,456	$5,986	33	$6,175	$5,694	$5,875	32	0.87
Virginia	1,777,974,316	13,993,110	1,630,685,358	273,039	$5,972	34	$5,623	$6,205	$5,842	33	0.86
Maine	255,896,287	-	227,508,674	35,514	$6,406	28	$6,311	$5,874	$5,786	34	0.85

Appendix Table B2: State and Local Support for Public Higher Education per FTE (FY 2007) – *continued*

State and Local Appropriations minus support for research, agriculture, and medical centers. The Adjusted Appropriations figures include adjustments for public higher education enrollment mix and state cost of living

	Support for Public Higher Education General Operating Expenditures		State and Local Appropriations for Public Higher Education	Public FTE Enrollment minus Medical FTE	State and Local Approp. per FTE Enrollment	Rank	Adjusted for Higher Education Enrollment Mix	Adjusted for State Cost of Living	State and Local Appropriations Per FTE with Adjustments	Rank	Ratio to U.S. Average
	State Gov. Support	Local Gov. Tax Approp.									
Utah	710,695,200	-	641,945,100	102,372	$6,271	29	$5,817	$6,224	$5,774	35	0.85
Iowa	751,865,342	48,315,156	678,396,032	112,934	$6,007	32	$5,693	$6,039	$5,723	36	0.84
Kansas	780,207,262	176,097,796	756,810,166	127,245	$5,948	35	$5,620	$5,956	$5,627	37	0.83
Michigan	1,946,768,388	534,490,800	2,238,165,880	384,225	$5,825	39	$5,500	$5,670	$5,353	38	0.79
Rhode Island	189,391,302	-	189,391,302	28,925	$6,548	26	$6,008	$5,698	$5,229	39	0.77
Pennsylvania	1,922,791,404	106,410,005	1,953,020,886	337,425	$5,788	40	$5,581	$5,421	$5,227	40	0.77
West Virginia	455,444,801	-	338,010,925	72,679	$4,651	45	$4,500	$5,214	$5,045	41	0.74
Indiana	1,381,053,017	-	1,196,445,208	223,602	$5,351	41	$4,830	$5,343	$4,823	42	0.71
North Dakota	215,411,828	-	168,815,828	35,429	$4,765	44	$4,735	$4,756	$4,726	43	0.70
Oregon	560,682,189	117,221,507	619,004,935	125,113	$4,948	42	$4,748	$4,849	$4,653	44	0.69
South Dakota	179,746,002	-	133,561,292	29,231	$4,569	46	$4,606	$4,538	$4,575	45	0.68
Ohio	2,070,779,936	136,559,964	1,883,732,718	383,278	$4,915	43	$4,527	$4,871	$4,486	46	0.66
Montana	171,368,691	3,840,901	151,654,935	35,293	$4,297	47	$4,171	$4,518	$4,386	47	0.65
Colorado	654,742,381	43,308,988	599,121,277	157,382	$3,807	48	$3,597	$3,634	$3,434	48	0.51
New Hampshire	122,451,652	-	108,139,652	32,093	$3,370	49	$3,093	$2,925	$2,685	49	0.40
Vermont	73,947,263	-	58,960,868	19,457	$3,030	50	$2,558	$2,702	$2,281	50	0.34

Source: SHEEO State Higher Education Finance (SHEF) study.

Notes: Variable Definitions:

- State Government Support for Public Higher Education General Operating Expenditures = State government tax and non-tax support less state support to independent institutions.
- State and Local Appropriations for Public Higher Education is minus support for research, agricultural experiment stations and cooperative extension, teaching hospitals, and medical schools.
- Public FTE Enrollment = Annual Full-time Equivalent based on instructional activity less medical FTE enrollment.
- State and Local Appropriations per FTE = State and Local Appropriations for Public Higher Education / Public FTE Enrollment
- Adjustment for Higher Education Enrollment mix = SHEEO adjustment for public Higher Education system enrollment mix (two-years versus four-years)
- Adjustment for state cost of living = SHEEO adjustment for state cost of living.
- Adjustment for Inflation (into 2007 dollars) = SHEEO Higher Ed Cost Adjustment into 2007 constant dollars.

