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A New Look at the Institutional Component of Higher Education Finance: A Guide for Evaluating Performance Relative to Financial Resources

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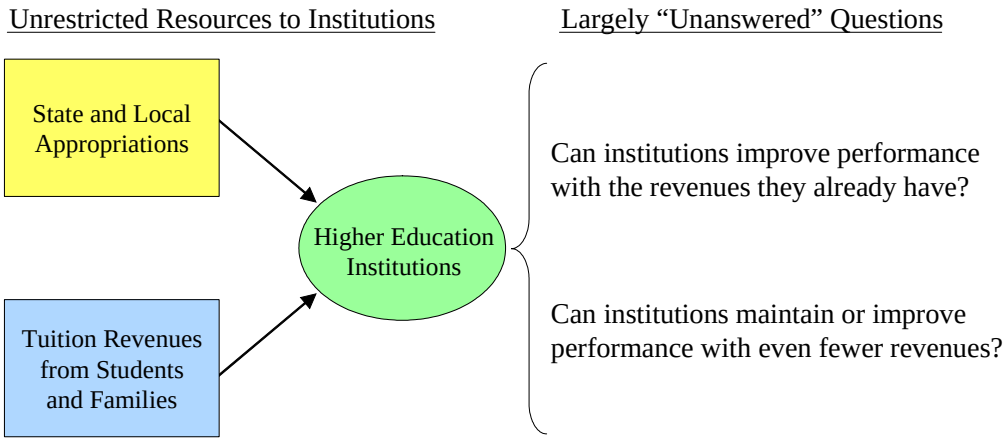
Introduction

Although state and local governments are working their way out of fiscal crises precipitated by the national recession of 2001 and the stock market declines of 2000 through 2002, public higher education remains in steep competition with other public sectors for continued state support. These are not entirely unusual times for public higher education. It has on several occasions throughout history dealt with – and recovered from – economic downturns that have squeezed many sources of revenue. However, the most recent recovery is accompanied by rising costs in healthcare, corrections, and sustained efforts to maintain support for K-12 education, leaving higher education as the largest discretionary item in many state budgets. Because of these constraints, there is a general feeling among many state policymakers that higher education is not likely to recover its support as quickly as it has in past economic recessions.

Underneath these difficult fiscal times are beliefs among many higher education policymakers that it is important to maintain (or even improve) access to higher education – beliefs conceived largely from their understanding of the social and economic benefits of a better educated citizenry. Within an environment of constrained resources, the abilities of states and students to pay for higher education have become the focal points for debate about higher education finance policy. However, an important interrelated issue that receives less attention is the ability of higher education institutions to improve levels of performance with the resources they already have – or with even fewer resources (see Figure 1).

FIGURE 1.
Concept of "Performance Relative to Funding"



The higher education system's potential to address access as reflected in foregone revenue – its own "ability to pay" – is an important consideration in these tough fiscal times. In order to make informed higher education finance policy, it is necessary to have basic information about each component of the system.

1. **Affordability**—the ability of students to pay for higher education (and under what conditions they can do so). With some shortcomings (due to the unavailability of data on institutional grant aid to students), state-level measures regarding "ability to pay" are available in *Measuring Up: The State-by-State Report Card for Higher Education* (published by the National Center for Public Policy and Higher Education).

2. **The State's Ability to Pay**—state tax capacity and effort, and the likely fiscal future. Data on state tax capacity and effort are available annually from the State Higher Education Executive Officers (SHEEO). Don Boyd, of the Rockefeller Institute of Government, recently projected state fiscal conditions from 2005 to 2013. These projections – based on economic growth, tax revenues, state spending, and federal grants to states – indicate potential state and local budget deficits in all 50 states (ranging from 0.5% in New Hampshire to 12.9% in Wyoming). These projections and the data from SHEEO are available at www.higheredinfo.org.

3. **The Adequacy of Institutional Finance**—a measure of the extent to which public institutions, collectively, perform well given their revenues or have sufficient revenues to fulfill the missions assigned to them. More specifically, can institutions carry some of the shared responsibility for ensuring affordability by maintaining current levels of output when state appropriations are diminished?

The latter item is the principal missing piece, is the least-understood component of higher education finance, and is the focus of the research described in this paper.

Why is it important to develop measures for the adequacy of institutional funding now?

- Financing institutions has been the principal (indeed, almost the sole) focus of state higher education policymaking historically. It is a topic that cannot be ignored and must be addressed if policy discussions about related matters (e.g., affordability to students) are to be conducted in an informed way.

- Most often, the strongest voices in the policymaking process are those representing the institutional perspective. Unless some credible evidence can be made readily available about the extent to which the system – and sectors within the system – are or are not under-funded, special pleading from some institutions claiming that they are under-funded will continue to drown out voices representing other perspectives.

- Discussions about funding in most states usually leave evidence about the overall adequacy of public institution funding off the table. As a result, in times of decreasing state appropriations, institutions often attempt to offset revenue shortfalls by simply raising tuition and fees. In response to the question of "how much funding is needed?" the typical answer of "more" or "as much as our peers" leaves out all consideration of performance and affordability to students.

This project – funded by The Pew Charitable Trusts – is an effort to address the performance of state higher education systems, and the public sectors within them, relative to their levels of funding. The measure used for funding and those used for performance are described in the following section. The data used throughout this study were compiled and analyzed to answer the following questions:

1. Are there states and public sectors within states performing at high levels with relatively low levels of funding? (and vice-versa)

2. Are there distinguishing characteristics (e.g., mix of academic programs, characteristics of students, faculty and staff, etc.) between sectors of public institutions that perform very differently despite being similarly funded? Or between sectors that perform essentially the same with very different levels of funding?

3. Are there external factors (largely outside the control of higher education) that influence performance relative to funding? (e.g., state personal income, preparation of students in high school, etc.)

Analytical Framework

A variety of analyses were conducted to address the above questions. The first involved constructing a series of ratios for all 50 states (and sectors within states) that gauge higher education performance on a number of measures relative to funding. Performance is measured using a variety of metrics for participation and completion rates, degree productivity, and research and development (where applicable). The second is a more detailed analysis of public higher education sectors within a small number of states – comparing (1) sectors that perform very differently with the same levels of funding, and (2) sectors that have similar levels of performance but very different levels of funding. The final set of analyses utilizes simple correlation statistics to identify explanatory factors within states that influence performance relative to funding. These are explained in more detail below.

Units of Analysis

For the purposes of this study, state systems of higher education and the public sectors within states were chosen as the units of analysis. These are:

- State Systems of Higher Education (All Title IV Degree-Granting Institutions)
- Public Four-Year Research Institutions (Research Intensive and Extensive Institutions)
- Public Four-Year Baccalaureate and Master's Institutions
- Public Two-Year Institutions

Private institutions are included in the state-level analyses because in many states they play an important role in meeting the education needs of state residents and they are sometimes the beneficiaries of state scholarship programs. However, they are excluded from the sector-level

analyses because of the institutional variation across states (both in terms of type and presence), and because in most states they do not receive direct appropriations from the state. Although, if one wanted to do so, the analyses used throughout this study could just as easily be applied to private sectors and institutions.

It is common practice across the U.S. to benchmark individual institutions based on numerous measures of performance and funding. Though it is beyond the scope of this study, the analyses described throughout also can be applied at the institution level. The primary objectives of this study are to address the overall funding of state higher education systems and public sectors within states and their performance given these resources. Only after state policymakers understand funding for the sectors, and their performance relative to funding, should they begin to address disparities in funding across institutions within a sector.

Performance Relative to Funding

For each of the units of analysis (above), a series of scatter plots displays the ratios of performance to funding for a number of performance measures. These plots display the position of each state on the performance axis (Y axis) and the funding axis (X axis). They also display the ratios of performance to funding for the states that perform at the 80th percentile and the average of all states – providing a visual comparison of the productivity of each state to that of the "top states" and the U.S. average. The interpretation of these figures is discussed in more detail in the "results" section.

Measure of Funding. For all units of analysis, the measure used for funding is: (State and Local Appropriations + Tuition and Fees) per Full-Time Equivalent (FTE) Student. State financial aid is included in the funding measure used in the analyses of state higher education systems. While institutions receive revenues from other sources (e.g., endowment income and government grants and contracts), state and local appropriations and tuition and fees account for the majority of "unrestricted" revenues. The total funding per FTE student for each state (and sectors within states) is adjusted for cost of living and faculty salaries – two important considerations when measuring the resources available to higher education institutions.

The performance measures used for each unit of analysis are:

<u>State Systems of Higher Education</u>

- Instructional Service Levels—FTE Undergraduates per 100 Adults Aged 18-44 with a High School Diploma
- Undergraduate Degree Productivity—Undergraduate Credentials Awarded per 100 FTE Undergraduates
- Doctoral Degree Productivity—Ph.D.s Awarded per 1,000 Degrees Awarded (Baccalaureate and Above)
- Competitive Research Funds—Federal and Industry Research and Development (competitive research) per Capita

- Baccalaureate Degree Productivity—Baccalaureate Degrees Awarded per 100 High School Graduates Six Years Earlier
- Student Pipeline Results—For Every 100 9th Graders, How Many:
    - Graduate from High School on Time
    - Go Directly to College
    - Graduate Within 150% of Program Time

Public Research Institutions

- Total Baccalaureate Awards per 100 FTE Undergraduates
- Six-Year Graduation Rates
- Ph.D. Production—Ph.D.s Awarded per 1,000 Degrees Awarded (Baccalaureate and Above)
- Total Research Expenditures per FTE Faculty

Public Baccalaureate and Master's Institutions

- Total Baccalaureate Awards per 100 FTE Undergraduates
- Six-Year Graduation Rates

Public Two-Year Institutions

- Total Undergraduate Awards per 100 FTE Undergraduates
- Three-Year Graduation Rates
- Associate Degrees Awarded at Two-Year Colleges per 10,000 Adults 25-64 with an Associate Degree

It is important to note the lack of available performance measures for some of these units of analysis – particularly for the public baccalaureate and master's and two-year sectors. For example, it would be very useful to have measures for the degree to which institutions serve students in their region, student persistence and transfer, public service, engagement with local employers, and the impact of research and technology (particularly for the research institutions). But these data are not available for all states and particularly for sectors within states. For now, we begin this exercise with the best data we have. Appendix A contains a more detailed description of these measures and their sources.

In-Depth Comparisons

What characteristics distinguish the sectors in different states that are funded similarly but perform differently? Or perform differently but are funded similarly? More in-depth studies were conducted to determine differences in:

- Institutional Finance Strategies
- Student Characteristics

- Academic Degree-Levels
- Academic Program Mix
- Faculty Salaries
- Faculty and Staffing Patterns

Colorado and North Carolina were the comparison states for the public research sector – state sectors that perform similarly but are funded differently. Georgia and Wisconsin were the comparison states for the public baccalaureate and master's sector (state sectors that perform differently but are funded similarly) and Pennsylvania and Washington were the comparison states for the public two-year sector (state sectors that perform differently and are funded differently).

Explanatory Factors for Performance Relative to Funding

Without drawing conclusions about causality, correlation analyses were conducted to determine the statistical relationships between several factors (largely external to higher education) and the performance relative to funding for each unit of analysis. Potential correlates utilized in the analyses include:

- State Wealth (personal income and state tax capacity)
- Preparation for College (high school graduation rates and test scores)
- College Participation Rates
- Structure of the Higher Education System (percentage enrollment by sector)
- Minority Enrollment
- Student Cost of Attendance (difference in cost across sectors)
- Internal Rate of Return (cost of attendance vs. increased lifetime earnings)

A detailed description of the analyses and data sources is provided in Appendix A. Appendix B displays the spreadsheets that were created for much of the analytical work associated with this project.

Results

Higher Education Performance Relative to Resources

State Systems of Higher Education

Figures 2 through 7 display the results of performance relative to funding for state systems of higher education. The first is a measure of how well states are serving the adult population aged 18 to 44 who are eligible to enter postsecondary education but have not done so (with a high school diploma but no college experience) – see Figure 2. States in the top-left quadrant of the graph perform well with relatively low funding levels. Conversely, states that are in the bottom-right quadrant perform poorly with high levels of funding. The top line (colored green) is the "ratio of performance to funding associated with the states performing at or above the 80th

percentile." This ratio is calculated by dividing the measure for performance at the 80th percentile into the average total funding of the states that perform at or above the 80th percentile. States above and to the left of this line (the greatest distance from it) perform at high levels relative to their levels of funding. The line intersecting the U.S. is the ratio of performance to funding associated with the average of all states – dividing average state performance into average state funding. See Appendix B for a more detailed description of these calculations.

Relative to their levels of funding per FTE student, Utah, North Dakota, and California are the best at serving their adult populations aged 18 to 44 with a high school diploma but no college. In contrast, Alaska, Maine, and Vermont perform poorly on this measure with high levels of funding per student.

FIGURE 2.

FTE Fall 2003 Undergraduates per 100 Adults Aged 18-44 with a High School Diploma, 2000

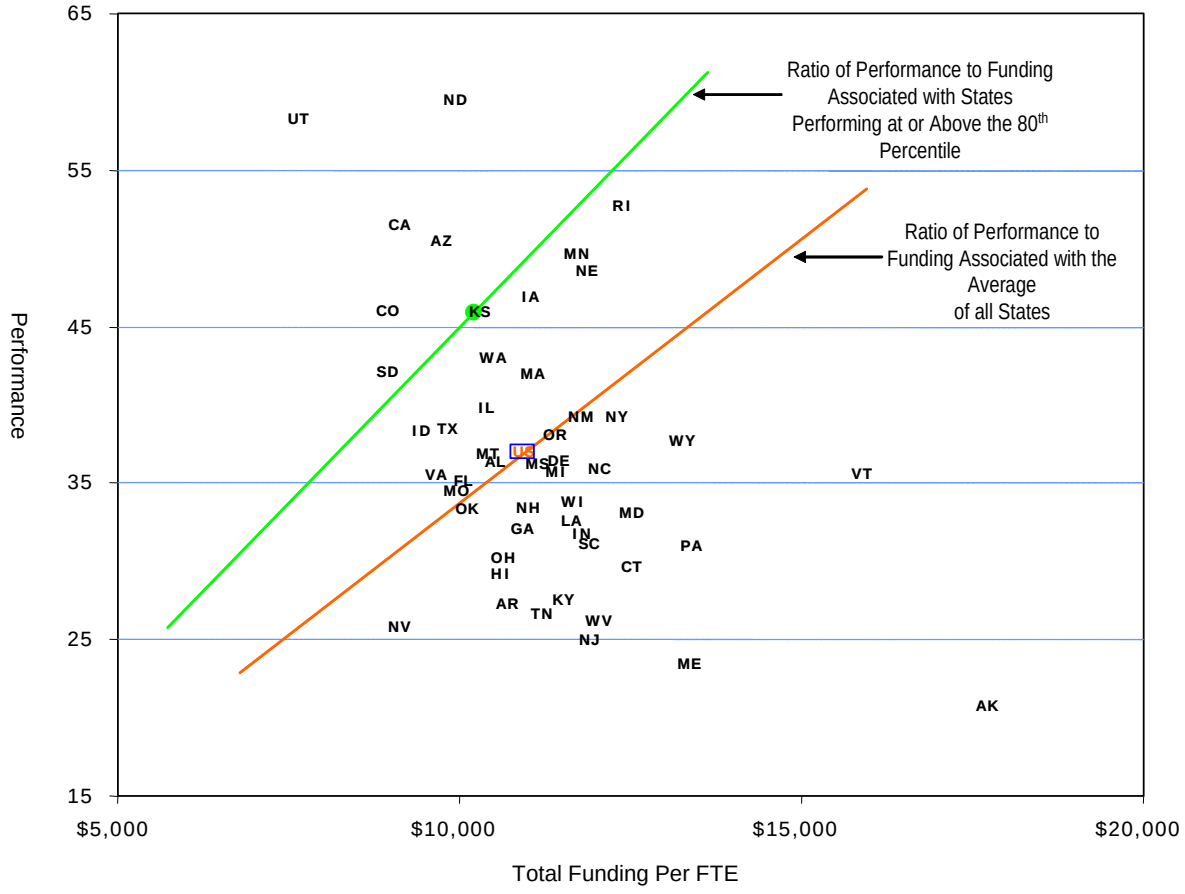


Figure 3 displays the performance relative to funding for the number of undergraduate credentials awarded per 100 FTE undergraduates. This is a measure of undergraduate credential and degree productivity – the level at which state systems keep students to degree completion. Utah, Florida, and Arizona are among the highest performers relative to their levels of funding and Alaska, Vermont, and New Mexico are among the lowest. It is important to note that states, like Vermont on Figure 3, can perform relatively well but with very high levels of funding. On the other hand, California's performance is below average but, because of its low level of funding, its performance relative to its resources is fairly high. Cases like these are seen throughout these analyses. Some of the characteristics that help to explain them (at the sector level) are discussed later.

FIGURE 3.
Undergraduate Credentials Awarded per 100 FTE Undergraduates, 2002-03

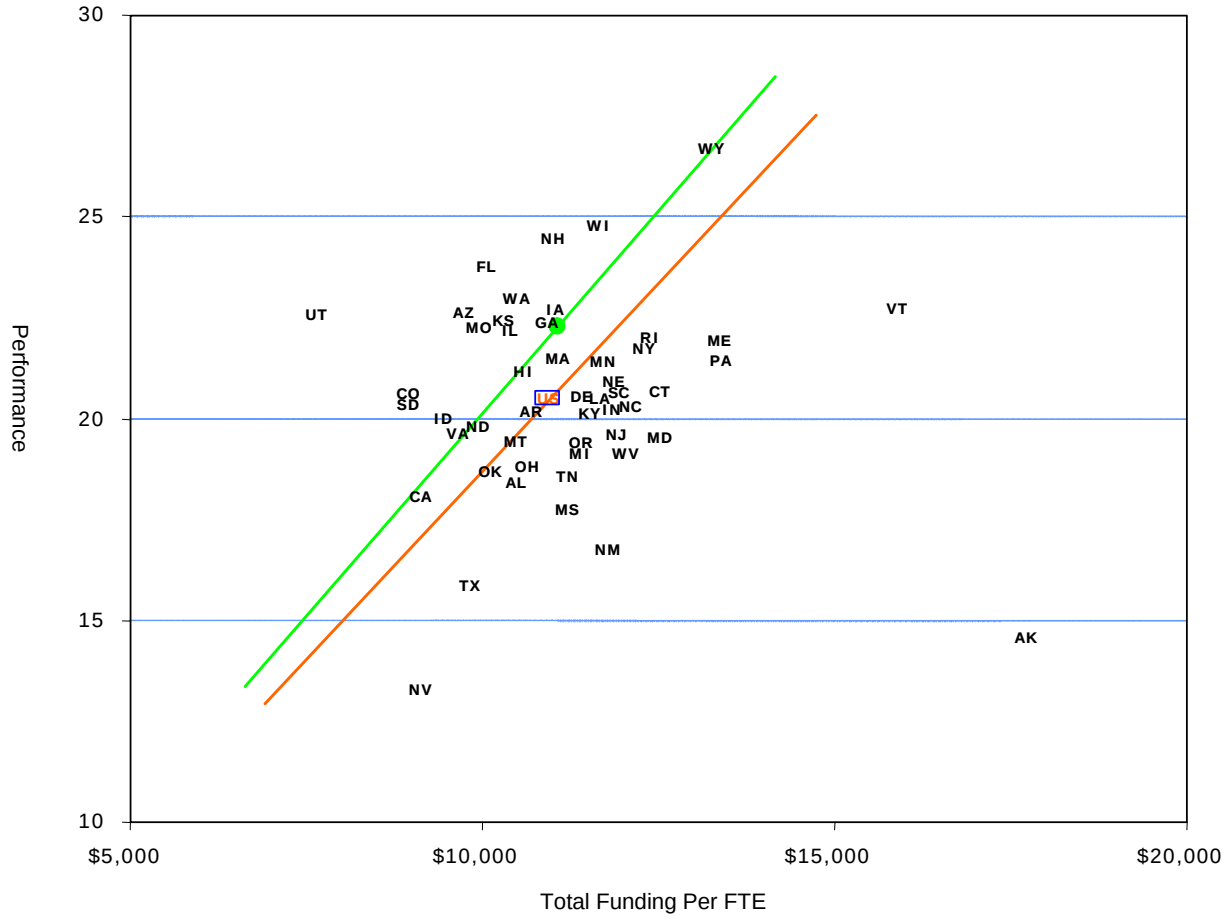


Figure 4 displays the performance relative to funding for doctoral degree production. Given their resources, California, Florida, and Massachusetts are the best performers in Ph.D. production relative to all degrees produced at the bachelor's level and above. With high levels of funding, Vermont and Maine produce fewer Ph.D.s than all states, and Alaska performs at about the U.S. average.

FIGURE 4.
PhDs Awarded per 1,000 Degrees Awarded (Baccalaureate and Above), 2002-03

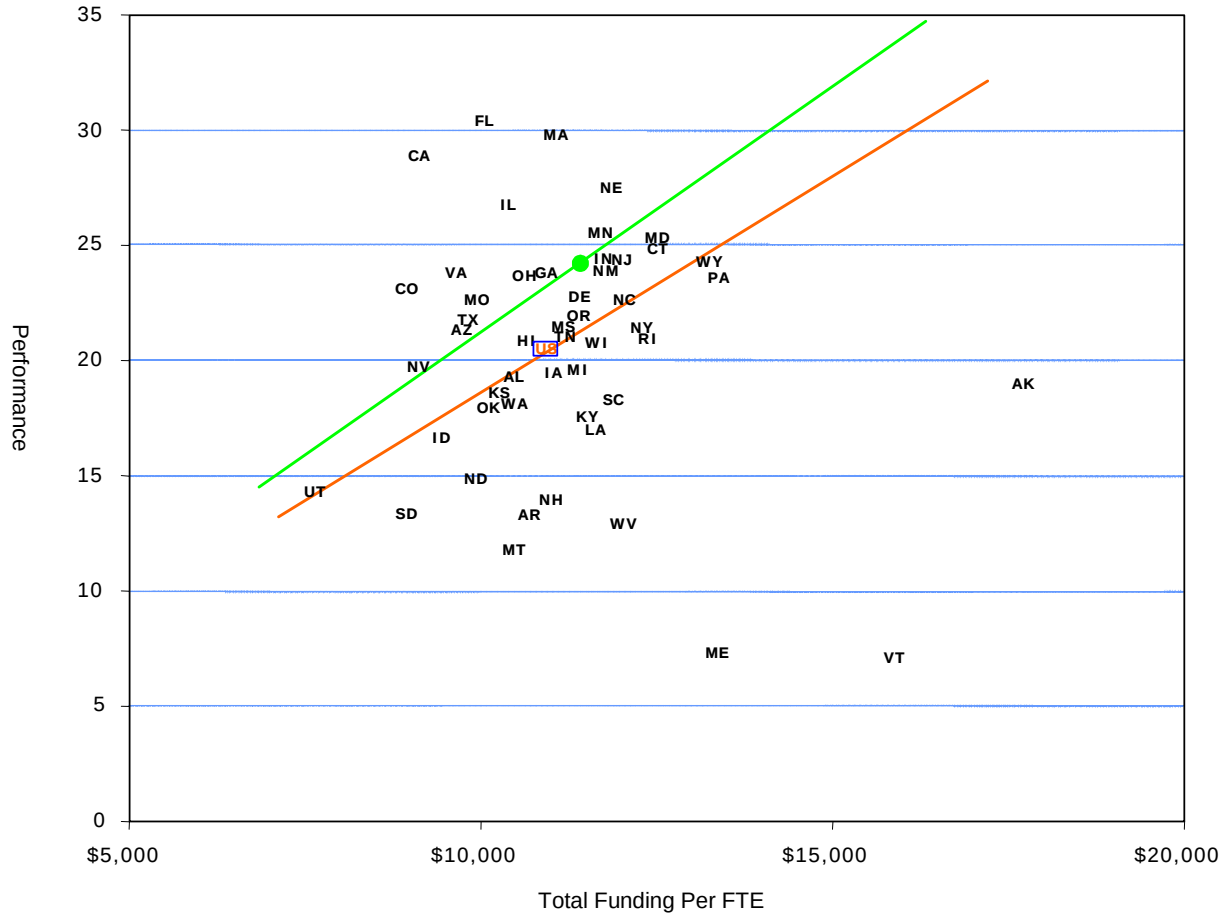


Figure 5 graphically illustrates the ability of state systems of higher education to attract competitive research and development grants from external sources (federal and industries) with respect to funding. The outliers are Maryland and Massachusetts – both of which, despite above average resources, attract much more R&D per capita than other states. From the rest of the field, Utah and Colorado are the highest performers relative to their resources and Maine, Arkansas, West Virginia, and Wyoming are the lowest.

FIGURE 5.
Federal and Industry Research and Development Per Capita, 2002

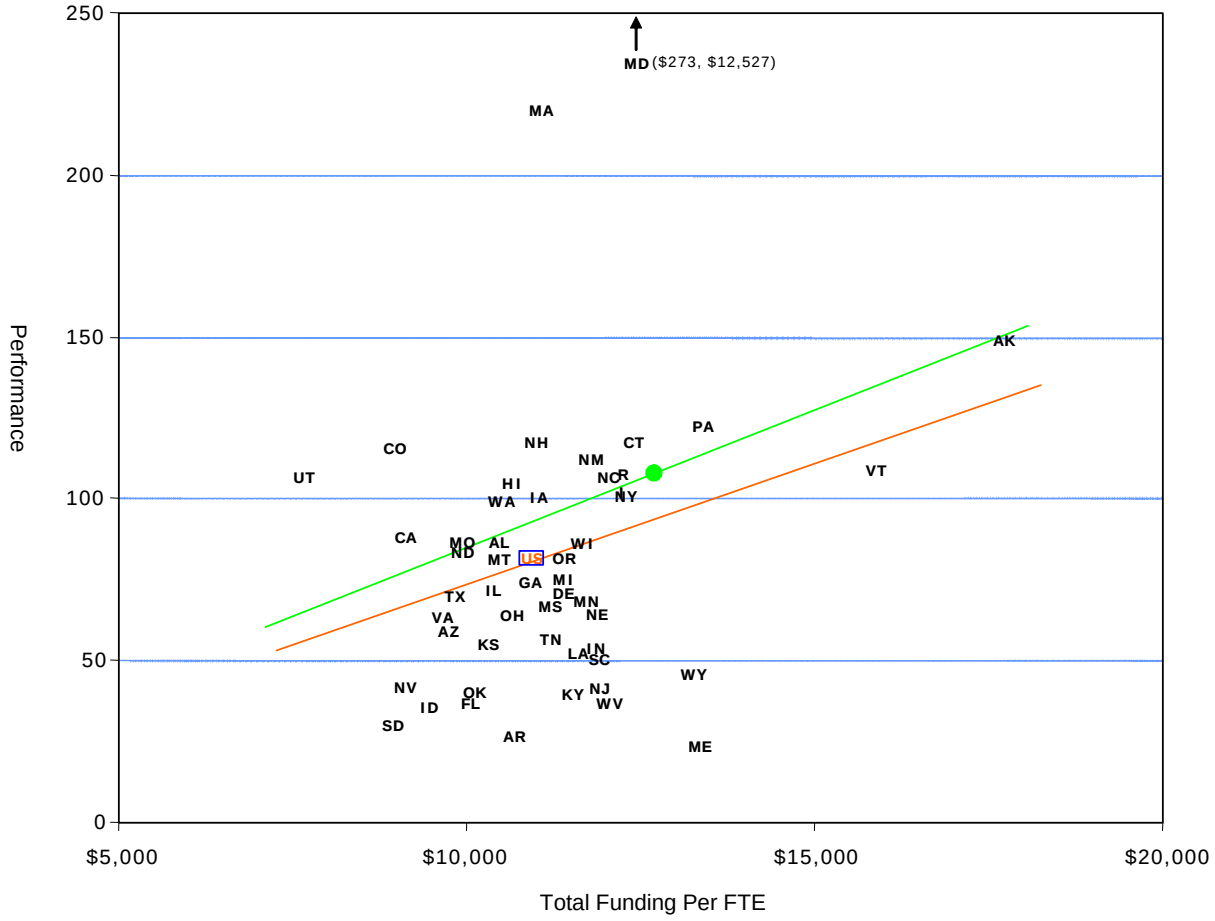
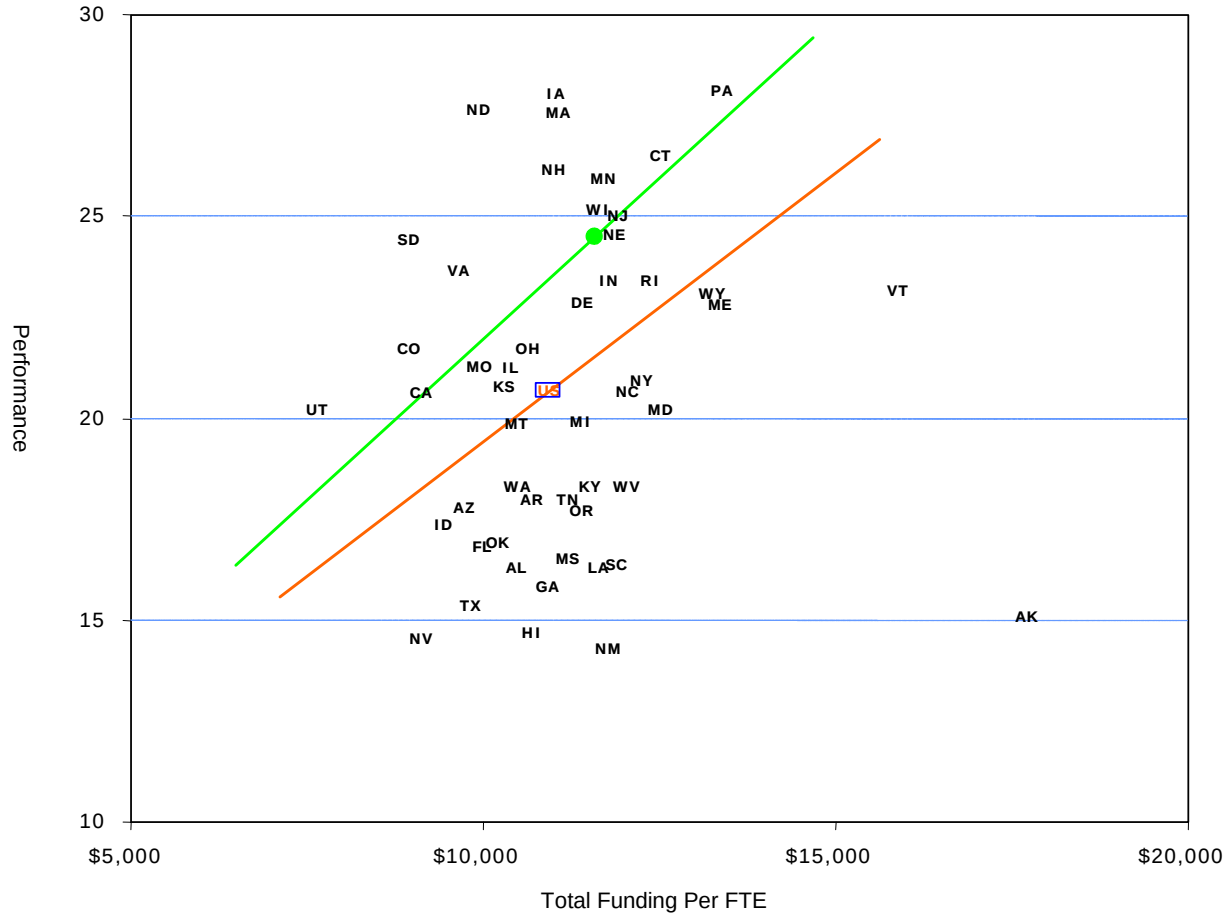


Figure 6 displays the performance of all states (relative to funding) on their ability to move students through the "educational pipeline." The pipeline analysis is based on a series of measures that are combined to simulate an educational pipeline – the number of 9th graders (out of 100) who graduate from high school on time, go directly to college, and graduate within 150% of program time (three years for associate students and six year for bachelor's students). The metric used in Figure 5 is the end result of the pipeline. For more information about the student pipeline, see www.higheredinfo.org. In Pennsylvania, 28 of 100 9th graders complete these transitions on time compared to only 10 in New Mexico. When taking funding levels into account, North Dakota, Iowa, and Massachusetts are the highest performers and Alaska, New Mexico, and Hawaii are the lowest. Despite average performance, Colorado, Utah, and South Dakota appear to do well given their relative lack of resources.

FIGURE 6.
Student Pipeline Results, 2002



The number of bachelor's degrees awarded as a percent of high school graduates six years earlier is the final performance measure used for state systems of higher education (Figure 7). States that have high values on this measure award high proportions of bachelor's degrees in relation to the number of high school graduates in the state six years earlier. This measure accounts for both college-going directly after high school and persistence through college. Rhode Island is the top performer. However, Rhode Island may be an anomaly because it imports roughly two-thirds of its student body from out-of-state (a segment of students that we cannot account for when calculating the number of bachelor's degree completions). Other top performers relative to their resources include Utah, Colorado, and Massachusetts – states that also are net-importers of students (but not at nearly the level of Rhode Island). Alaska, Wyoming, and New Jersey are the poorest performers relative to their resources.

FIGURE 7.
Bachelor's Degrees as a Percent of High School Graduates Six Years Earlier, 2003

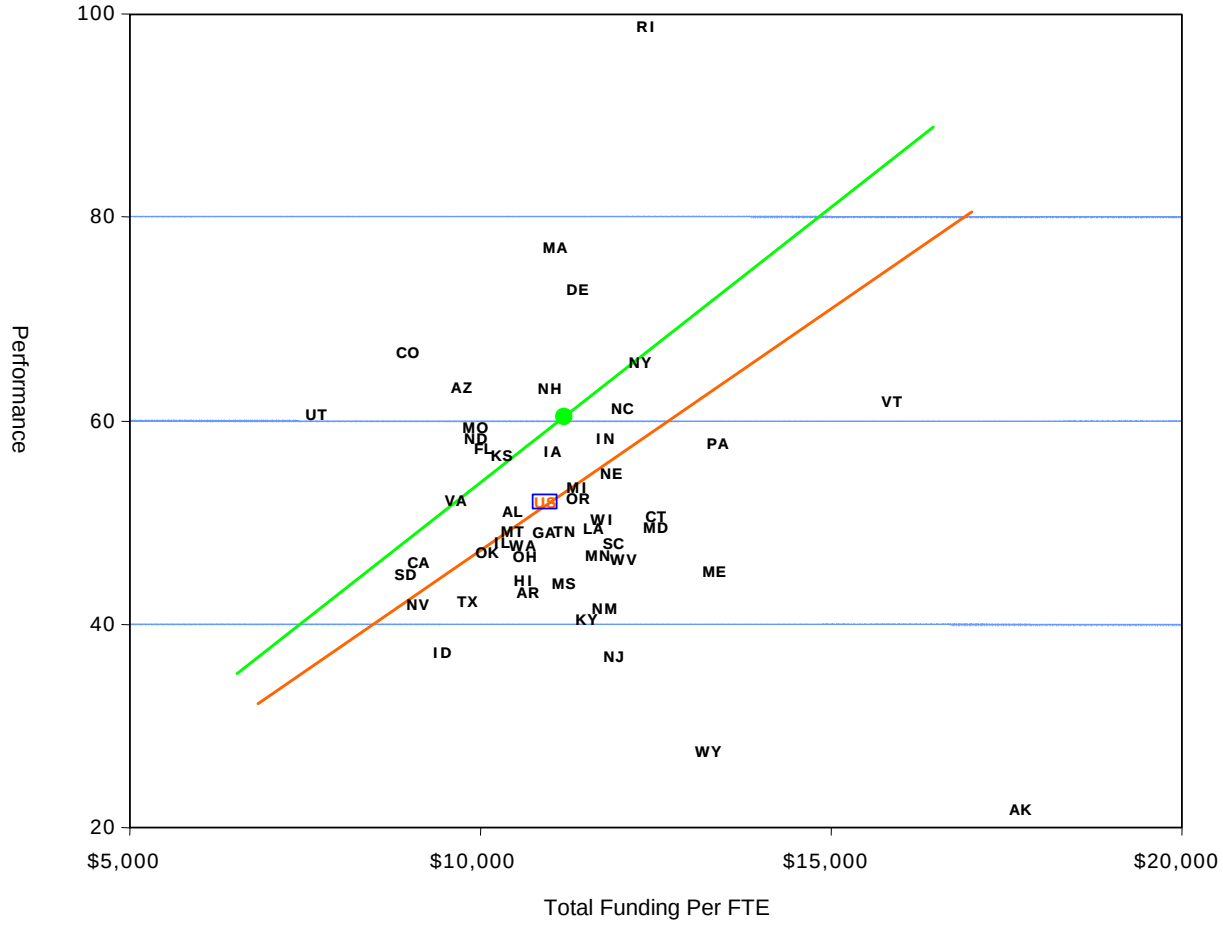
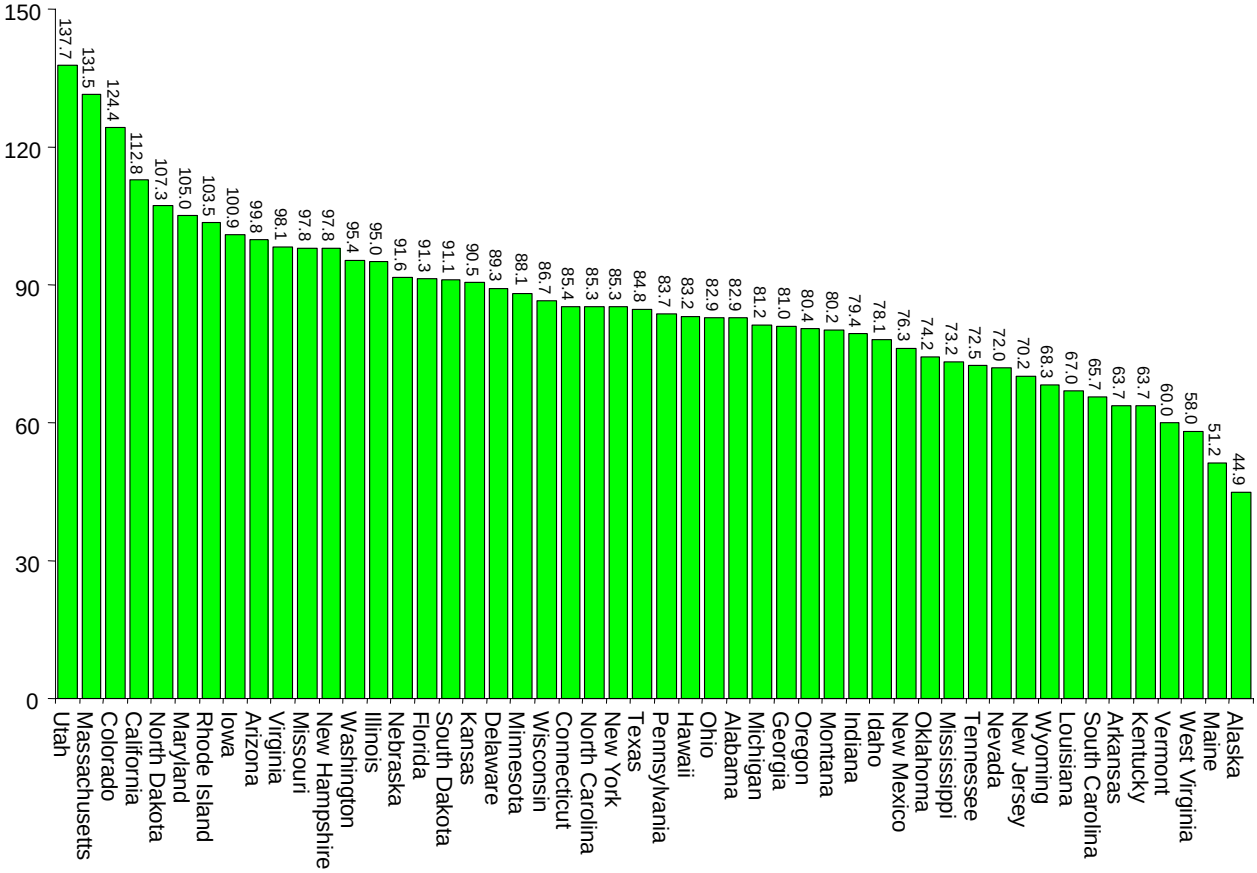


Figure 8 displays an index score that averages the state-level results of performance relative to funding for all of the performance measures. States that have the highest index score values averaged the best performance relative to their funding levels. The equation used to derive the

index scores is explained in Appendix A. In summary, a value of 100 in Figure 7 indicates that a state averaged the same ratio of performance to funding as the states that performed at the 80th percentile. Overall, Utah, Massachusetts, and Colorado are the top three performers relative to their levels of funding and Alaska, Maine, and West Virginia averaged the poorest performance relative to their levels of funding.

FIGURE 8.
State Systems of Higher Education – Overall Index Score –
Average Performance Relative to Funding per FTE



Performance relative to funding at the state-level is influenced to some degree by the wealth of states and levels of student preparation for college. These relationships are discussed in more detail in the last section.