APPENDIX C: Additional Information on Affordability

Appendix Table C1: Percentage of Family Income Needed to Pay for College by Type of Institution, 2008[9]

Relative to the National Average and Other Keys States

	% in First Income Quintile	% in Second Income Quintile	% in Third Income Quintile	% in Fourth Income Quintile	% in Fifth Income Quintile
Private Four-Year Colleges and Universities					
Massachusetts	254.8	94.0	54.6	35.2	21.1
U.S. Average	197.2	78.8	49.6	32.9	19.8
Ratio to U.S. Average	1.29	1.19	1.10	1.07	1.07
Connecticut	218.7	83.1	48.8	32.9	19.6
New Hampshire	190.8	73.7	45.6	31.5	20.2
Rhode Island	259.9	101.5	58.6	38.2	23.8
New Jersey	157.1	58.8	37.8	25.8	16.1
New York	236.5	89.3	53.9	35.4	20.4
Pennsylvania	228.0	91.5	56.8	37.6	22.9
Maryland	178.3	70.5	44.9	30.0	18.6

Source: *Measuring Up: The State-By-State Higher Education Report Card.*

Notes: Definition = Net price (tuition and room and board less federal, state need and non need based aid, and institutional aid) by income quintile, as a percent of family income in that quintile.

[9] *Additional Resource*: "BLong - Percentage of Family Income needed to Pay by Sector 2008 (8-09).xls"

APPENDIX D: Additional Comparisons with Peers

Appendix Table D1: UMass-Amherst vs. Peer Institutions: Faculty Indicators
Peers defined by the Education Trust

	Percent Full-Time Faculty	Full-Time Undergraduates per Full-Time Faculty
Louisiana State Univ.	91.0	13
Oklahoma State Univ. (main)	88.6	14.3
Iowa State Univ.	86.3	8.9
Univ. of Iowa	85.8	8.9
Texas Tech Univ.	85.0	19.4
Univ. of Cal.-Santa Barbara	81.7	14.2
The Univ. of Alabama	80.3	17.2
Univ. of Nebraska at Lincoln	79.9	10.2
UMass-Amherst	79.5	13.1
Univ. of Arizona	78.8	11.8
Illinois State Univ.	75.2	20.1
Colorado State Univ.	74.5	17.5
Univ. of Missouri-Columbia	72.0	7.2
Univ. of SC –Columbia	71.8	11.9
Univ. of Oregon	70.8	13.8
Univ. of California-Santa Cruz	70.1	17

Source: Analysis by College Results Online using the 2004-05 IPEDS survey.

Appendix Table D2: UMass-Amherst vs. Peer Institutions – Overall Graduation Rates, 1999-2006
Peers defined by the Education Trust

	1999	2000	2001	2002	2003	2004	2005	2006
Univ. of Cal.-Santa Barbara	67.2	66.8	68.1	71.0	73.5	75.2	78.7	78.5
Univ. of California-Santa Cruz	67.7	64.1	63.2	66.8	65.4	69.4	70.1	69.6
Univ. of Missouri-Columbia	60.1	60	64.8	65.1	66.5	67.8	66.0	68.9
Iowa State Univ.	60.4	62.4	63.7	65.3	65.7	66.5	68.0	65.9
UMass-Amherst	60.0	60.0	59.1	60.5	64.0	61.8	65.7	65.7
Univ. of Iowa	62.4	63.1	64.7	64.4	64.5	66.2	66.1	65.5
Illinois State Univ.	54.1	55.1	55.9	57.3	59.1	61.8	63.3	64.2
Colorado State Univ.	59.9	62.2	62.5	63.1	62.1	63.9	63.0	63.8
Univ. of Oregon	58.7	58.3	58.7	58.0	59.8	62.2	63.0	63.4
The Univ. of Alabama	55.2	60.6	59.5	62.8	62.5	60.9	62.9	63.1
Univ. of SC -Columbia	60.2	55.0	58.1	59.8	61.2	63.9	64.9	62.7
Univ. of Nebraska at Lincoln	44.9	50.6	53.3	54.4	59.5	61.6	63.4	62.2
Oklahoma State Univ. (main)	48.0	49.2	52.5	55.2	58.3	57.5	59.2	59.0
Louisiana State Univ.	52.3	53.7	57.8	56.6	56.0	55.8	56.8	57.3
Univ. of Arizona	51.9	54.3	55.2	54.6	54.7	57.1	58.9	56.4
Texas Tech Univ.	46.3	47.7	50.7	51.7	53.7	54.4	54.8	55.7