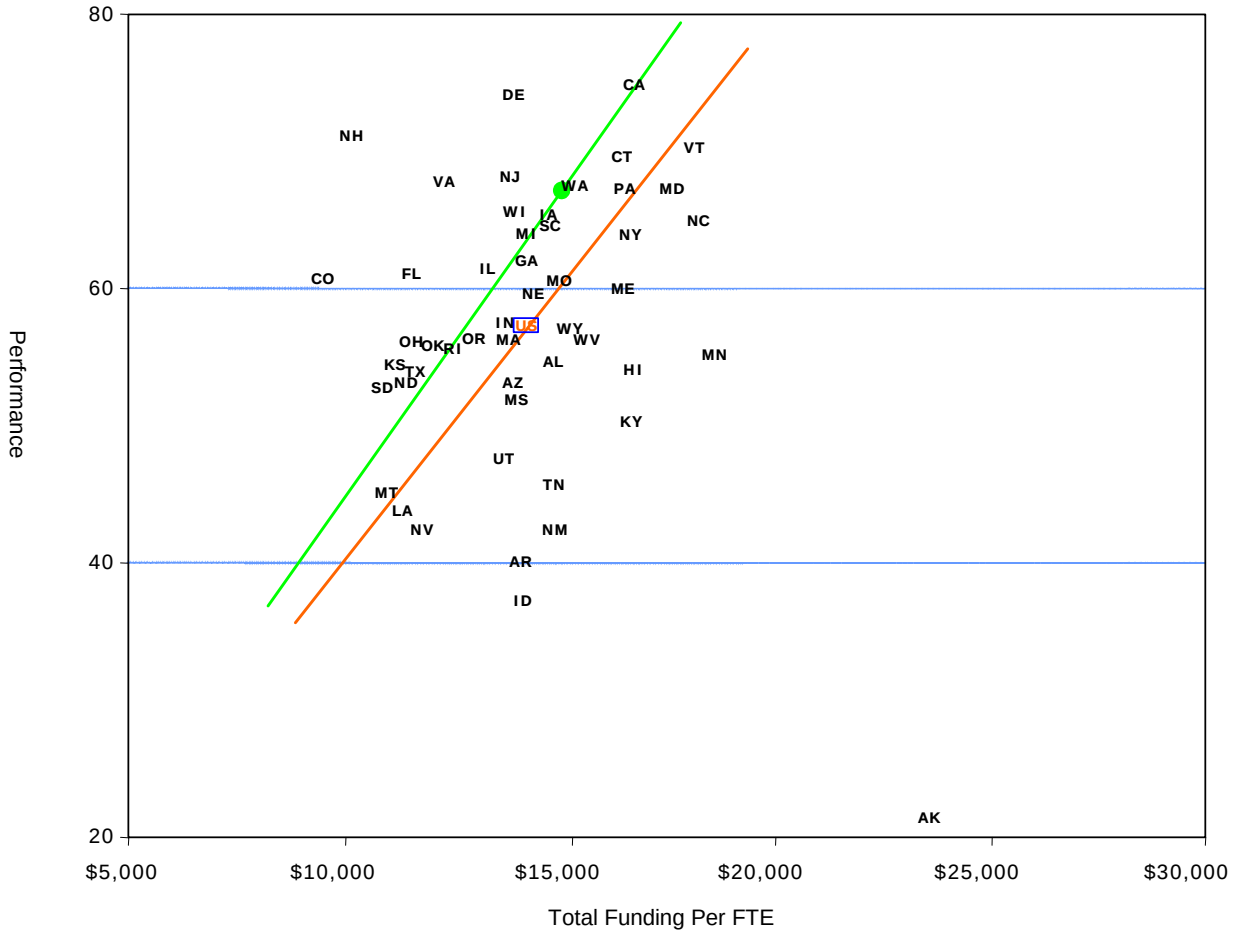
When drilling down to the sector-level, these analyses reveal that some states have relatively productive higher education systems overall, given their resources, while some sectors are performing poorly. And in some states, certain public sectors within the system are performing well relative to their resources but the system as a whole is not. The latter is often a result of system structure – where a large proportion of FTE enrollment and thus state resources are taken up by a sector that is expensive to operate (e.g., public research as opposed to two-year institutions). To gain a better understanding of which sectors are performing well relative to

their resources, it is important to compare each of the sectors within a state to the same sectors in other states.

Public Research Sectors

The first performance measure used for public research institutions is a six-year graduation rate for bachelor's degree-seeking students (Figure 9). New Hampshire, Colorado and Delaware have the most productive public research sectors relative to funding and Alaska and Idaho the least productive.

FIGURE 9.
Six-Year Baccalaureate Graduation Rate, 2003



Given their resources, Nebraska, Wisconsin, and New York have the best performing public research sectors as measured by Ph.D. production relative to all degrees produced at the bachelor's level and above (Figure 10) as a function of funding. Vermont, Maine, and Wyoming produce the fewest Ph.D.s. relative to their resources. Despite below average performance, Colorado and Kansas are productive with very low levels of funding. This is a measure in which the ratio of performance to funding for the "top states" is almost the same as the ratio for the average of all states – meaning that as performance increases so do the levels of funding (not so surprising for doctoral degree production). There are no state public research sectors that produce a large number of Ph.D.s with low levels of funding.

FIGURE 10.
PhDs Awarded per 1,000 Degrees Awarded (Baccalaureate and Above), 2002-03

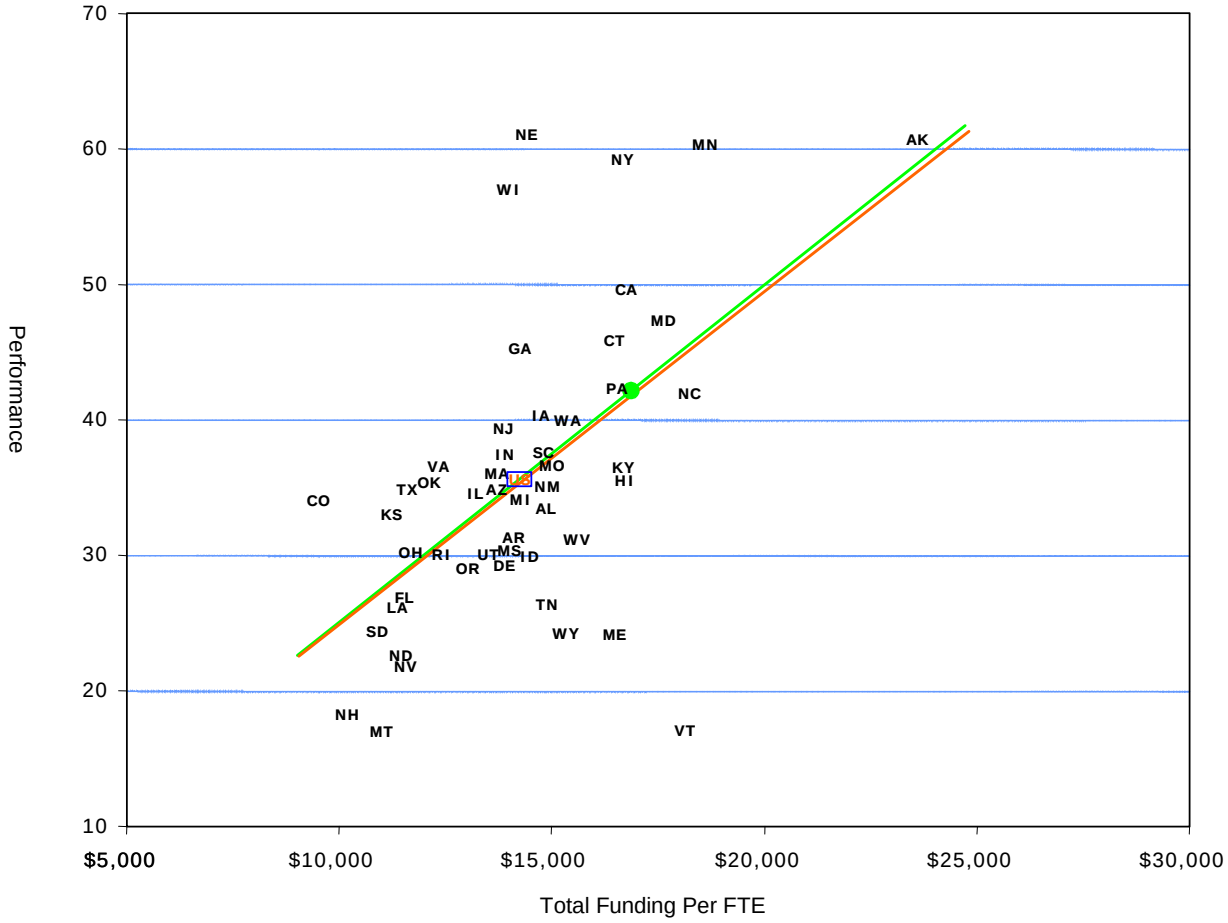
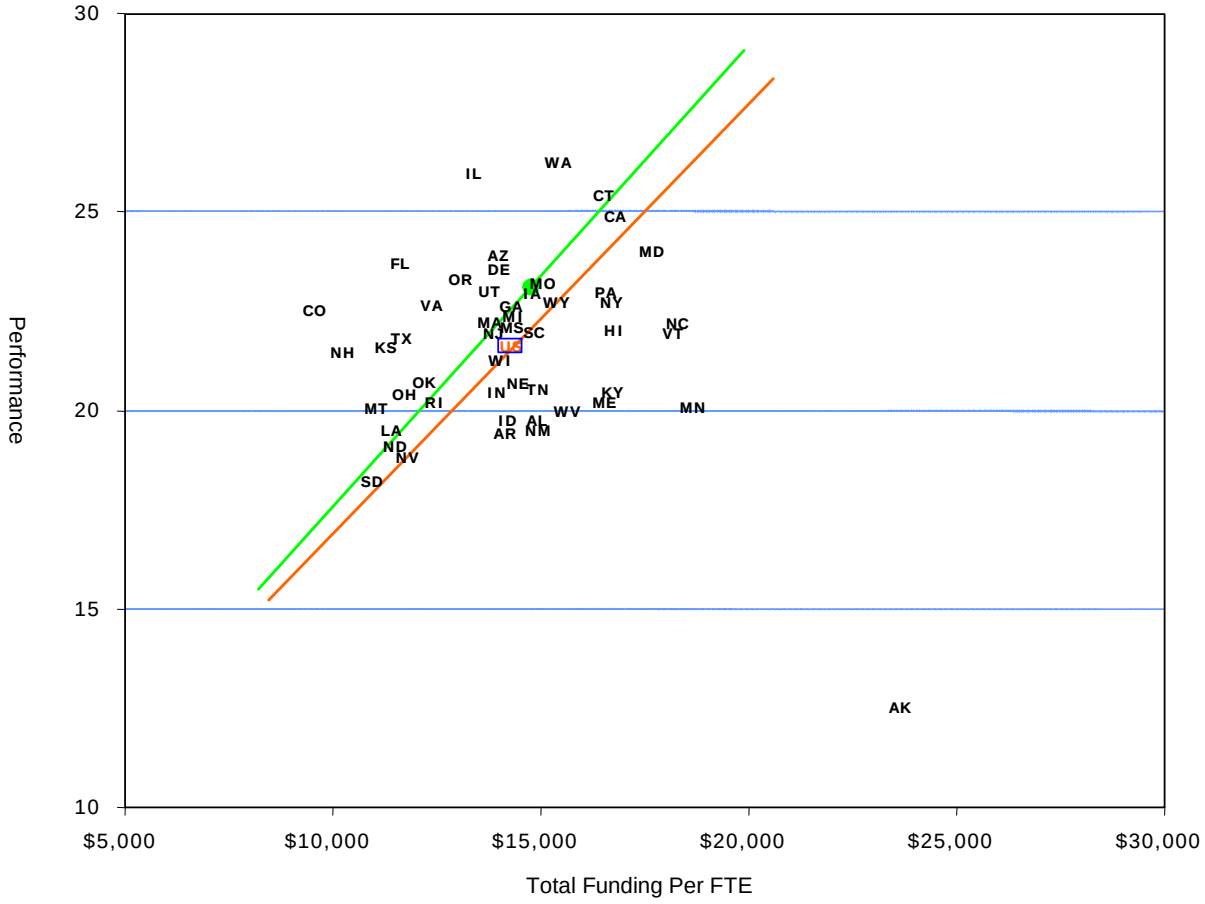


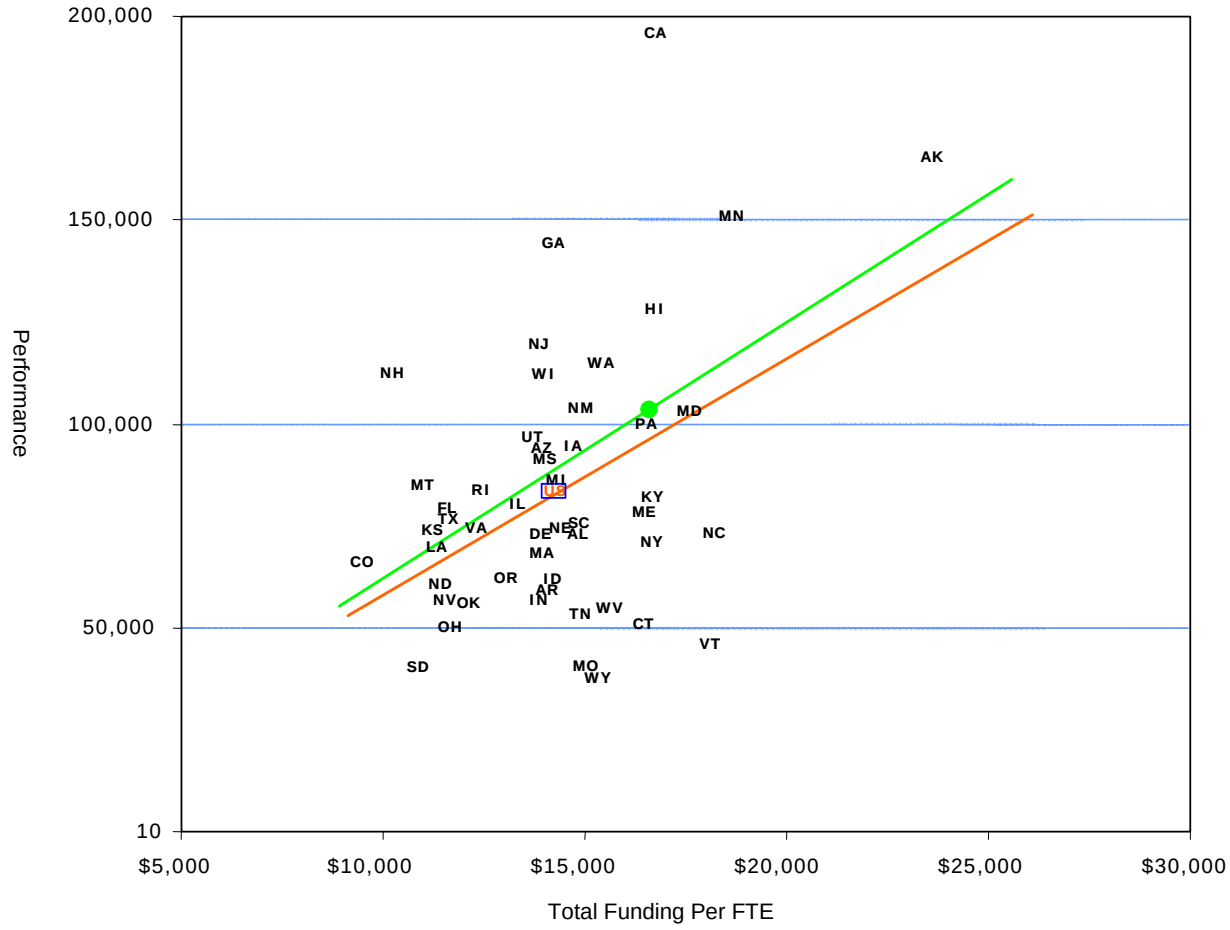
Figure 11 displays the ability of the public research sectors in the fifty states, given their resources, to produce bachelor's degrees. States that perform well have public research sectors that produce a large number of bachelor's degrees relative to the number of students enrolled. Colorado, Florida and Illinois are the most productive and Alaska and Minnesota are the least productive. Washington benefits on this metric because its research sector has several upper-division only extended-campus centers. Therefore, a large number of the graduates in its research institutions (relative to other states) begin college in another sector.

FIGURE 11.
Bachelor's Degrees per 100 FTE Undergraduates, 2002-03



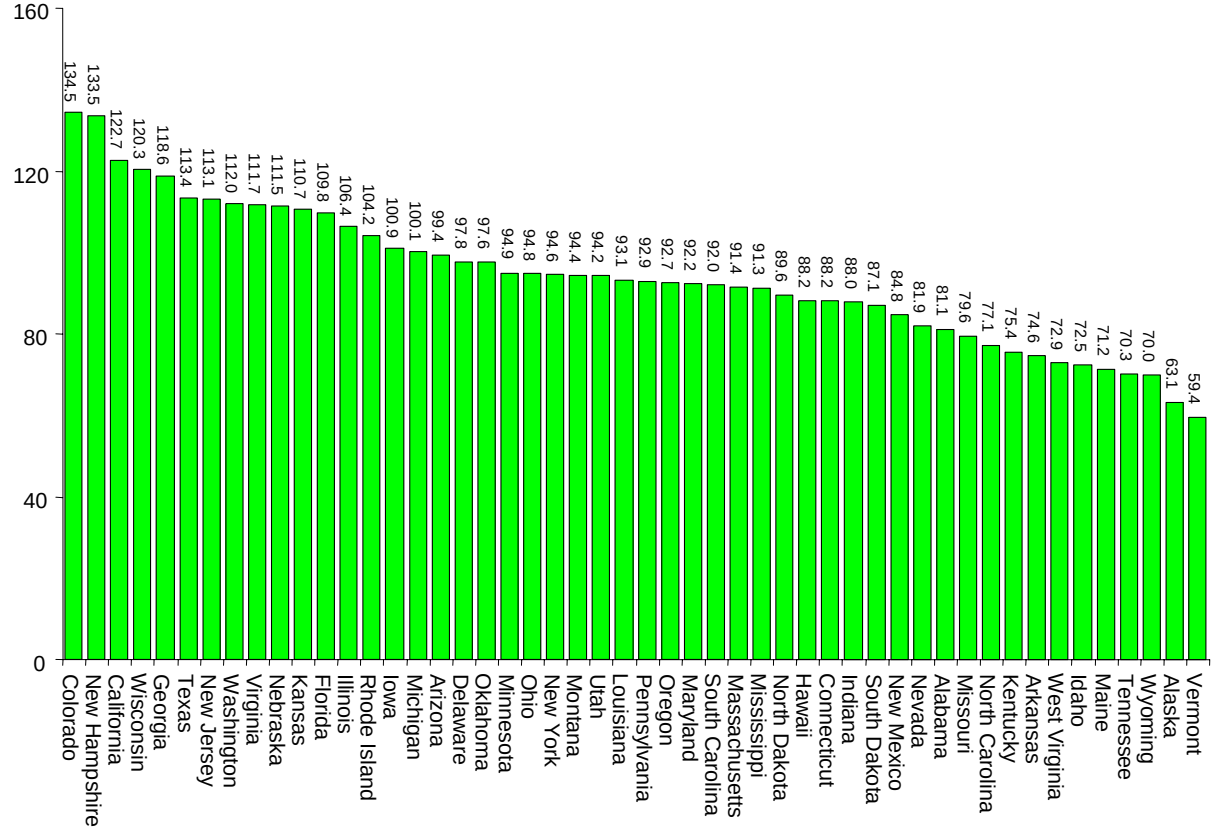
The final performance measure for state public research sectors assesses the strength of the "research" part of their missions. The measure used is the total amount of research expenditures per full-time faculty (Figure 12) as a function of overall FTE funding. Relative to their resources, California, New Hampshire, and Georgia are the most productive and Vermont, Wyoming, and Missouri are the least productive.

FIGURE 12.
Research Expenditures per Full-Time Faculty ($), 2003



When averaging the performance relative to funding across each of the four performance measures, the public research sectors in Colorado, New Hampshire, and California are the most productive. The least productive are in Vermont, Alaska, and Wyoming (Figure 13).

FIGURE 13.
Public Research Institutions – Overall Index Score – Average Performance Relative to Funding per FTE



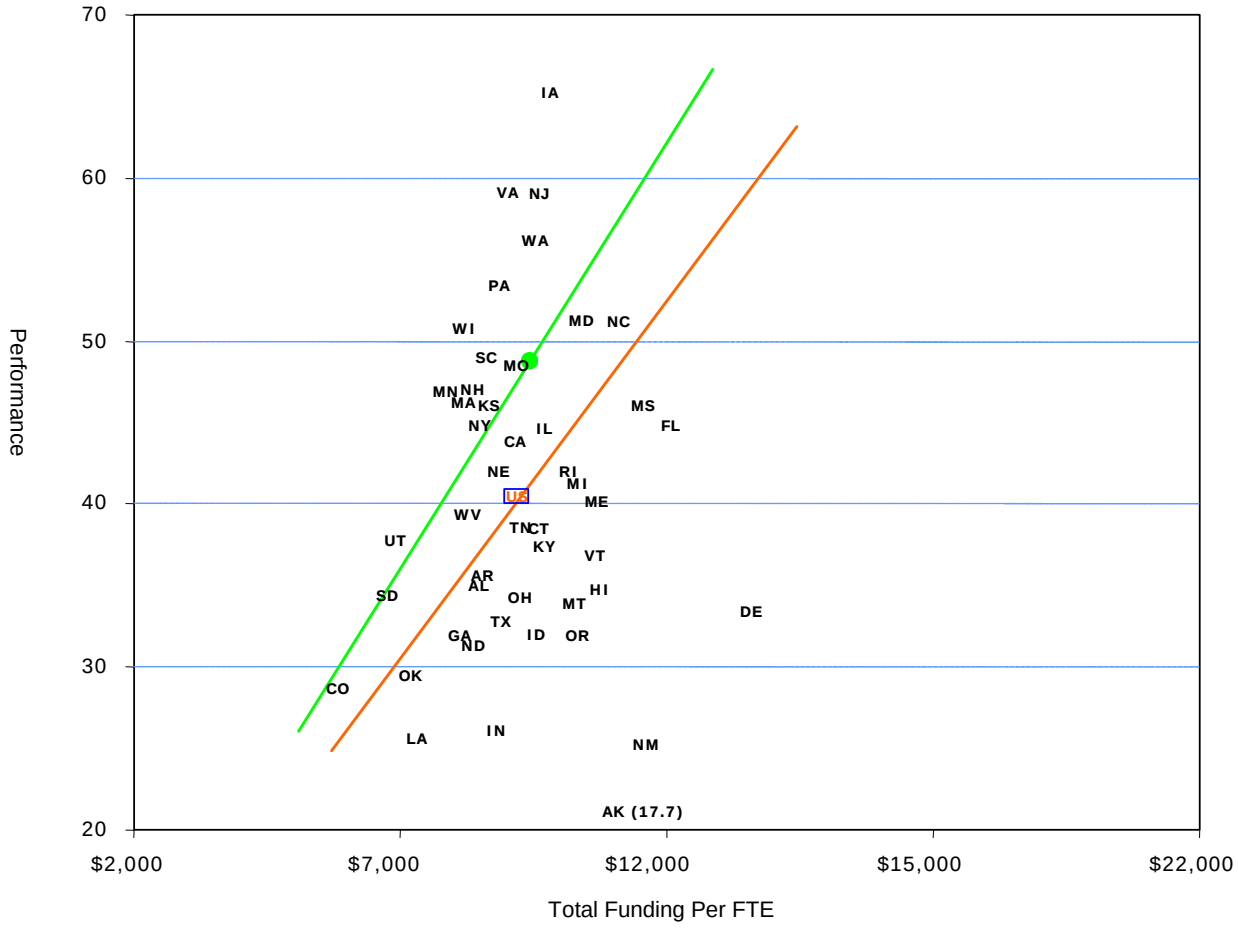
It is difficult to determine from these analyses when sectors are simply not funded well enough to meet a certain level of performance or when sectors are over-funded. The next section will address these shortcomings in more detail. However, it is clear that the public research sectors in some states are performing much better with comparable resources than are sectors in other states – both on individual performance measures and overall.

Public Baccalaureate and Master's Sectors

The institutions that make up this sector, within each state, are much less homogenous than those in the public research sector. They are not flagship or land grant institutions, and thus vary substantially across states with respect to size and selectivity. Also, since Ph.D. production and research are not typically part of the missions of these institutions, the analysis is limited to only two measures – graduation rates and bachelor's degree production. Arizona, Nevada, and Wyoming do not have institutions represented in this sector (although one has been created in Nevada).

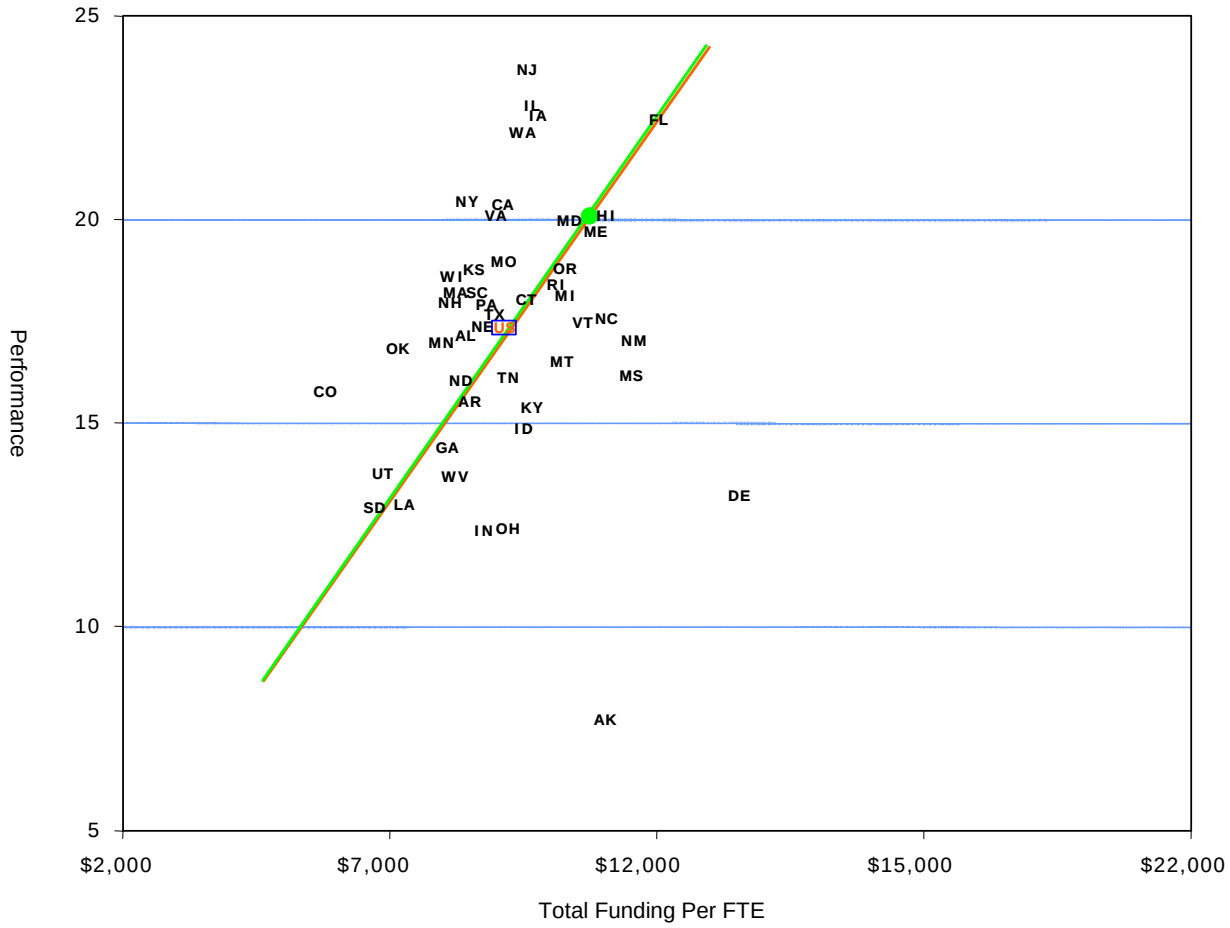
Figure 14 displays the performance relative to funding for six-year graduation rates of bachelor's students. Relative to their resources, Iowa, Virginia, and New Jersey have the best performing public baccalaureate and master's sectors and Alaska, New Mexico, and Delaware are the poorest performers.

FIGURE 14.
Six-Year Baccalaureate Graduation Rate, 2003



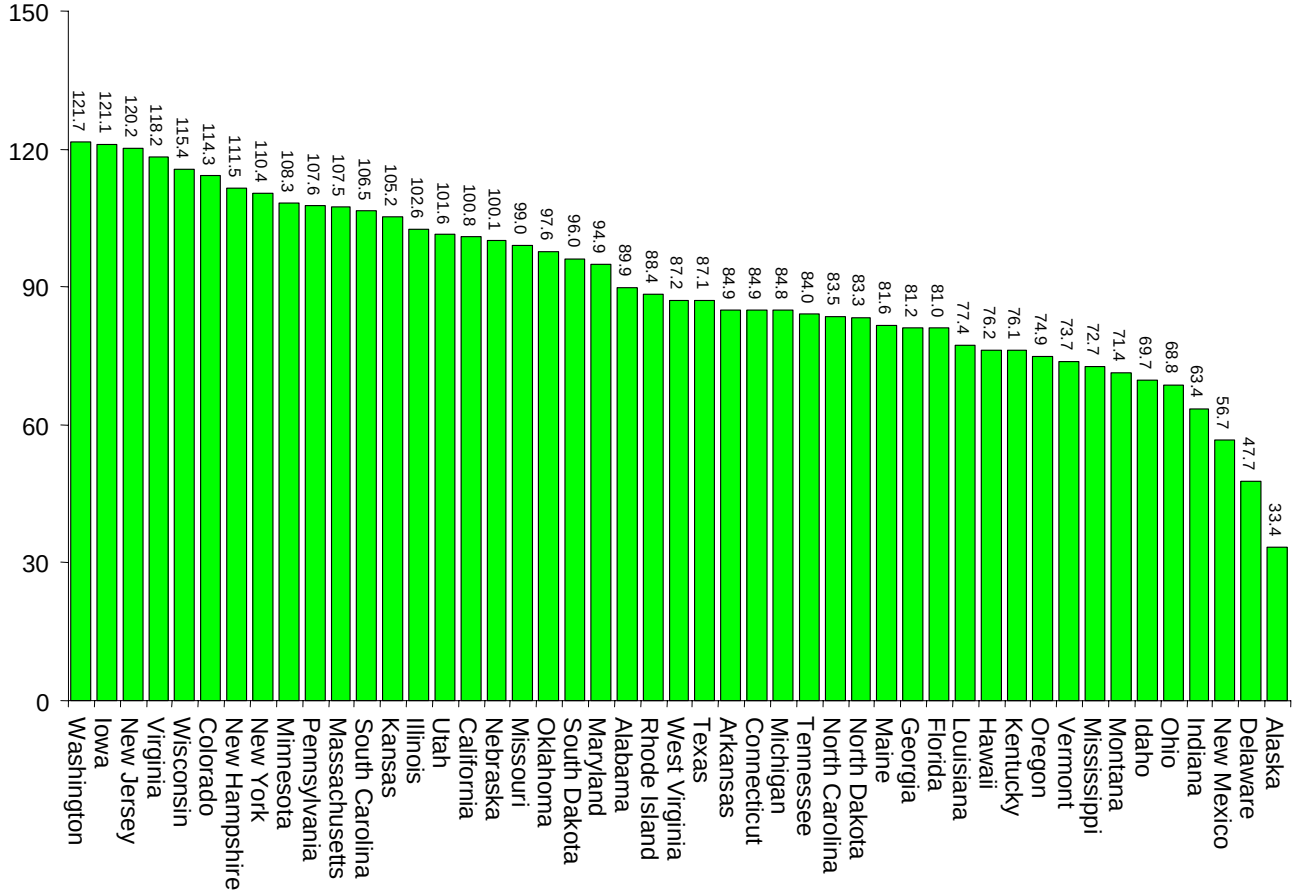
Given their resources, New Jersey, Illinois, Washington, and Iowa produce the most bachelor's degrees relative to their student populations and Alaska, Delaware, and Ohio produce the least (Figure 15). Despite below average performance, the bachelor's and master's institutions in Colorado, Oklahoma, and Utah are productive given their very low levels of funding.

FIGURE 15.
Bachelor's Degrees per FTE Undergraduates, 2002-03



Based on their performance on these two measures and their levels of funding, the public baccalaureate and master's institutions in Washington, Iowa, and New Jersey are the most productive and those in Alaska, Delaware, and New Mexico are the least productive (Figure 16).

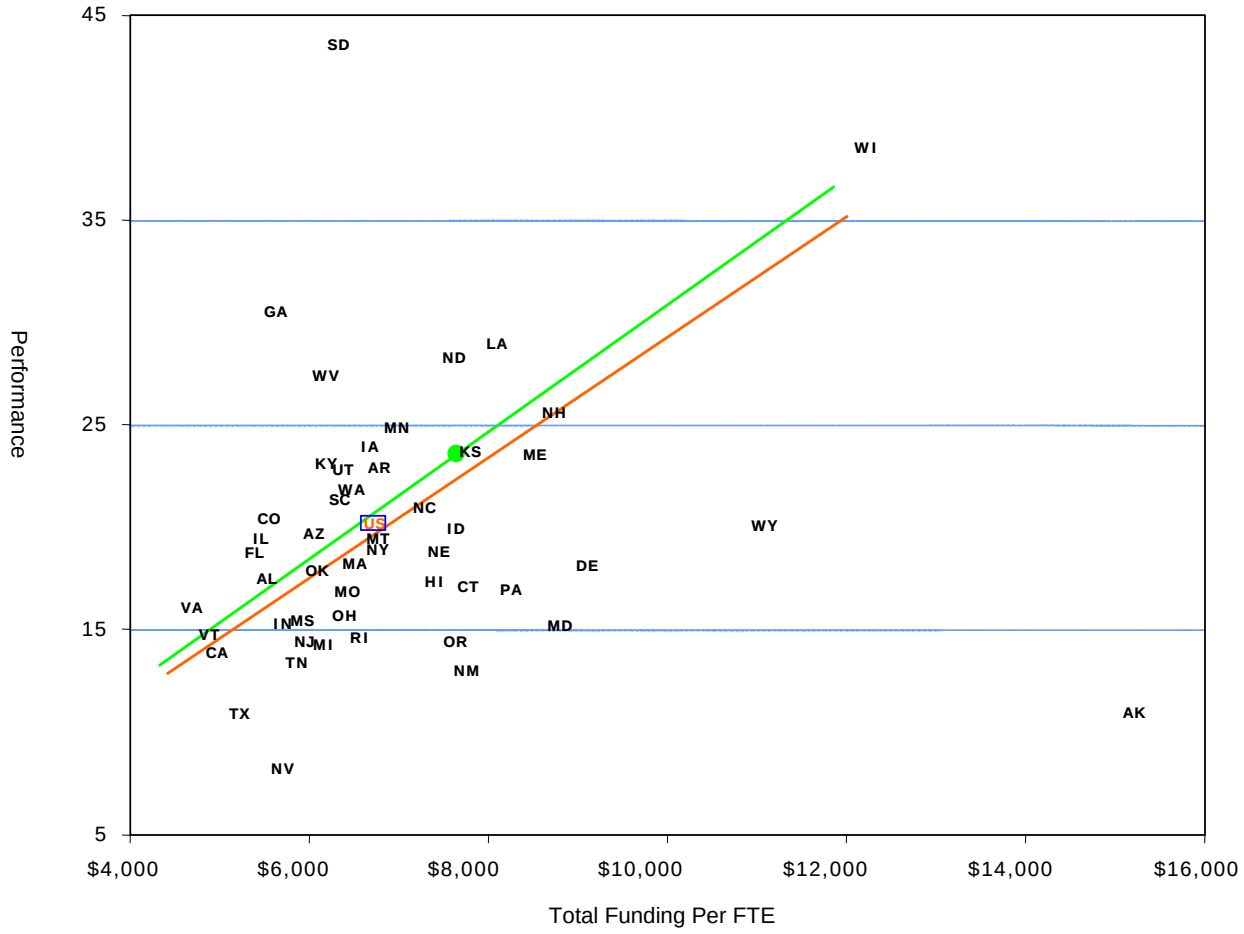
FIGURE 16.
Public Bachelor's and Master's Institutions – Overall Index Score – Average Performance Relative to Funding per FTE



Public Two-Year Sectors

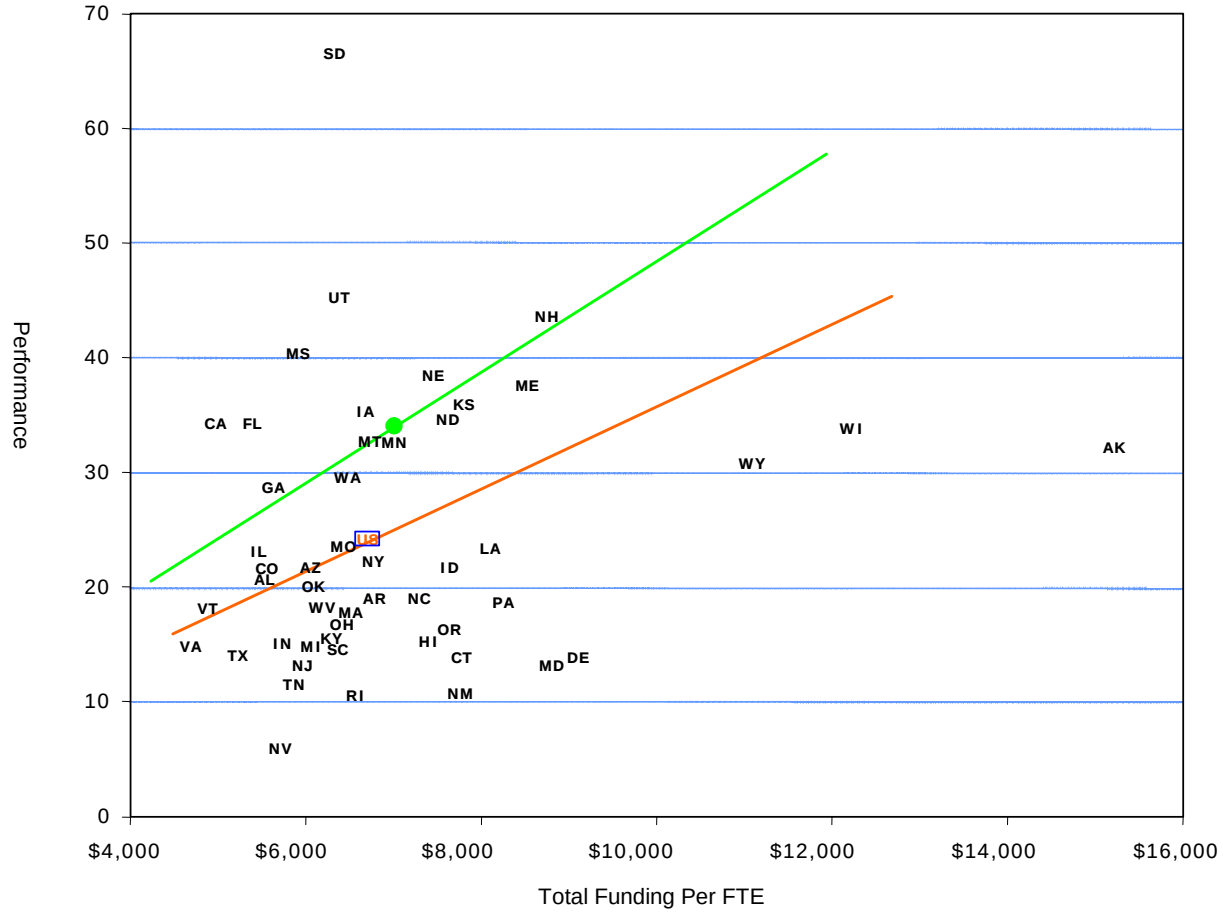
With their resources, the public two-year sectors in South Dakota, Georgia, and West Virginia produce the most credentials (certificates, diplomas, and associate degrees) relative to the number of students enrolled (Figure 17). Those in Alaska, Wyoming, and Maryland produce the least. The two-year sector in Wisconsin is also a top performer on this measure, but with a high level of funding per student.

FIGURE 17.
Total Credentials Awarded per 100 FTE Undergraduates, 2003



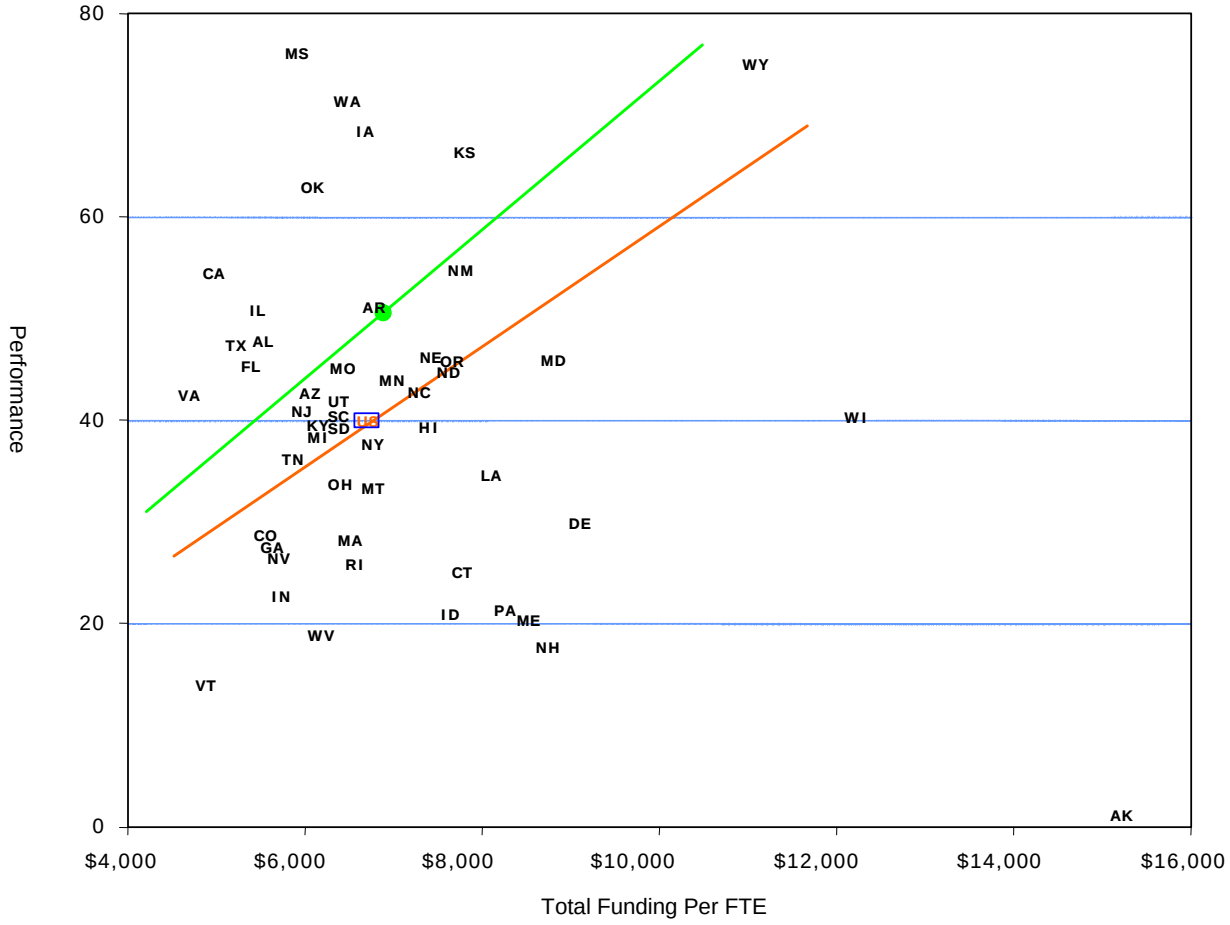
The two-year sectors in South Dakota, Utah, and Mississippi have the highest three-year graduation rates of associate degree-seeking students relative to their funding levels and those in Alaska, Maryland, and Delaware have the lowest (Figure 18). Unfortunately, students who transfer to four-year institutions prior to earning an associate degree cannot be accounted for from national data sources – although this is considered a successful transition.