Source: Analysis by College Results Online using IPEDS based on the percentage of first-time, full-time, bachelor's or equivalent degree-seeking freshmen who earn a bachelor's or equivalent degree from the institution where they originally enrolled.

Notes: All of the institutions are public universities. The full name of Louisiana State University is Louisiana State University and Agricultural & Mechanical College

Appendix Table D3: UMass-Amherst vs. Peer Institutions – Graduation Rates, 2006
Peers defined by the Education Trust

	1st-Year Retention Rate	4-Year Graduation Rate	5-Year Graduation Rate	6-year Graduation Rate								
				Overall Rate	White	All Underrep. Minorities	African American	Latino	Native American	Asian	Female	Male
Univ. of Cal.-Santa Barbara	89	47.0	72.5	78.5	80.1	74.7	63.0	76.8	76.9	77.2	81.2	74.8
Univ. of California-Santa Cruz	88	47.7	65.6	69.6	71.8	66.2	53.6	68	73.9	66.9	71.5	67.1
Univ. of Missouri-Columbia	84	39.7	65.2	68.9	69.9	57.8	54.7	66.1	66.7	72.1	71	66.4
Iowa State Univ.	84	31.3	60.4	65.9	67.2	52.1	51.0	55.3	30.0	61.1	69.7	62.8
UMass-Amherst	83	47.9	62.1	65.7	67.3	55.8	54.3	55.2	73.3	57.6	68.3	62.4
Univ. of Iowa	84	39.5	62.3	65.5	66.6	50.5	45.5	60.2	33.3	61.9	66.5	64.2
Illinois State Univ.	84	37.0	60.4	64.2	65.4	52.5	53.4	50	50.0	57.1	67	59.8
Colorado State Univ.	82	34.5	60	63.8	64.8	56.7	49.3	60	50.0	57.7	64.3	63.0
Univ. of Oregon	83	38.8	58.3	63.4	64.1	55.6	51.9	61	46.2	62.4	65.4	61.1
The Univ. of Alabama	85	36.0	57.5	63.1	62.7	65.1	65.0	68.1	N/A	73.1	68.3	56.1
Univ. of SC –Columbia	86	39.9	59.3	62.7	63.8	60.7	60.8	56.5	N/A	63.4	65	59.7
Univ. of Nebraska at Lincoln	84	22.9	54.9	62.2	63.6	44.4	48.7	40.9	38.9	54.2	65.6	58.8
Oklahoma State Univ. (main)	78	27.3	53.0	59.0	60.5	48.5	39.6	55.8	51.0	58.8	61.5	55.9
Louisiana State Univ.	83	24.2	49.7	57.3	58.8	50.6	50.9	50	46.2	45.7	59.1	55.0
Univ. of Arizona	79	29.6	50.7	56.4	57.9	46.8	45.2	50.1	30.2	69.8	58.7	53.9
Texas Tech Univ.	83	25.1	48.8	55.7	57.3	43.3	39.1	43	82.4	68.1	59.0	52.5

Source: Analysis by College Results Online using IPEDS based on the percentage of first-time, full-time, bachelor's or equivalent degree-seeking freshmen who earn a bachelor's or equivalent degree from the institution where they originally enrolled.
Notes: All of the institutions are public universities. The full name of Louisiana State University is Louisiana State University and Agricultural & Mechanical College. The first-year retention rate is from 2005 and applied to full-time students only.