FIGURE 18.
Three-Year Associate Graduation Rates, 2003



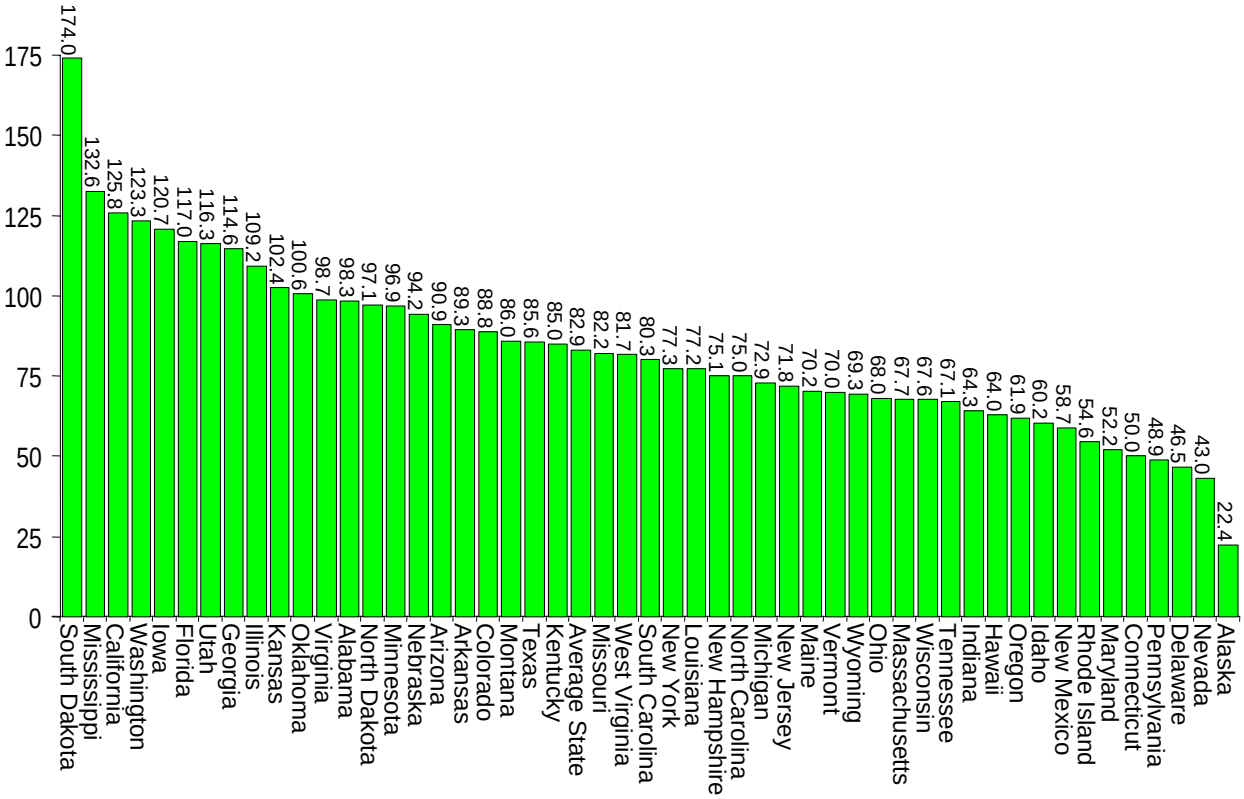
With respect to the number of associate degrees awarded per 1,000 adults aged 25 to 64 with an associate degree (a measure of supply vs. demand), the two-year sectors in Mississippi, Washington, and Iowa are the top performers relative to their resources. Alaska, New Hampshire, and Maine are the least productive (Figure 19). The size of the two-year sector relative to the other higher education sectors impacts performance on this measure. This will be discussed in more detail in a later section.

FIGURE 19.
Associate Degrees Awarded at Two-Year Colleges per 1,000 Adults 25-64 with an Associate Degree



When averaging the performance on all three of these measures relative to levels of institutional funding, South Dakota, Mississippi, and California have the most productive public two-year sectors and Alaska, Nevada, and Delaware relative to resources utilized have the lowest level of performance (Figure 20).

FIGURE 20.
Public Two-Year Institutions – Overall Index Score –
Average Performance Relative to Funding Per FTE



Figures 2 through 20 raise several questions for policymakers:

1. Many states (and sectors within states) have relatively high levels of funding. Are they over-funded or should they perform better given the resources they receive?

2. There is an issue of funding "adequacy" for sectors that have low-levels of funding. At what point is a higher education sector under-funded? (i.e., not enough resources to meet certain levels of performance)

3. Are there institutional characteristics that distinguish sectors that perform well relative to their resources from those that do not?

The first two questions are the most difficult to answer and more information is needed to answer them. It seems likely that certain sectors within states could improve their performance given the resources they already have because many other states are already doing so with the same or less.

This notion deserves attention in difficult fiscal times, or when institutions automatically replace a lost dollar in state appropriations with a new dollar in tuition, thus risking affordability. However, these two questions are beyond the scope of this study. An attempt to address the third question is the focus of the following section.

In-Depth Studies of Higher Education Sectors

Public Research Sectors

Of the public research sectors across the U.S., those in Colorado and North Carolina were chosen for more detailed analysis because they perform similarly on each of the performance measures with different levels of funding – Colorado as an example of a state with relatively low funding per FTE and North Carolina as an example of a state with relatively high funding per FTE (see Figures 9 through 12). A more in-depth look at how these institutions are financed, their patterns of student attendance, academic program mix, and faculty and staffing patterns reveals some interesting results. In fact, the differences between the research sectors in Colorado and North Carolina are dramatic (see Figure 21). In summary:

- State and local appropriations per student are nearly four times greater in North Carolina ($12,366 vs. $3,459). Colorado institutions have somewhat higher tuition revenues per student ($6,211 vs. $4,917), but lower revenues in all other categories leave Colorado with $18,610 in total revenues per student compared to $29,803 in North Carolina.

- On the expenditures side, Colorado spends more than North Carolina on student services but spends substantially less in all other categories – particularly in instruction where expenditures per student are roughly half of those in North Carolina ($6,760 vs. $12,776). Overall, expenditures in Colorado's research sector are $17,138 per FTE student compared to $30,334 in North Carolina's.

- With the exception of a higher percentage of part-time students in Colorado, student attendance patterns and their degree levels are very similar between the two state research sectors.

- Colorado's research sector graduates more students in the least expensive programs (social sciences and humanities) and fewer in more expensive programs (engineering and health sciences).

- Faculty salaries by rank in the two research sectors are similar – with the exception of lower salaries for full professors in Colorado's public research sector.

- Faculty and staffing patterns are very different. Colorado's public research sector has more students per faculty member than does North Carolina's. It relies much more heavily on part-time faculty – one and a half full-time faculty to one part-time faculty compared to a ratio of 11 to one in North Carolina. The number of students per full-time technical support staff in Colorado is more than three times as high as it is in North Carolina (81.9 vs. 26.5). Finally, there are more than double the number of students per full-time administrator in Colorado (88.3 vs. 41.0).

FIGURE 21.
A Comparison of the Characteristics of the Public Research Sectors in Colorado and North Carolina

REVENUES ($)	COLORADO	NORTH CAROLINA
State and Local Appropriations per FTE Student	3,459	12,366
Tuition and Fees per FTE Student	6,211	4,917
Endowment Income per FTE Student	241	732
Government Grants and Contracts per FTE Student	6,680	9,073
Private Gifts Grants and Contracts per FTE Student	681	1,319
Other Educational and General Revenue per FTE Student	1,339	1,396
Total Educational and General Revenue per FTE Student	18,610	29,803
EXPENDITURES ($)		
Instruction per FTE Student	6,760	12,776
Research per FTE Student	4,031	5,678
Public Service per FTE Student	1,112	3,652
Academic Support per FTE Student	1,543	2,204
Student Services per FTE Student	1,190	632
Institutional Support per FTE Student	807	2,080
Plant Operation and Maintenance per FTE Student	1,251	2,269
Scholarships and Fellowships per FTE Student	444	1,042
Total Educational and General Expenditures per FTE Student	17,138	30,334
STUDENTS AND DEGREE-LEVELS		
Percent Part-Time Headcount	28.5	21.6
Percent Minority Headcount	18.5	22.6
Certificates Awarded as a Percent of All Awards	0.0	0.1
Associate Degrees Awarded as a Percent of All Awards	0.0	0.7
Bachelor's Degrees Awarded as a Percent of All Awards	70.3	68.5
Master's Degrees Awarded as a Percent of All Awards	24.5	23.0
Doctoral Degrees Awarded as a Percent of All Awards	3.4	3.8
Professional Degrees Awarded as a Percent of All Awards	1.6	3.8
PROGRAM MIX (%)		
Percent Natural Science Degrees	8.0	8.3
Percent Social Science Degrees	16.6	12.0
Percent Humanities Degrees	12.0	9.2
Percent Health Science Degrees	3.6	9.7
Percent Engineering Degrees	8.6	10.5
Percent Business Degrees	16.3	14.1
Percent Education Degrees	6.5	8.1
Percent Computer Science Degrees	2.7	2.8
Percent Other Degrees (e.g., English, Foreign Languages, etc.)	25.6	25.3
FACULTY SALARIES ($)		
Professor	87,372	94,431
Associate Professor	65,567	65,226
Assistant Professor	56,205	56,766
Instructor	40,773	49,503
Lecturer	34,947	38,208
No Academic Rank	–	45,148
Total Faculty	68,352	68,292
FACULTY AND STAFFING PATTERNS		
FTE Students per Full-Time Faculty	16.7	13.1
FTE Students per FTE Faculty	14.4	12.9
Ratio of Full-Time Faculty to Part-Time Faculty	1.5	11.1
FTE Students per Full-Time Technical Workers	81.9	26.5
FTE Students per FTE Technical Workers	70.6	25.7
FTE Students per Full-Time Service Workers	62.6	44.7
FT Faculty/FT Admin & Other Prof	1.2	0.8
FTE Students per Full-Time Administrators	88.3	41.0
FTE Students per FTE Administrators	84.0	40.3
FTE Students per Full-Time Other Professionals	26.8	15.3
FTE Students per FTE Other Professionals	19.2	14.8
Full-Time Faculty per Full-Time Administrators	5.3	3.1

Given similar levels of performance, Colorado's and North Carolina's public research institutions operate very differently. In the case of Colorado, lower levels of funding appear to have resulted in a diminished capacity to provide many of the services that students and faculty have come to expect at research institutions – e.g., instructional and academic support, access to certain degree programs, the number of faculty and administrators per student, and technical support. These data also raise several important questions:

- Can North Carolina's public research institutions perform better given their relatively high level of resources?
- With such lean levels of funding, how do Colorado's public research institutions sustain above average performance? Will their performance start to decline as a result of these low funding levels?
- What levels of resources available to students, faculty, and staff are necessary to sustain or improve institutional performance?

Public Baccalaureate and Master's Sectors

The public baccalaureate and master's sectors selected for case studies are those in Georgia and Wisconsin – sectors that are funded similarly but perform differently (see Figures 14 and 15). Wisconsin's sector has substantially higher graduation rates and awards more bachelor's degrees relative to its undergraduate enrollment than does Georgia's. The data shown in Figure 22 lead to the following differences:

- Despite differences in state and local appropriations and tuition and fee revenues (the two largest sources of revenue), the combined total for both sectors is roughly equal. Georgia's sector has two and a half times more government grants and contracts per student ($2,229 vs. $844) but over four times less revenue in the "other" category ($518 vs. $2,237) than Wisconsin's. The total revenues, however, are roughly the same.
- Georgia spends less than half on student services per student than Wisconsin ($796 vs. $1,619) and more per student for institutional support ($1,577 vs. $925). Georgia also spends much more per student on scholarships and fellowships ($1,233 vs. $197). Overall, though, the total expenditures per student are similar in both sectors.
- Georgia's institutions serve more part-time and minority students and award more master's degrees (likely in the field of education).
- The academic program mixes for both sectors are similar. Georgia's institutions award more degrees in education and Wisconsin's institutions award more degrees in the "other" category.
- With the exception of lower salaries for instructors and lecturers in Georgia, the faculty salaries by rank are similar.
- The faculty and staffing patterns are also similar in the two sectors. Wisconsin's institutions have somewhat smaller administrations – a student to full-time administrator ratio of 139.7 compared to 99.0 in Georgia's institutions.

FIGURE 22.
A Comparison of the Characteristics of the Public Baccalaureate and Master's Sectors in Georgia and Wisconsin

REVENUES ($)	GEORGIA	WISCONSIN
State and Local Appropriations per FTE Student	5,951	5,007
Tuition and Fees per FTE Student	2,393	3,173
Endowment Income per FTE Student	40	31
Government Grants and Contracts per FTE Student	2,229	844
Private Gifts Grants and Contracts per FTE Student	66	79
Other Educational and General Revenue per FTE Student	518	2,237
Total Educational and General Revenue per FTE Student	11,197	11,372
EXPENDITURES ($)		
Instruction per FTE Student	4,954	4,743
Research per FTE Student	133	137
Public Service per FTE Student	275	667
Academic Support per FTE Student	1,116	1,401
Student Services per FTE Student	796	1,619
Institutional Support per FTE Student	1,577	925
Plant Operation and Maintenance per FTE Student	1,270	851
Scholarships and Fellowships per FTE Student	1,233	197
Total Educational and General Expenditures per FTE Student	11,355	10,540
STUDENTS AND DEGREE-LEVELS		
Percent Part-Time Headcount	31.4	18.0
Percent Minority Headcount	31.4	7.1
Certificates Awarded as a Percent of All Awards	0.1	0.0
Associate Degrees Awarded as a Percent of All Awards	2.3	0.3
Bachelor's Degrees Awarded as a Percent of All Awards	74.0	85.4
Master's Degrees Awarded as a Percent of All Awards	23.3	14.3
Doctoral Degrees Awarded as a Percent of All Awards	0.3	0.0
Professional Degrees Awarded as a Percent of All Awards	0.0	0.0
PROGRAM MIX (%)		
Percent Natural Science Degrees	4.3	6.2
Percent Social Science Degrees	10.8	11.5
Percent Humanities Degrees	5.9	9.6
Percent Health Science Degrees	7.2	5.2
Percent Engineering Degrees	1.1	2.9
Percent Business Degrees	23.8	21.5
Percent Education Degrees	27.7	19.5
Percent Computer Science Degrees	3.9	2.1
Percent Other Degrees (e.g., English, Foreign Languages, etc.)	15.5	21.6
FACULTY SALARIES ($)		
Professor	68,094	67,438
Associate Professor	53,979	55,272
Assistant Professor	44,351	47,831
Instructor	35,723	39,102
Lecturer	34,030	41,277
No Academic Rank	–	–
Total Faculty	51,041	56,230
FACULTY AND STAFFING PATTERNS		
FTE Students per Full-Time Faculty	22.6	24.4
FTE Students per FTE Faculty	20.3	22.5
Ratio of Full-Time Faculty to Part-Time Faculty	2.2	3.0
FTE Students per Full-Time Technical Workers	346.2	375.1
FTE Students per FTE Technical Workers	321.2	274.3
FTE Students per Full-Time Service Workers	60.1	69.7
FT Faculty/FT Admin & Other Prof	1.2	1.3
FTE Students per Full-Time Administrators	99.0	139.7
FTE Students per FTE Administrators	97.8	130.1
FTE Students per Full-Time Other Professionals	35.6	42.4
FTE Students per FTE Other Professionals	34.4	34.5
Full-Time Faculty per Full-Time Administrators	4.4	5.7

This case might lead one to expect more distinct differences in the characteristics of these two sectors because they have such different levels of performance. Given the fact that they are similar, can Georgia's public bachelors and master's institutions perform better? Less spending on student services, more part-time students, and a higher percentage of minority students are characteristics that may, in part, influence Georgia's relatively low graduation rates and degree productivity.

Public Two-Year Sectors

The public two-year sectors of Pennsylvania and Washington perform differently with somewhat different levels of funding. Washington's two-year institutions award more credentials relative to their enrollment, have higher three-year graduation rates, and award more associate degrees relative to the number of adults in the population with associate degrees. Figure 23 displays many of the institutional characteristics within these two sectors.

- Of the two primary unrestricted sources of revenues (state and local appropriations and tuition and fees), Washington operates with $1,217 less per student than Pennsylvania. The total revenues are roughly the same, though, because Washington receives a much larger amount than Pennsylvania in government grants and contracts (revenues that are restricted for certain purposes).

- Pennsylvania's two-year institutions spend more on institutional support and operation and maintenance per FTE student and Washington spends more on scholarships and fellowships per student. Except for these differences, the expenditure patterns of these two sectors are similar.

- Washington's institutions award a much higher percentage of credentials in arts and sciences (44.6%) than those in Pennsylvania (22.7%) – programs that are typically designed for transfer into four-year programs. Pennsylvania awards more credentials in applied programs – business, data processing, service, and technical – that are primarily designed to link more directly to employment.

- Overall, Pennsylvania's faculty salaries are higher than those in Washington ($53,919 vs. $47,692). Comparative data by faculty rank are not available.

- The faculty and staffing patterns are fairly similar in both sectors. A notable exception is more technical support in Washington's two-year institutions – fewer students per technical worker than in Pennsylvania's institutions.

FIGURE 23.
A Comparison of the Characteristics of the Public Two-Year Sectors in Pennsylvania and Washington

	PENNSYLVANIA	WASHINGTON
REVENUES ($)		
State and Local Appropriations per FTE Student	4,881	4,214
Tuition and Fees per FTE Student	3,197	2,647
Endowment Income per FTE Student	15	2
Government Grants and Contracts per FTE Student	1,199	2,719
Private Gifts Grants and Contracts per FTE Student	38	370
Other Educational and General Revenue per FTE Student	885	327
Total Educational and General Revenue per FTE Student	10,215	10,278
EXPENDITURES ($)		
Instruction per FTE Student	4,657	4,656
Research per FTE Student	7	0
Public Service per FTE Student	9	1
Academic Support per FTE Student	763	575
Student Services per FTE Student	964	1,002
Institutional Support per FTE Student	1,504	1,028
Plant Operation and Maintenance per FTE Student	1,044	659
Scholarships and Fellowships per FTE Student	800	1,641
Total Educational and General Expenditures per FTE Student	9,748	9,563
STUDENTS AND DEGREE-LEVELS		
Percent Part-Time Headcount	61.1	53.2
Percent Minority Headcount	23.7	22.7
Certificates Awarded as a Percent of All Awards	15.0	31.9
Associate Degrees Awarded as a Percent of All Awards	85.0	68.1
Program Mix (%)		
Percent Arts and Science Awards	22.7	44.6
Percent Health Awards	19.7	17.5
Percent Business and Data Processing Awards	27.0	18.1
Percent Service Awards	19.1	6.9
Percent Trade Awards	4.0	7.7
Percent Technical Awards	7.5	5.1
FACULTY SALARIES ($)*		
Average Total Faculty Salary	53,919	47,692
FACULTY AND STAFFING PATTERNS		
FTE Students per Full-Time Faculty	37.2	34.4
FTE Students per FTE Faculty	20.2	23.1
Ratio of Full-Time Faculty to Part-Time Faculty	0.3	0.5
FTE Students per Full-Time Technical Workers	222.0	125.4
FTE Students per FTE Technical Workers	169.4	111.2
FTE Students per Full-Time Service Workers	143.8	155.7
FT Faculty/FT Admin & Other Prof	1.4	1.4
FTE Students per Full-Time Administrators	84.1	85.0
FTE Students per FTE Administrators	82.3	80.6
FTE Students per Full-Time Other Professionals	127.1	108.0
FTE Students per FTE Other Professionals	106.5	103.6
Full-Time Faculty per Full-Time Administrators	2.3	2.5

* Salaries by rank are not available because Washington's two-year system does not rank faculty.

Like the comparison done between public baccalaureate and master's sectors in Georgia and Wisconsin, there are enough similarities between these two state's sectors to raise questions about why levels of performance are so different. Indeed, with a higher proportion of graduates in applied programs, one would expect Pennsylvania's institutions to have higher three-year graduations rates (Figure 14) because such students are less likely to transfer before completing associate degrees. Another important consideration is the size of the sector – particularly with respect to associate degree production relative to the population with associate degrees (the third performance measure). Washington's two-year system comprises nearly two-thirds of the state's undergraduate enrollments compared to less than 30 percent in Pennsylvania.

An important missing piece of information for the two-year sectors (for which there are no comparable data) is the effectiveness of transfer between two- and four-year institutions – which impacts performance on measures related to associate-level degree production. In some states, students are more likely to transfer before they complete an associate degree. And in others (such as Florida), students are encouraged to complete the associate degree before transferring to four-year institutions through clearly defined transfer and articulation agreements between the two sectors.

It is fairly easy to generate such comparisons for all state higher education sectors – and even for individual institutions. The data are readily available (see Appendix A for a more detailed description of the data sources), and the calculations are straightforward.

Factors Related to Higher Education Performance Relative to Resources Across States

Some factors that probably influence higher education performance relative to finance are largely outside the control of institutions. Examples include state population characteristics, student preparation in high school, state wealth, and the strength of state economies. In short, higher education institutions operate in different environments. What effect might these external factors have on performance outcomes relative to resources? Correlations were calculated to assess the statistical relationships between many of these external factors and the ratio of performance to funding (the same ratios plotted in Figures 2 through 20). The following observations can be drawn.

- Overall performance relative to funding levels at the state system level is associated with state wealth and student preparation in high school. States with higher per capita personal income and tax capacities perform better with the resources they receive. This correlation is also true for states with higher test scores and graduation rates at the high school level. These relationships and the results of correlations between these external factors and the levels of productivity for each of the performance measures are shown in Figure 24.

FIGURE 24.
State Systems of Higher Education – Correlates with Outcome Measures

Measure	Correlation Statistics	FTE Undergrads (Fall 2001) per 100 18-44 with HS Diploma	Undergrad Credentials Awarded per 100 FTE Undergrads	PhDs per 1,000 Degrees Awarded (Bacc. and Above)	Federal & Industry R&D per Capita	Student Pipeline Result	Bachelor's Degrees as a % of HS Grads Six Years Earlier	Average Index Score
Personal Income Per Capita	Pearson Correlation	-0.109	-0.043	0.382	0.456	0.279	0.116	0.316
	Sig. (2-tailed)	0.451	0.767	0.006	0.001	0.049	0.423	0.025
State Tax Capacity	Pearson Correlation	-0.101	-0.069	0.299	0.316	0.310	0.070	0.238
	Sig. (2-tailed)	0.486	0.632	0.035	0.025	0.029	0.627	0.097
SAT/ACT Scores (# in Top 20% Per 1,000 HS Grads)	Pearson Correlation	0.057	0.150	0.222	0.373	0.462	0.156	0.362
	Sig. (2-tailed)	0.693	0.300	0.120	0.008	0.001	0.281	0.010
NAEP Math Scores (% at or Above Proficient)	Pearson Correlation	0.195	0.241	-0.024	0.276	0.671	0.148	0.357
	Sig. (2-tailed)	0.174	0.091	0.871	0.052	0.000	0.307	0.011
High School Graduation Rates	Pearson Correlation	0.306	0.280	-0.097	0.098	0.705	0.127	0.304
	Sig. (2-tailed)	0.030	0.049	0.502	0.500	0.000	0.381	0.032
College-Going Rates	Pearson Correlation	-0.017	-0.021	0.100	0.083	0.347	-0.011	0.119
	Sig. (2-tailed)	0.907	0.883	0.490	0.565	0.014	0.938	0.411
Percent of Minority FT Freshmen	Pearson Correlation	-0.069	-0.220	0.403	0.057	-0.436	-0.091	-0.049
	Sig. (2-tailed)	0.636	0.125	0.004	0.692	0.002	0.530	0.737
Percent of FT Freshmen from Out of State	Pearson Correlation	0.020	0.078	-0.353	0.165	0.293	0.294	0.129
	Sig. (2-tailed)	0.889	0.591	0.012	0.251	0.039	0.038	0.372
Individual Rate of Return (Average of Sectors)	Pearson Correlation	0.151	0.169	0.421	-0.025	0.090	0.187	0.200
	Sig. (2-tailed)	0.294	0.240	0.002	0.863	0.536	0.194	0.165
Percent 2-year FTE Enrollment	Pearson Correlation	0.162	0.122	0.530	-0.080	-0.230	-0.116	0.065
	Sig. (2-tailed)	0.260	0.401	0.000	0.579	0.109	0.422	0.655
Percent FTE Enrollment in Research Institutions	Pearson Correlation	0.211	0.114	0.037	0.118	0.199	0.302	0.226
	Sig. (2-tailed)	0.142	0.429	0.798	0.413	0.167	0.033	0.115
Difference in Tuition at Public 2-year vs. 4-year Institutions	Pearson Correlation	-0.301	-0.255	0.015	0.122	0.134	-0.046	-0.036
	Sig. (2-tailed)	0.033	0.073	0.917	0.400	0.354	0.749	0.806

Correlation is significant at the 0.05 level (2-tailed)

Correlation is significant at the 0.10 level (2-tailed)

- For the public research sectors, higher overall performance relative to resources is associated with higher state personal income, higher average scores on college entrance exams, and a higher individual rate of return (Figure 25). The latter is a measure of the cost of attending public research institutions in each state and the resulting increase in earnings residents experience with bachelor's degree (above what they would earn with just a high school diploma). In other words, states that have more vibrant economies (those that have higher paying jobs for college graduates) have more productive public research institutions.

FIGURE 25.
Public Research Institutions – Correlates with Outcome Measures

Measure	Correlation Statistics	Six-Year Graduation Rate	Doctorate Degrees per 1,000 Degrees (Baccalaureate and Above)	Bachelor's Degrees per 100 FTE Undergraduates	Research Expenditures per Full-Time Faculty	Average Index Score
Personal Income Per Capita	Pearson Correlation	0.306	0.313	0.194	0.235	0.364
	Sig. (2-tailed)	0.031	0.027	0.178	0.101	0.009
State Tax Capacity	Pearson Correlation	0.254	0.222	0.105	0.103	0.232
	Sig. (2-tailed)	0.075	0.121	0.467	0.476	0.105
Average Entering ACT/SAT Scores	Pearson Correlation	0.275	0.402	0.091	0.274	0.373
	Sig. (2-tailed)	0.053	0.004	0.532	0.055	0.008
Percent of Minority FT Freshmen	Pearson Correlation	-0.194	0.117	-0.039	0.177	0.048
	Sig. (2-tailed)	0.178	0.420	0.786	0.220	0.741
Percent of FT Freshmen from Out of State	Pearson Correlation	0.244	-0.378	0.036	-0.152	-0.115
	Sig. (2-tailed)	0.088	0.007	0.805	0.292	0.427
Individual Rate of Return	Pearson Correlation	0.229	0.459	0.253	0.187	0.387
	Sig. (2-tailed)	0.110	0.001	0.076	0.194	0.005
Share of System Enrollment	Pearson Correlation	0.161	-0.348	0.243	-0.165	-0.077
	Sig. (2-tailed)	0.264	0.013	0.089	0.252	0.597
Difference in Tuition vs. 2-year Institutions	Pearson Correlation	0.205	0.001	0.014	0.095	0.110
	Sig. (2-tailed)	0.154	0.992	0.922	0.511	0.448

Correlation is significant at the 0.05 level (2-tailed)

Correlation is significant at the 0.10 level (2-tailed)

- Performance relative to funding at the public baccalaureate and master's institutions is less associated with state wealth (although there is a weak correlation) and more associated with student performance on college entrance exams, the percentage of minority enrollments, and the rate of return on investment experienced by graduates (Figure 26). These institutions are typically more productive if students enter with high ACT and SAT scores and if smaller percentages of the student body are minority – populations in many states that (for a variety of reasons) are less prepared for higher education. The likelihood of earning substantially more for a bachelor's degree in some states than in others also makes a difference in institutional productivity.

FIGURE 26.
Public Bachelor's and Master's Institutions – Correlates with Outcome Measures

Measure	Correlation Statistics	Six-Year Graduation Rate	Bachelor's Degrees per 100 FTE Undergraduates	Average Index Score
Personal Income Per Capita	Pearson Correlation	0.265	0.276	0.284
	Sig. (2-tailed)	0.072	0.060	0.053
State Tax Capacity	Pearson Correlation	0.133	0.063	0.104
	Sig. (2-tailed)	0.374	0.676	0.486
Average Entering ACT/SAT Scores	Pearson Correlation	0.538	0.439	0.516
	Sig. (2-tailed)	0.000	0.002	0.000
Percent of Minority FT Freshmen	Pearson Correlation	-0.325	-0.281	-0.319
	Sig. (2-tailed)	0.026	0.056	0.029
Percent of FT Freshmen from Out of State	Pearson Correlation	-0.151	-0.286	-0.227
	Sig. (2-tailed)	0.312	0.051	0.125
Individual Rate of Return	Pearson Correlation	0.257	0.330	0.307
	Sig. (2-tailed)	0.082	0.023	0.036
Share of System Enrollment	Pearson Correlation	-0.033	-0.122	-0.080
	Sig. (2-tailed)	0.824	0.414	0.593
Difference in Tuition vs. 2-year Institutions	Pearson Correlation	0.279	0.145	0.226
	Sig. (2-tailed)	0.058	0.332	0.127

Correlation is significant at the 0.05 level (2-tailed)
Correlation is significant at the 0.10 level (2-tailed)

- The external factors associated with overall performance relative to funding for the public two-year sectors are individual rate of return; the difference in tuition between the two- and four year sectors within each state; and, to a lesser degree, state wealth (Figure 27). The negative statistical relationship between productivity and state wealth suggests that productive two-year systems (at least as productivity is measured in these analyses) are in states that have lower personal incomes and tax capacities. Though not entirely explainable without more research, this may be due in part to an increased investment, historically, in the two-year sector because it is much less expensive to operate per student. It could also be due to the demand economies in these states place on lower-level undergraduate degrees (associate and below). As in the other state public sectors, there is a positive relationship between the productivity of the two-year sector and the increase in earnings of residents with associate degrees relative to the cost of attendance. Finally, public two-year sectors are somewhat more productive in states that have greater differences in tuition between the public two- and four-year sectors – that is, where attending a four-year institution is much more expensive than attending a two-year institution.

FIGURE 27.
Public Two-Year Institutions – Correlates with Outcome Measures

Measure	Correlation Statistics	Total Credentials Awarded per 100 FTE Undergraduates	Three-Year Graduation Rate	Associate Degrees Awarded at 2-Yr Colleges per 1,000 Adults 25-64 with Associate Degree	Average Index Score
Personal Income Per Capita	Pearson Correlation	-0.274	-0.263	-0.186	-0.293
	Sig. (2-tailed)	0.054	0.065	0.197	0.039
State Tax Capacity	Pearson Correlation	-0.291	-0.246	-0.258	-0.292
	Sig. (2-tailed)	0.040	0.086	0.070	0.040
Percent of Minority FT Freshmen	Pearson Correlation	-0.309	-0.198	0.134	-0.272
	Sig. (2-tailed)	0.029	0.169	0.353	0.056
Individual Rate of Return	Pearson Correlation	0.415	0.307	0.105	0.390
	Sig. (2-tailed)	0.003	0.030	0.470	0.005
Share of System Enrollment	Pearson Correlation	-0.134	0.004	0.724	-0.065
	Sig. (2-tailed)	0.355	0.978	0.000	0.653
Difference in Tuition vs. 4-year Institutions	Pearson Correlation	0.286	0.306	0.126	0.324
	Sig. (2-tailed)	0.044	0.031	0.384	0.022
Percent of Population 25-64 with Associate Degrees	Pearson Correlation	0.033	0.307	-0.114	0.197
	Sig. (2-tailed)	0.822	0.030	0.429	0.171

Correlation is significant at the 0.05 level (2-tailed)
Correlation is significant at the 0.10 level (2-tailed)

These external factors are useful considerations when benchmarking the productivity of certain sectors against the same sectors in other states. A logical "next step" would be to compare higher education sectors in states that have somewhat similar characteristics – i.e., personal incomes per capita, student preparation at the high school level, percentages of minorities, the overall state share of enrollment in the sector, the cost of attendance and the rate of individual return on their investment.

However, while these correlations are important to consider, they do not "explain away" performance relative to funding. The strengths (statistically) of most correlations are moderate at best. There are higher education sectors in some states that perform well with the resources available – regardless of certain underlying conditions. Thus, there is still room for state policies to affect higher education performance relative to resources.

Conclusion

This work is not the definitive approach to understanding which states (and sectors within states) are productive relative to their resources, but rather provides a tool to guide higher education policymakers and analysts to ask important questions about higher education finance and to provide a better analytical framework for answering them. This study is a first step in better understanding financial adequacy of institutional funding. A collective push in this direction might lead to the development of better data sources for institutional comparisons and therefore improvements in our ability to address the adequacy of institutional funding.

Admittedly, these analyses could be improved in several ways. First, more (and in some cases, better) performance measures are needed – a problem due to the lack of comparable institution-level data. Second, they fall short of providing all the information needed to fully determine situations where sectors (and institutions) may be under- or over-funded, though doing so will always be difficult given different institutional missions and goals. Finally, trend data would strengthen the analyses by providing a better sense of the direction in which states, sectors within states, and institutions are moving. Despite current levels of performance relative to their resources, some might be improving – or vice-versa. Similarly, current patterns of resource availability may have occurred relatively recently without allowing much time to affect performance.

However, what these analyses do provide are important steps in gaining a better understanding of institutional performance relative to resources and the adequacy of institutional funding. Not all institutions need more resources, some can perform better with what they have, and some can maintain or improve performance with fewer resources. These considerations are rarely addressed in the complex and politically charged environment of higher education finance; when they are, they are usually statements of opinion without supporting data. This project is an initial attempt to provide supporting evidence for these discussions.

APPENDIX A

FTE STUDENT CALCULATIONS, PERFORMANCE MEASURES, IN-DEPTH ANALYSIS, AND CORRELATES

I. FULL-TIME EQUIVALENT (FTE) STUDENT CALCULATION METHODOLOGY, ACADEMIC YEAR 2002-03

The number of FTE undergraduates, FTE graduate students, and FTE First-Professional students were calculated based on each institutions calendar system and the available enrollment data reported for the 2002-03 academic year.

Applicable IPEDS Files: hd2002 (2002-03 unitid, institution name, state, sector, control, & Title IV status), ic2002 (2002-03 reported calendar system), efia2003 (2002-03 12-month credit hours/contact hours generated), effy2003 (2002-03 12-month unduplicated headcount), ef2002a (fall 2002 enrollment).

Undergraduate FTE Calculations

For Institutions with semester, quarter, trimester, 4-1-4, continuous, and calendar systems which vary by program (97.3% of all Title IV Degree Granting Institutions) - If an institution reported undergraduate credit hours and/or contact hours, then total FTE undergraduates were calculated as credit hours/30 + contact hours/900 (credit hours/45 + contact hours/900 for quarter system). If undergraduate credit hours and contact hours were not reported but unduplicated undergraduate headcount and fall undergraduate enrollment were reported, then FTE undergraduates were calculated by first estimating the full-time and part-time undergraduate headcount (calculate the ratio of fall full-time undergraduate enrollment to fall part-time undergraduate enrollment and apply to the unduplicated undergraduate headcount) and then summing the estimated full-time headcount and 1/3 of the estimated part-time headcount. If only fall enrollment was reported, then FTE undergraduates were calculated as fall full-time + 1/3 fall part-time. If only unduplicated undergraduate headcount or no enrollment data were reported, then no FTE undergraduate number was determined.

For Institutions with some other type of calendar system (2.7% of all Title IV Institutions) – If an institution reported unduplicated undergraduate headcount and fall undergraduate enrollment, then FTE undergraduates were calculated by first estimating the full-time and part-time undergraduate headcount (calculate the ratio of fall full-time undergraduate enrollment to fall part-time undergraduate enrollment and apply to the unduplicated undergraduate headcount) and then summing the estimated full-time undergraduate headcount and 1/3 of the estimated part-time undergraduate headcount. If unduplicated undergraduate headcount was not reported but fall undergraduate enrollment was reported, then FTE undergraduates were calculated as fall full-time + 1/3 fall part-time. If only credit hours and/or contact hours were reported, then FTE undergraduates were calculated as credit hours/30 + contact hours/900. If only unduplicated undergraduate headcount or no enrollment data were reported, then no FTE undergraduate number was determined. Note that credit hours and contact hours were not used as the primary variables for determining FTE undergraduates because in many cases (about 58%) the calculation results in a figure which is larger (in some cases, many times larger) than the reported unduplicated undergraduate headcount figure (when dividing by 30 for credit hours and 900 for contact hours). Thus, actual student counts were used as the primary variables.

Graduate FTE Calculations

For Institutions with semester, quarter, trimester, 4-1-4, continuous, and calendar systems which vary by program (97.3% of all Title IV Institutions) - If an institution reported graduate credit hours, the total FTE graduates were calculated as credit hours/24 (credit hours/36 for quarter system). If graduate credit hours were not reported but unduplicated graduate headcount and fall graduate enrollment were reported, then FTE graduates were calculated by first estimating the full-time and part-time graduate headcount (calculate the ratio of fall full-time graduate enrollment to fall part-time graduate enrollment and apply to the unduplicated graduate headcount) and then summing the estimated full-time graduate headcount and 1/3 of the estimated part-time graduate headcount. If only fall graduate enrollment was reported, then FTE graduates were calculated as fall full-time + 1/3 fall part-time. If only unduplicated graduate headcount or no enrollment data were reported, then no FTE graduate number was determined.

For Institutions with some other type of calendar system (2.7% of all Title IV Institutions) – If an institution reported unduplicated graduate headcount and fall graduate enrollment, then FTE graduates were calculated by first estimating the full-time and part-time unduplicated graduate headcount (calculate the ratio of fall full-time graduate enrollment to fall part-time graduate enrollment and apply to the unduplicated graduate headcount) and then summing the estimated full-time graduate headcount and 1/3 of the estimated part-time graduate headcount. If unduplicated graduate headcount was not reported but fall graduate enrollment was reported, then FTE graduates were calculated as fall full-time + 1/3 fall part-time. If only credit hours and/or contact hours were reported, then FTE graduates were calculated as credit hours/24 + contact hours/900. If only unduplicated graduate headcount or no enrollment data were reported, then no FTE graduate number was determined. Note that credit hours and contact hours were not used as the primary variables for determining FTE graduates. Only three institutions with "other" calendar systems report graduate enrollments for 2002-03. Using actual graduate enrollment numbers generate FTE graduate figures which look more reasonable with respect to the unduplicated graduate headcount enrollment.

First-Professional FTE Calculations

For all Calendar Systems – No credit hours or contact hours are reported for First-Professional students. Thus, if an institution reported unduplicated first-professional headcount and fall first-professional enrollment, then FTE first-professionals were calculated by estimating the full-time and part-time unduplicated first-professional headcount (calculate the ratio of fall full-time first-professional enrollment to fall part-time first-professional enrollment and apply to the unduplicated first-professional headcount) and then summing the estimated full-time first-professional headcount and 1/3 of the estimated part-time first-professional headcount. If unduplicated first-professional headcount was not reported but fall first-professional enrollment was reported, then FTE first-professionals were calculated as fall full-time + 1/3 fall part-time. If only unduplicated first-professional headcount or no enrollment data were reported, then no FTE first-professional number was determined.

II. PERFORMANCE MEASURES - CALCULATIONS AND SOURCES

STATE HIGHER EDUCATION SYSTEMS

Note: The following variables were calculated for each state. All student and institution related data used to calculate these variables pertain to public and private Title IV degree granting institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures.

Variable 1: Total funding (fiscal year 2003) per FTE student (2002-03).
Calculation: Total state & local appropriations and tuition & fee revenues were aggregated for each state and then divided by each state's respective FTE student count. These results were then adjusted for each state by the Berry Cost of Living Index and a calculated Faculty Salary Index. Berry Cost of Living and Faculty Salary Indexes were averaged to obtain a final adjustment index for each state. The Berry Cost of Living Index is used to adjust for interstate cost of living differences. While this index does not solve the problem of differing intrastate costs of living, it offers a way to get a rough estimate of these differences for adjusting interstate unit cost data. The range of values extends from .88 to 1.16 among the forty-eight contiguous states. The Berry Index does not provide an estimate of cost of living in Alaska and Hawaii, two states with unique characteristics. The highest value of 1.16 is assigned to both these states. Full-time faculty salaries at state higher education institutions were weighted by their corresponding full-time faculty count and a weighted average for each state was then calculated. These state faculty salaries were then indexed against each other to produce the Faculty Salary Index.
Sources: NCES, IPEDS fiscal year 2003 finance files for public and private institutions (f0203_f1, f0203_f1a, f0203_f1a_f, f0203_f1a_g, f0203_f2, f0203_f3). NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003). NCES, IPEDS faculty salary file, academic year 2002-03 (sal2002_a); www.nces.ed.gov. Berry Cost of Living Index, Berry, W.D., R.C. Fording, and R.L. Hanson. (2000). An annual cost of living index for the American state, 1960-1998. "Journal of Politics," 62 (2), 550-567

Variable 2: FTE undergraduates (2002-03) per 100 18-44 year-olds with a high school diploma (2000)
Calculation: Total FTE undergraduates were calculated for each state and then divided by each state's respective total population age 18-44. This resulting proportion was then calculated by 100.
Sources: NCES, IPEDS academic year 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov. U.S. Census Bureau, 2000 Census; www.census.gov.

Variable 3: Undergraduate credentials awarded (2002-03) per 100 FTE undergraduates (2002-03).
Calculation: Total undergraduate credentials (Baccalaureate level and below) were calculated for each state and divided by each state's respective FTE undergraduate count. This resulting proportion was then multiplied by 100.
Sources: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov. NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Variable 4: Doctorate Degrees (2002-03) per 1,000 degrees awarded (Bachelor's and above, 2002-03).
Calculation: Total Doctorate Degrees awarded were calculated for each state and divided by each states respective total degrees awarded at the Baccalaureate level and above. This resulting proportion was then calculated by 1,000.
Sources: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov.

Variable 5: Federal & Industry Research & Development (R&D) Per Capita, 2002.
Calculation: Federal and Industry R&D Dollars (2002) were obtained for each state and divided by each state's respective total population (2000).
Sources: National Science Foundation, WebCASPAR Integrated Science and Engineering Resources Data System; www.nsf.gov; webcaspar.nsf.gov. U.S. Census Bureau, 2000 Census; www.census.gov.

Variable 6: Student Pipeline Result, 2002
Calculation: For every 100 9th graders, the number that graduate from high school within 4 years (based on public HS graduation rates), the number that go directly to college (based on the college going rates of recent HS graduates), the number that return for their second year of college (based on the first-year retention rates), and the number that graduate from college within 150% of program time (based on the graduation rates).
Sources: Tom Mortenson—Public high school graduation rates, Tom Mortenson—College-going rates of students directly from HS, ACT Institutional Survey—Freshmen to sophomore retention rates, NCES-IPEDS 2002 graduation rate file (gr2002); www.nces.ed.gov.

Variable 7: Bachelors Degrees (2002-03) as a percent of high school graduates six years earlier.
Calculation: Total Bachelor's Degrees awarded were calculated for each state and divided by each states respective high school graduate total six years earlier.
Source: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov. Western Interstate Commission for Higher Education (WICHE) high school graduates, 1997; *Knocking at the College Door, December 2003.*

STATE PUBLIC RESEARCH SYSTEMS

Note: The following variables were calculated for each state. All student and institution related data used to calculate these variables pertain to Public Research Extensive/Intensive (2000 Carnegie Classification) Title IV degree granting institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures.

Variable 1: Total funding (fiscal year 2003) per FTE student (2002-03).
Calculation: Total state & local appropriations and tuition & fee revenues were aggregated for each state and then divided by each state's respective FTE student count. These results were then adjusted for each state by the Berry Cost of Living Index and a calculated Faculty Salary Index. Berry Cost of Living and faculty salary Indexes were averaged to obtain a final adjustment index for each state. The Berry Cost of Living Index is used to adjust for interstate

cost of living differences. While this index does not solve the problem of differing intrastate costs of living, it offers a way to get a rough estimate of these differences for adjusting interstate unit cost data. The range of values extends from .88 to 1.16 among the forty-eight contiguous states. The Berry Index does not provide an estimate of cost of living in Alaska and Hawaii, two states with unique characteristics. The highest value of 1.16 is assigned to both these states. Full-time faculty salaries at Public Research Institutions were weighted by their corresponding full-time faculty count and a weighted average for each state was then calculated. These state faculty salaries were then indexed against each other to produce the Faculty Salary Index.
Sources: NCES, IPEDS fiscal year 2003 finance files for public and private institutions (f0203_f1, f0203_f1a, f0203_f1a_f, f0203_f1a_g, f0203_f2, f0203_f3). NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003). NCES, IPEDS faculty salary file, academic year 2002-03 (sal2002_a); www.nces.ed.gov. Berry Cost of Living Index, Berry, W.D., R.C. Fording, and R.L. Hanson. (2000). An annual cost of living index for the American state, 1960-1998. "Journal of Politics," 62 (2), 550-567

Variable 2: Six-Year Graduation Rate (2003)
Calculation: Adjusted cohort size for cohort year 1997 and total Completers by Spring 2003 were aggregated for each state. Total completers were then divided by the initial cohort size to obtain the six-year graduation rate.
Sources: NCES, IPEDS 2003 Graduation Rate File (gr2003); www.nces.ed.gov.

Variable 3: Doctorate Degrees (2002-03) per 1,000 degrees awarded (Bachelor's and above, 2002-03).
Calculation: Total Doctorate Degrees awarded were calculated for each state and divided by each state's respective total degrees awarded at the Baccalaureate level and above. This resulting proportion was then calculated by 1,000.
Sources: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov.

Variable 4: Bachelor's Degrees awarded (2002-03) per 100 FTE undergraduates (2002-03).
Calculation: Total Bachelor's Degrees awarded were calculated for each state and divided by each state's respective FTE undergraduate count. This resulting proportion was then multiplied by 100.
Sources: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov. NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Variable 5: Research expenditures per full-time faculty.
Calculation: Total research expenditures were aggregated for each state and divided by each state's respective full-time faculty count.
Sources: NCES, IPEDS fiscal year 2003 finance files for public institutions (f0203_f1, f0203_f1a, f0203_f1a_f, f0203_f1a_g); www.nces.ed.gov. NCES, IPEDS fall 2003 staff file (s2003_abd); www.nces.ed.gov.

STATE PUBLIC MASTERS AND BACHELOR'S SYSTEMS

Note: The following variables were calculated for each state. All student and institution related data used to calculate these variables pertain to Masters & Baccalaureate (2000 Carnegie Classification) Title IV degree granting institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures.

Variable 1: Total funding (fiscal year 2003) per FTE student (2002-03).
Calculation: Total state & local appropriations and tuition & fee revenues were aggregated for each state and then divided by each state's respective FTE student count. These results were then adjusted for each state by the Berry Cost of Living Index and a calculated Faculty Salary Index. Berry Cost of Living and faculty salary Indexes were averaged to obtain a final adjustment index for each state. The Berry Cost of Living Index is used to adjust for interstate cost of living differences. While this index does not solve the problem of differing intrastate costs of living, it offers a way to get a rough estimate of these differences for adjusting interstate unit cost data. The range of values extends from .88 to 1.16 among the forty-eight contiguous states. The Berry Index does not provide an estimate of cost of living in Alaska and Hawaii, two states with unique characteristics. The highest value of 1.16 is assigned to both these states. Full-time faculty salaries at Public Masters and Bachelor's institutions were weighted by their corresponding full-time faculty count and a weighted average for each state was then calculated. These state faculty salaries were then indexed against each other to produce the Faculty Salary Index.
Sources: NCES, IPEDS fiscal year 2003 finance files for public and private institutions (f0203_f1, f0203_f1a, f0203_f1a_f, f0203_f1a_g, f0203_f2, f0203_f3). NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003). NCES, IPEDS faculty salary file, academic year 2002-03 (sal2002_a); www.nces.ed.gov. Berry Cost of Living Index, Berry, W.D., R.C. Fording, and R.L. Hanson. (2000). An annual cost of living index for the American state, 1960-1998. "Journal of Politics," 62 (2), 550-567

Variable 2: Six-Year Graduation Rate (2003)
Calculation: Adjusted cohort size for cohort year 1997 and total Completers by Spring 2003 were aggregated for each state. Total completers were then divided by the initial cohort size to obtain the six-year graduation rate.
Sources: NCES, IPEDS 2003 Graduation Rate File (gr2003); www.nces.ed.gov

Variable 3: Bachelor's Degrees awarded (2002-03) per 100 FTE undergraduates (2002-03).
Calculation: Total Bachelor's Degrees awarded were calculated for each state and divided by each state's respective FTE undergraduate count. This resulting proportion was then multiplied by 100.
Sources: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov. NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

STATE PUBLIC 2-YEAR SYSTEMS

Note: The following outcome measures were calculated for each state. All student and institution related data used to calculate these variables pertain to public two-year Title IV degree granting institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures.

Variable 1: Total funding (fiscal year 2003) per FTE student (2002-03).
Calculation: Total state & local appropriations and tuition & fee revenues were aggregated for each state and then divided by each state's respective FTE student count. These results were then adjusted for each state by the Berry Cost of Living Index and a calculated Faculty Salary Index. Berry Cost of Living and faculty salary Indexes were averaged to obtain a final adjustment index for each state. The Berry Cost of Living Index is used to adjust for interstate cost of living differences. While this index does not solve the problem of differing intrastate costs of living, it offers a way to get a rough estimate of these differences for adjusting interstate unit cost data. The range of values extends from .88 to 1.16 among the forty-eight contiguous states. The Berry Index does not provide an estimate of cost of living in Alaska and Hawaii, two states with unique characteristics. The highest value of 1.16 is assigned to both these states. Full-time faculty salaries at Public 2-year Institutions were weighted by their corresponding full-time faculty count and a weighted average for each state was then calculated. These state faculty salaries were then indexed against each other to produce the Faculty Salary Index.
Sources: NCES, IPEDS fiscal year 2003 finance files for public and private institutions (f0203_f1, f0203_f1a, f0203_f1a_f, f0203_f1a_g, f0203_f2, f0203_f3). NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003). NCES, IPEDS faculty salary file, academic year 2002-03 (sal2002_a); www.nces.ed.gov. Berry Cost of Living Index, Berry, W.D., R.C. Fording, and R.L. Hanson. (2000). An annual cost of living index for the American state, 1960-1998. "Journal of Politics," 62 (2), 550-567

Variable 2: Undergraduate credentials awarded (2002-03) per 100 FTE undergraduates (2002-03).
Calculation: Total undergraduate credentials (Baccalaureate level and below) were calculated for each state and divided by each state's respective FTE undergraduate count. This resulting proportion was then multiplied by 100.
Sources: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov. NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Variable 3: Three-Year Graduation Rate (2003)
Calculation: Adjusted cohort size for cohort year 2000 and total Completers by Spring 2003 were aggregated for each state. Total completers were then divided by the initial cohort size to obtain the six-year graduation rate.
Sources: NCES, IPEDS 2003 Graduation Rate File (gr2003); www.nces.ed.gov

Variable 4: Associate Degrees Awarded (2002-03) per 1,000 Adults age 25 to 64 with an Associate Degree (2000).
Calculation: Total Associate Degrees were calculated for each state and divided by each state's respective population age 25-64 whose highest level of education attainment is an Associate Degree.
Sources: NCES, IPEDS 2002-03 completions file (c2003_a); www.nces.ed.gov. U.S. Census Bureau, 2000 Census; www.census.gov.

III. IN-DEPTH STATE COMPARISONS WITHIN SECTORS – SOURCE INFORMATION

Revenues: NCES, IPEDS fiscal year 2003 finance files for public institutions (f0203_f1, f0203_f1a, f0203_f1a_f, f0203_f1a_g); www.nces.ed.gov.

Expenditures: NCES, IPEDS fiscal year 2003 finance files for public and private institutions (f0203_f1, f0203_f1a, f0203_f1a_f, f0203_f1a_g); www.nces.ed.gov.

Students and Degree-Levels: NCES, IPEDS fall 2002 Enrollment File (ef2002a). NCES, IPEDS academic year 2002-03 Completions File (c2003_a); www.nces.ed.gov.

Program Mix: NCES, IPEDS 2002-03 academic year 2002-03 completions file (c2003_a); www.nces.ed.gov.

Faculty Salaries: NCES, IPEDS academic year 2002-03 full-time instructional faculty salary file (sal2002_a); www.nces.ed.gov.

Faculty and Staffing Patterns: NCES, IPEDS Fall 2003 employees by primary occupation file (s2003_abd). NCES, IPEDS Fall 2003 enrollment file (ef2003a); www.nces.ed.gov.

IV. CORRELATION CALCULATIONS AND SOURCES

STATE HIGHER EDUCATION SYSTEMS

Note: The following correlates were calculated for each state. All student and institutional data used in the correlate calculations apply to public and private Title IV degree granting institutions unless indicated otherwise.

Correlate 1: Per Capita Personal Income (2000).
Calculation: Data for each state was obtained from the U.S. Census Bureau website.
Source: U.S. Census Bureau, 2000 Census; www.census.gov.

Correlate 2: State Tax Capacity (2002).
Calculation: Total taxable resources divided by total population.
Source: State Higher Education Executive Officers (SHEEO) www.sheeo.org.

Correlate 3: SAT/ACT Scores (# in Top 20% Per 1,000 HS Grads), 2003.
Calculation: The number of SAT Math and Verbal scores 1200 and above and ACT composite scores 26 and above were divided by total high school graduates and multiplied by 1,000.
Sources: SAT - The College Board, "2003 SAT V+M Score Bands Report," unpublished data. ACT – "Number of 2003 High School Graduates with ACT Composite Scores of 26 or Higher", unpublished analysis, Iowa City, Iowa. High School Graduates - Western Interstate Commission for Higher Education. Knocking at the College Door: Projections of High School Graduates by State and Race/Ethnicity 1998-2018. Boulder, Colorado.

Correlate 4: NAEP Math Scores (% at or Above Proficient), 2003.
Calculation: The percentage of 8th grade test takers at or above "proficient" in mathematics.
Source: National Assessment of Educational Progress, Washington, DC: US Department of Education. www.nces.ed.gov.

Correlate 5: High School Graduation Rates, 2002
Calculation: High school graduates divided by 9th graders four years earlier (public high schools).
Source: Tom Mortenson – Postsecondary Education Opportunity 2002, www.postsecondary.org.

Correlate 6: College-Going rates of high school graduates directly from high school, 2002.
Calculation: Number of first-time freshmen who graduated from high school (public and private) in the past year from state X enrolled anywhere in the U.S. divided by total high school graduates from state X.
Source: Tom Mortenson – Postsecondary Education Opportunity 2002, www.postsecondary.org.

Correlate 7: Percent of first-time freshmen who are minority, Fall 2002.
Calculation: First-time freshmen who are minority divided by total first-time freshmen.
Source: NCES, IPEDS Fall 2002 Enrollment File (ef2002a); www.nces.ed.gov.

Correlate 8: Percent of first-time freshmen who are out-of-state, Fall 2002.
Calculation: First-time freshmen who are out-of-state divided by total first-time freshmen.
Source: NCES, IPEDS Fall 2002 Residency and Migration File (ef2002c); www.nces.ed.gov.

Correlate 9: Individual Rate of Return (average of public 4-year, private 4-year, and public 2-year sectors)
Calculation: Lifetime wage earnings (less net college investment) were calculated for people holding just a Bachelor's Degree, just an Associate Degree, and people who earned a high school diploma but never attended college. An internal rate of return was calculated on the difference in lifetime wage earnings between people holding just a Bachelor's/Associate Degree and people who obtained a high school diploma but never invested in college. The rate of return for Bachelor's holders and Associates holders was then averaged.
Notes: Lifetime wage earnings based on earnings between age 25 and age 64. Net college investment for Bachelor's Degree holders based on 5 years of attendance at a public or private

4-year institution and includes tuition, fees, room & board, books and supplies, other expenses, and financial aid. Net college investment for Associate Degree holders based on 3 years of attendance at a public 2-year institution and includes tuition, fees, books and supplies, and financial aid. Actual wage earnings for Bachelor's and Associate Degree holders were assumed $0 before age 25. Wage earnings before age 25 for high school diploma recipients with no college attendance were based on the median income of such 18-24 year olds for the number of years that they would have been attending college (5 years for a Bachelor's Degree, 3 years for a Associate Degree).
Sources: Wage earnings - U.S. Census Bureau, 2000 Census; 5% Public Use Microdata Sample (PUMS) Files; www.census.gov. Net College Investment - NCES, IPEDS 2002-03 Institutional Characteristics Files (hd2002, ic2002_ay), Student Financial Aid File 2002-03 (sfa0203); www.nces.ed.gov.

Correlate 10: Percent of total FTE enrollment at two-year institutions, 2002-03.
Calculation: Total FTE enrollment at public and private 2-year institutions was divided by total FTE enrollment at all public and private institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures. All calculations are for Title IV, degree granting institutions.
Source: NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Correlate 11: Percent of total FTE enrollment attending Public and Private Research Institutions, 2002-03.
Calculation: Total FTE enrollment at public and private Research Extensive/Intensive Institutions (2000 Carnegie Classification) was divided by total FTE enrollment at all public and private institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures. All calculations are for Title IV, degree granting institutions.
Source: NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Correlate 12: Difference in Tuition at Public Two-Year vs. Four-Year Institutions, 2002-03.
Calculation: Average tuition and fee charges were calculated for each state for full-time, first-time undergraduates attending Title IV, degree granting public 4-year and public 2-year institutions. Average tuition and fee charges at public 2-year institutions were subtracted from average tuition and fee charges at public 4-year institutions. Data were weighted at the institution level by FTE undergraduate enrollment.
Source: NCES, IPEDS 2002-03 Institutional Characteristics File (ic2002_ay); www.nces.ed.gov.

STATE PUBLIC RESEARCH SYSTEMS

Note: The following correlates were calculated for each state. All student and institutional data used in the correlate calculations apply to Title IV degree granting Public Research Extensive/Intensive Institutions (2000 Carnegie Classification) unless indicated otherwise.

Correlate 1: Per Capita Personal Income (2000).
Calculation: Data for each state was obtained from the U.S. Census Bureau website.
Source: U.S. Census Bureau, 2000 Census; www.census.gov.

Correlate 2: State Tax Capacity (2002).
Calculation: Total taxable resources divided by total population.
Source: State Higher Education Executive Officers (SHEEO) www.sheeo.org.

Correlate 3: Average Entering ACT/SAT Scores, Fall 2002.
Calculation: For reporting institutions, the 25th and 75th percentile scores for SAT Math, SAT Verbal, and ACT composite were available. These institution scores were weighted by the number of test takers and a weighted average for each state was calculated. The resulting state-level 25th and 75th percentile scores for each test were then averaged to obtain an estimated 50th percentile score. The resulting estimated SAT Math and SAT Verbal 50th percentile scores were then added together and converted to the equivalent ACT score. This converted SAT score along with the estimated 50th percentile ACT composite score were weighted by their corresponding number of test takers and a weighted average was calculated to obtain each states estimated average ACT/SAT score.
Source: NCES, IPEDS Institutional Characteristics File 2002-03 (ic2002); www.nces.ed.gov.

Correlate 4: Percent of first-time freshmen who are minority, Fall 2002.
Calculation: First-time freshmen who are minority divided by total first-time freshmen.
Source: NCES, IPEDS Fall 2002 Enrollment File (ef2002a); www.nces.ed.gov.

Correlate 5: Percent of first-time freshmen who are out-of-state, Fall 2002.
Calculation: First-time freshmen who are out-of-state divided by total first-time freshmen.
Source: NCES, IPEDS Fall 2002 Residency and Migration File (ef2002c); www.nces.ed.gov.

Correlate 6: Individual Rate of Return (average of public 4-year, private 4-year, and public 2-year sectors)
Calculation: Lifetime wage earnings (less net college investment) were calculated for people holding just a Bachelor's Degree, just an Associate Degree, and people who earned a high school diploma but never attended college. An internal rate of return was calculated on the difference in lifetime wage earnings between people holding just a Bachelor's/Associate Degree and people who obtained a high school diploma but never invested in college. The rate of return for Bachelor's holders and Associates holders was then averaged.
Notes: Lifetime wage earnings based on earnings between age 25 and age 64. Net college investment for Bachelor's Degree holders based on 5 years of attendance at a public or private 4-year institution and includes tuition, fees, room & board, books and supplies, other expenses, and financial aid. Net college investment for Associate Degree holders based on 3 years of attendance at a public 2-year institution and includes tuition, fees, books and supplies, and financial aid. Actual wage earnings for Bachelor's and Associate Degree holders were assumed $0 before age 25. Wage earnings before age 25 for high school diploma recipients with no college attendance were based on the median income of such 18-24 year olds for the number of years that they would have been attending college (5 years for a Bachelor's Degree, 3 years for a Associate Degree).

Sources: Wage earnings - U.S. Census Bureau, 2000 Census; 5% Public Use Microdata Sample (PUMS) Files; www.census.gov. Net College Investment - NCES, IPEDS 2002-03 Institutional Characteristics Files (hd2002, ic2002_ay), Student Financial Aid File 2002-03 (sfa0203); www.nces.ed.gov.

Correlate 7: Percent of total FTE enrollment attending Public Research Institutions, 2002-03.
Calculation: Total FTE enrollment at Public Research Extensive/Intensive Institutions (2000 Carnegie Classification) was divided by total FTE enrollment at all public and private institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures. All calculations are for Title IV, degree granting institutions.
Source: NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Correlate 8: Difference in Tuition at Research Institutions vs. Public Two-Year Institutions, 2002-03.
Calculation: Average tuition and fee charges were calculated for each state for full-time, first-time undergraduates attending Research Extensive/Intensive Institutions (2000 Carnegie Classification) and public 2-year institutions. Average tuition and fee charges at public 2-year institutions were subtracted from average tuition and fee charges at Research institutions. Data were weighted at the institution level by FTE undergraduate enrollment.
Source: NCES, IPEDS 2002-03 Institutional Characteristics File (ic2002_ay); www.nces.ed.gov.

STATE PUBLIC MASTERS AND BACHELOR'S SYSTEMS

Note: The following correlates were calculated for each state. All student and institutional data used in the correlate calculations apply to Title IV degree granting Public Masters and Bachelor's Institutions (2000 Carnegie Classification) unless indicated otherwise.

Correlate 1: Per Capita Personal Income (2000).
Calculation: Data for each state was obtained from the U.S. Census Bureau website.
Source: U.S. Census Bureau, 2000 Census; www.census.gov.

Correlate 2: State Tax Capacity (2002).
Calculation: Total taxable resources divided by total population.
Source: State Higher Education Executive Officers (SHEEO) www.sheeo.org.

Correlate 3: Average Entering ACT/SAT Scores, Fall 2002.
Calculation: For reporting institutions, the 25^{th} and 75^{th} percentile scores for SAT Math, SAT Verbal, and ACT composite were available. These institution scores were weighted by the number of test takers and a weighted average for each state was calculated. The resulting state-level 25^{th} and 75^{th} percentile scores for each test were then averaged to obtain an estimated 50^{th} percentile score. The resulting estimated SAT Math and SAT Verbal 50^{th} percentile scores were then added together and converted to the equivalent ACT score. This converted SAT score along

with the estimated 50th percentile ACT composite score were weighted by their corresponding number of test takers and a weighted average was calculated to obtain each states estimated average ACT/SAT score.
Source: NCES, IPEDS Institutional Characteristics File 2002-03 (ic2002); www.nces.ed.gov.

Correlate 4: Percent of first-time freshmen who are minority, Fall 2002.
Calculation: First-time freshmen who are minority divided by total first-time freshmen.
Source: NCES, IPEDS Fall 2002 Enrollment File (ef2002a); www.nces.ed.gov.

Correlate 5: Percent of first-time freshmen who are out-of-state, Fall 2002.
Calculation: First-time freshmen who are out-of-state divided by total first-time freshmen.
Source: NCES, IPEDS Fall 2002 Residency and Migration File (ef2002c); www.nces.ed.gov.

Correlate 6: Individual Rate of Return (average of public 4-year, private 4-year, and public 2-year sectors)
Calculation: Lifetime wage earnings (less net college investment) were calculated for people holding just a Bachelor's Degree, just an Associate Degree, and people who earned a high school diploma but never attended college. An internal rate of return was calculated on the difference in lifetime wage earnings between people holding just a Bachelor's/Associate Degree and people who obtained a high school diploma but never invested in college. The rate of return for Bachelor's holders and Associates holders was then averaged.
Notes: Lifetime wage earnings based on earnings between age 25 and age 64. Net college investment for Bachelor's Degree holders based on 5 years of attendance at a public or private 4-year institution and includes tuition, fees, room & board, books and supplies, other expenses, and financial aid. Net college investment for Associate Degree holders based on 3 years of attendance at a public 2-year institution and includes tuition, fees, books and supplies, and financial aid. Actual wage earnings for Bachelor's and Associate Degree holders were assumed $0 before age 25. Wage earnings before age 25 for high school diploma recipients with no college attendance were based on the median income of such 18-24 year olds for the number of years that they would have been attending college (5 years for a Bachelor's Degree, 3 years for a Associate Degree).
Sources: Wage earnings - U.S. Census Bureau, 2000 Census; 5% Public Use Microdata Sample (PUMS) Files; www.census.gov. Net College Investment - NCES, IPEDS 2002-03 Institutional Characteristics Files (hd2002, ic2002_ay), Student Financial Aid File 2002-03 (sfa0203); www.nces.ed.gov.

Correlate 7: Percent of total FTE enrollment attending Public Masters/Bachelor's Institutions, 2002-03.
Calculation: Total FTE enrollment at public Masters/Bachelor's institutions (2000 Carnegie Classification) was divided by total FTE enrollment at all public and private institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures. All calculations are for Title IV, degree granting institutions.
Source: NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Correlate 8: Difference in Tuition at Public Masters/Bachelor's Institutions vs. Public Two-Year Institutions, 2002-03.
Calculation: Average tuition and fee charges were calculated for each state for full-time, first-time undergraduates attending public Masters/Bachelor's Institutions (2000 Carnegie Classification) and public 2-year institutions. Average tuition and fee charges at public 2-year institutions were subtracted from average tuition and fee charges at public Masters/Bachelor's institutions. Data were weighted at the institution level by FTE undergraduate enrollment.
Source: NCES, IPEDS 2002-03 Institutional Characteristics File (ic2002_ay); www.nces.ed.gov.

STATE PUBLIC 2-YEAR SYSTEMS

Note: The following correlates were calculated for each state. All student and institutional data used in the correlate calculations apply to Title IV degree granting Public 2-year Institutions unless indicated otherwise.

Correlate 1: Per Capita Personal Income (2000).
Calculation: Data for each state was obtained from the U.S. Census Bureau website.
Source: U.S. Census Bureau, 2000 Census; www.census.gov.

Correlate 2: State Tax Capacity (2002).
Calculation: Total taxable resources divided by total population.
Source: State Higher Education Executive Officers (SHEEO) www.sheeo.org.

Correlate 3: Percent of first-time freshmen at public 2-year institutions who are minority, Fall 2002.
Calculation: First-time freshmen who are minority divided by total first-time freshmen.
Source: NCES, IPEDS Fall 2002 Enrollment File (ef2002a); www.nces.ed.gov.

Correlate 4: Individual Rate of Return (average of public 4-year, private 4-year, and public 2-year sectors)
Calculation: Lifetime wage earnings (less net college investment) were calculated for people holding just a Bachelor's Degree, just an Associate Degree, and people who earned a high school diploma but never attended college. An internal rate of return was calculated on the difference in lifetime wage earnings between people holding just a Bachelor's/Associate Degree and people who obtained a high school diploma but never invested in college. The rate of return for Bachelor's holders and Associates holders was then averaged.
Notes: Lifetime wage earnings based on earnings between age 25 and age 64. Net college investment for Bachelor's Degree holders based on 5 years of attendance at a public or private 4-year institution and includes tuition, fees, room & board, books and supplies, other expenses, and financial aid. Net college investment for Associate Degree holders based on 3 years of attendance at a public 2-year institution and includes tuition, fees, books and supplies, and financial aid. Actual wage earnings for Bachelor's and Associate Degree holders were assumed $0 before age 25. Wage earnings before age 25 for high school diploma recipients with no

college attendance were based on the median income of such 18-24 year olds for the number of years that they would have been attending college (5 years for a Bachelor's Degree, 3 years for a Associate Degree).
Sources: Wage earnings - U.S. Census Bureau, 2000 Census; 5% Public Use Microdata Sample (PUMS) Files; www.census.gov. Net College Investment - NCES, IPEDS 2002-03 Institutional Characteristics Files (hd2002, ic2002_ay), Student Financial Aid File 2002-03 (sfa0203); www.nces.ed.gov.

Correlate 5: Percent of total FTE enrollment attending Public 2-year Institutions, 2002-03.
Calculation: Total FTE enrollment at public 2-year institutions was divided by total FTE enrollment at all public and private institutions. Refer to the "FTE Student Calculation Methodology" section for FTE student calculation procedures. All calculations are for Title IV, degree granting institutions.
Source: NCES, IPEDS 2002-03 enrollment files (ef2002a, effy2003, efia2003); www.nces.ed.gov.

Correlate 6: Difference in Tuition at Public 2-year Institutions vs. Public 4-year Institutions, 2002-03.
Calculation: Average tuition and fee charges were calculated for each state for full-time, first-time undergraduates attending public 2-year institutions and public 4-year institutions. Average tuition and fee charges at public 4-year institutions were subtracted from average tuition and fee charges at public 2-year institutions. Data were weighted at the institution level by FTE undergraduate enrollment.
Source: NCES, IPEDS 2002-03 Institutional Characteristics File (ic2002_ay); www.nces.ed.gov.

Correlate 7: Percent of population age 25-64 with Associate Degrees.
Calculation: The total number of people age 25-64 with just an Associate Degree was divided by the total population age 25-64.
Source: U.S. Census Bureau, 2000 Census; www.census.gov.

V. INDEX SCORE CALCULATIONS

STATE HIGHER EDUCATION SYSTEMS

Individual outcome measures were first calculated for each state. For state higher education systems, these outcome measures (variables) included FTE undergraduates per 100 18-44 year-olds with just a high school diploma, undergraduate credentials awarded per 100 FTE undergraduates, Doctorate Degrees per 1000 degrees (Bachelor's and above) awarded, federal and industry research and development (R&D) per capita, student pipeline result, and Bachelor's Degrees awarded as a percent of high school graduates six years earlier (Refer to Appendix A for calculation procedures and sources for all variables). Each of these state outcome measures were divided by their state's respective total funding per FTE student (total funding defined as state and local appropriations and tuition and fee revenues adjusted for cost-of-living and faculty salaries) to generate a performance ratio. Each of these performance ratios were then divided by

a calculated "quality performance ratio", which was defined as the 80th percentile performance among the states divided by the average total funding per FTE student of the top 10 (20%) performing states. This result was then multiplied by 100 to obtain the outcome performance index. An index of 100 or greater indicates quality performance with respect to funding as defined by the "quality performance index". Overall index scores for each state were calculated as the average of the individual outcome performance indexes.

Example: For Utah, note that the number of FTE undergraduates per 100 18-44 year-olds is 58.3 and that total funding per FTE student, adjusted for cost-of-living and faculty salaries, is $7,668 (refer to the "State Systems of Higher Education" spreadsheet). Then Utah's performance ratio for this variable is defined as 58.3/7,668 = 0.0076. The "quality performance ratio" for this variable is defined as 45.9/10,205 = 0.0045 because the 80th percentile performance (10th best performance) among the states is Kansas and Colorado = 45.9 and the average (adjusted) funding of the top 20% (top 10) performing states is $10,205. So Utah's index score for this performance measure is (0.0076/0.0045)x100 = 168.9. Index scores for the remaining outcome measures are calculated using the same process. The overall index score for Utah is then calculated as the average of all the outcome measure index scores, specifically (168.9 + 145.8 + 87.3 + 162.7 + 115.6 + 146.1)/6 = 137.7 (refer to the "State Systems of Higher Education" spreadsheet).

PUBLIC RESEARCH SYSTEMS

Individual outcome measures were first calculated for each state. For public research systems, these outcome measures (variables) included six year graduation rates, Doctorate Degrees per 1000 degrees (Bachelor's and above) awarded, Bachelor's Degrees awarded per 100 FTE undergraduates, and research expenditures per full-time faculty (Refer to Appendix A for calculation procedures and sources for all variables). Each of these state outcome measures were divided by their state's respective total funding per FTE student to generate a "performance ratio". Each of these performance ratios were then divided by a calculated "quality performance ratio", which was defined as the 80th percentile performance among the states divided by the average total funding per FTE student of the top 10 (20%) performing states. This result was then multiplied by 100 to obtain the outcome performance index. An index of 100 or greater indicates quality performance with respect to funding as defined by the "quality performance index". Overall index scores for each state were calculated as the average of the individual outcome performance indexes.

Example: For Texas, note that the six-year graduation rate is 54.8 and that total funding per FTE student, adjusted for cost-of-living and faculty salaries, is $11,566 (refer to the "Public Research Institutions" spreadsheet). Then Texas's performance ratio for this variable is defined as 54.8/11,566 = 0.00474. The "quality performance ratio" for this variable is defined as 67.1/15,054 = 0.00446 because the 80th percentile performance (10th best performance) among the states is Maryland and Pennsylvania = 67.1 and the average (adjusted) funding of the top 20% (top 10) performing states is $15,054. So Texas's index score for this performance measure is (0.00474/0.00446)x100 = 106.3. Index scores for the remaining outcome measures are calculated using the same process. The overall index score for Texas is then calculated as the average of all the outcome measure index scores, specifically (106.3 + 123.1 + 119.6 + 110.3)/4 = 114.8 (refer to the "Public Research Institutions" spreadsheet).

PUBLIC MASTERS AND BACHELOR'S SYSTEMS

Individual outcome measures were first calculated for each state. For Public Masters and Bachelor institutions, these outcome measures (variables) included six year graduation rates and Bachelor's Degrees awarded per 100 FTE undergraduates (Refer to Appendix A for calculation procedures and sources for all variables). Each of these state outcome measures were divided by their state's respective total funding per FTE student to generate a "performance ratio". Each of these performance ratios were then divided by a calculated "quality performance ratio", which was defined as the 80th percentile performance among the states divided by the average total funding per FTE student of the top 10 (20%) performing states. This result was then multiplied by 100 to obtain the outcome performance index. An index of 100 or greater indicates quality performance with respect to funding as defined by the "quality performance index". Overall index scores for each state were calculated as the average of the individual outcome performance indexes.

Example: For Illinois, note that the six year graduation rate is 44.4 and that total funding per FTE student, adjusted for cost-of-living and faculty salaries, is $9,644 (refer to the "Public Bachelor's and Masters Institutions" spreadsheet). Then Illinois's performance ratio for this variable is defined as 44.4/9,644 = 0.00460. The "quality performance ratio" for this variable is defined as 48.8/9,377 = 0.00520 because the 80th percentile performance (9th best performance – there are 47 states with Public Bachelor's and Masters institutions) among the states is South Carolina = 48.8 and the average (adjusted) funding of the top 20% (top 9) performing states is $9,377. So Illinois's index score for this performance measure is (0.00460/0.00520)x100 = 88.5. Index scores for the remaining outcome measures are calculated using the same process. The overall index score for Illinois is then calculated as the average of all the outcome measure index scores, specifically (88.5 + 125.9)/2 = 107.2 (refer to the "Public Bachelor's and Masters Institutions" spreadsheet).

PUBLIC 2-YEAR SYSTEMS

Individual outcome measures were first calculated for each state. For Public 2-year Systems, these outcome measures (variables) included total undergraduate credentials awarded per 100 FTE undergraduates, three year graduation rates, and Associate Degrees awarded per 1000 adults age 25-64 with an Associate Degree (Refer to Appendix A for calculation procedures and sources for all variables). Each of these state outcome measures were divided by their state's respective total funding per FTE student to generate a "performance ratio". Each of these performance ratios were then divided by a calculated "quality performance ratio", which was defined as the 80th percentile performance among the states divided by the average total funding per FTE student of the top 10 (20%) performing states. This result was then multiplied by 100 to obtain the outcome performance index. An index of 100 or greater indicates quality performance with respect to funding as defined by the "quality performance index". Overall index scores for each state were calculated as the average of the individual outcome performance indexes.

Example: For North Dakota, note that the total credentials awarded per 100 FTE undergraduates is 28.2 and that total funding per FTE student, adjusted for cost-of-living and

faculty salaries, is $7,639 (refer to the "Public Two-Year Institutions" spreadsheet). Then North Dakota's performance ratio for this variable is defined as 28.2/7,639 = 0.00369. The "quality performance ratio" for this variable is defined as 23.6/7,631 = 0.00309 because the 80th percentile performance (10th best performance) among the states is Kansas = 23.6 and the average (adjusted) funding of the top 20% (top 10) performing states is $7,631. So, North Dakota's index score for this performance measure is (0.00369/0.00309)x100 = 119.4. Index scores for the remaining outcome measures are calculated using the same process. The overall index score for North Dakota is then calculated as the average of all the outcome measure index scores, specifically (119.4 + 92.9 + 79.0)/3 = 97.1 (refer to the "Public Two-Year Institutions" spreadsheet).

APPENDIX B

PERFORMANCE DATA

Performance Relative to Funding – State Systems of Higher Education

State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	PERFORMANCE MEASURES: FTE Undergrads (2002-03) per 100 18-44 with HS Diploma (2000)	PERFORMANCE MEASURES: Undergrad Credentials Awarded per 100 FTE Undergrads, 2002-03	PERFORMANCE MEASURES: PhDs per 1,000 Degrees Awarded (Bacc and Above), 2002-03	PERFORMANCE MEASURES: Federal & Industry R&D Per Capita, 2002	PERFORMANCE MEASURES: Student Pipeline Result, 2002	PERFORMANCE MEASURES: Bachelors Degrees as a % of HS Grads Six Years Earlier, 2003	INDEX SCORES: FTE Undergrads (Fall 2001) per 100 18-44 with HS Diploma (2000)	INDEX SCORES: Undergrad Credentials Awarded per 100 FTE Undergrads, 2002-03	INDEX SCORES: PhDs per 1,000 Degrees Awarded (Bacc and Above) - (2000/01)	INDEX SCORES: Federal & Industry R&D Per Capita, 2002	INDEX SCORES: Student Pipeline Result, 2002	INDEX SCORES: Bachelors Degrees as a % of HS Grads Six Years Earlier, 2002	INDEX SCORES: Average Index Score
Alabama	9,091	10,494	87	36.5	18.4	19.2	85.7	12.8	50.8	77.3	86.9	86.2	96.0	61.1	89.8	82.9
Alaska	18,033	17,736	102	20.7	14.5	18.9	148.3	11.3	21.6	26.0	40.6	50.2	98.3	31.9	22.6	44.9
Arizona	9,603	9,753	98	50.4	22.6	21.4	58.5	14.7	63.1	114.9	114.8	103.4	70.5	75.5	120.0	99.8
Arkansas	8,780	10,695	82	27.2	20.2	13.2	26.2	14.9	43.4	56.6	93.5	58.2	28.8	69.8	75.3	63.7
California	10,148	9,139	111	51.5	18.0	28.8	87.6	18.2	45.8	125.2	97.8	148.7	112.6	99.7	93.0	112.8
Colorado	8,770	8,973	98	45.9	20.5	23.0	115.2	19.6	66.6	113.8	113.5	121.0	150.8	109.4	137.7	124.4
Connecticut	14,801	12,536	118	29.5	20.6	25.0	115.2	25.6	50.0	52.4	81.6	93.9	108.0	102.3	74.0	85.4
Delaware	12,220	11,411	107	36.2	20.5	22.7	70.3	21.0	72.6	70.6	89.1	93.7	72.4	92.2	118.0	89.3
Florida	9,460	10,145	93	34.8	23.7	30.3	37.5	13.6	56.9	76.2	115.9	140.8	43.5	67.1	104.0	91.3
Georgia	10,375	10,946	95	32.0	22.3	23.7	73.8	12.2	48.8	64.9	101.2	102.2	79.2	55.8	82.7	81.0
Hawaii	15,555	14,637	106	29.1	21.1	20.7	104.3	10.8	44.1	44.2	71.6	66.7	83.7	36.9	55.9	59.9
Idaho	8,228	9,641	85	38.7	20.1	16.9	37.1	14.4	37.8	89.3	103.6	82.7	45.2	74.8	72.7	78.1
Illinois	10,838	10,373	104	39.7	22.3	26.7	71.0	19.0	47.6	85.1	106.4	121.3	80.4	91.7	85.1	95.0
Indiana	11,649	11,789	99	31.7	20.3	24.1	51.9	21.7	58.0	59.7	85.3	96.4	51.8	92.2	91.3	79.4
Iowa	10,514	11,038	95	46.8	22.6	19.4	99.6	27.5	56.8	94.3	101.8	82.9	106.1	124.7	95.5	100.9
Kansas	9,582	10,320	93	45.9	22.3	18.5	54.6	18.4	56.4	98.8	107.4	84.3	62.2	89.3	101.4	90.5
Kentucky	10,097	11,532	88	27.4	20.2	17.5	39.0	15.3	40.2	52.9	86.8	71.4	39.7	66.4	64.7	63.7
Louisiana	10,221	11,674	88	32.5	20.4	16.9	51.7	12.8	49.3	61.9	86.6	68.2	52.0	54.9	78.3	67.0
Maine	12,862	13,368	96	23.3	21.9	7.2	23.1	21.0	45.0	38.8	81.2	25.5	20.3	78.7	62.4	51.2
Maryland	12,808	12,527	102	33.0	19.5	25.1	272.9	17.7	49.5	58.6	77.0	94.4	256.0	70.7	73.3	105.0
Massachusetts	13,213	11,082	119	41.9	21.4	29.7	219.5	26.9	76.7	84.0	96.0	126.4	232.8	121.5	128.4	131.5
Michigan	11,754	11,173	105	36.1	19.2	19.7	76.0	17.5	53.1	71.8	85.4	83.2	80.0	78.4	88.2	81.2
Minnesota	11,899	11,696	102	49.1	21.2	25.1	65.2	24.6	46.3	93.4	89.8	101.1	65.5	105.3	73.4	88.1
Mississippi	9,197	11,212	82	36.2	17.7	21.2	66.2	13.1	43.8	71.7	78.2	88.9	69.3	58.5	72.5	73.2
Missouri	9,692	10,155	95	34.6	22.2	22.5	84.4	19.0	58.8	75.7	108.3	104.4	97.6	93.7	107.4	97.8
Montana	8,852	10,489	84	36.5	19.4	11.7	80.5	17.3	48.9	77.4	91.7	52.6	90.2	82.6	86.5	80.2
Nebraska	10,827	11,494	94	48.5	20.7	27.5	63.9	23.1	54.5	93.8	89.5	112.6	65.4	100.6	88.0	91.6
Nevada	9,192	9,126	101	25.7	13.2	19.7	41.2	10.6	41.7	62.7	72.0	101.6	53.0	58.2	84.8	72.0
New Hampshire	11,485	10,885	106	33.3	24.4	13.8	116.5	25.1	62.7	67.9	111.2	59.8	125.8	115.5	106.8	97.8
New Jersey	13,884	11,902	117	24.9	19.6	24.2	40.6	23.7	36.6	46.6	81.5	96.0	40.1	99.7	57.0	70.2
New Mexico	10,396	11,853	88	39.1	16.7	24.1	111.4	10.3	41.2	73.4	70.0	95.7	110.5	43.5	64.5	76.3
New York	13,620	12,298	111	39.2	21.9	21.2	100.0	18.8	65.6	70.8	88.2	81.4	95.6	76.5	98.9	85.3
North Carolina	10,931	12,046	91	35.8	20.3	22.6	106.2	18.3	61.1	66.1	83.5	88.3	103.6	76.1	94.1	85.3
North Dakota	8,535	9,954	86	59.4	19.8	14.8	83.5	27.0	57.9	132.8	98.5	70.1	98.6	135.8	107.9	107.3
Ohio	10,641	10,664	100	30.1	18.8	23.6	63.4	19.6	46.5	62.8	87.4	104.5	69.9	92.0	80.9	82.9

				PERFORMANCE MEASURES						INDEX SCORES						
State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	FTE Undergrads (2002-03) per 100 18-44 with HS Diploma (2000)	Undergrad Credentials Awarded per 100 FTE Undergrads, 2002-03	PhDs per 1,000 Degrees Awarded (Bacc and Above), 2002-03	Federal & Industry R&D Per Capita, 2002	Student Pipeline Result, 2002	Bachelors Degrees as a % of HS Grads Six Years Earlier, 2003	FTE Undergrads (Fall 2001) per 100 18-44 with HS Diploma (2000)	Undergrad Credentials Awarded per 100 FTE Undergrads, 2002-03	PhDs per 1,000 Degrees Awarded (Bacc and Above) - (2000/01)	Federal & Industry R&D Per Capita, 2002	Student Pipeline Result, 2002	Bachelors Degrees as a % of HS Grads Six Years Earlier, 2002	Average Index Score
Oklahoma	8,603	10,119	85	33.3	18.7	17.9	37.8	13.6	47.0	73.2	91.4	83.4	43.9	67.3	86.2	74.2
Oregon	10,619	11,395	93	38.0	19.3	21.9	81.1	14.7	52.3	74.1	84.0	90.6	83.7	64.6	85.1	80.4
Pennsylvania	14,088	13,412	105	30.9	21.4	23.5	121.9	27.6	57.5	51.2	79.1	82.7	106.8	103.0	79.5	83.7
Rhode Island	13,208	12,017	110	52.6	21.8	21.1	108.9	21.7	99.5	97.3	90.1	82.8	106.5	90.4	153.6	103.5
South Carolina	10,430	11,922	87	31.0	20.4	18.2	51.4	12.9	47.7	57.9	84.9	72.1	50.6	54.2	74.2	65.7
South Dakota	7,886	8,957	88	42.0	20.3	13.3	29.5	23.0	44.7	104.3	112.7	69.8	38.7	128.6	92.6	91.1
Tennessee	10,117	11,207	90	27.0	18.7	21.1	58.1	15.1	49.5	53.5	82.6	88.8	60.9	67.5	81.9	72.5
Texas	8,877	9,795	91	39.1	16.1	22.2	73.1	12.0	43.3	88.9	81.6	107.1	87.7	61.3	82.0	84.8
Utah	7,375	7,668	96	58.3	22.5	14.2	106.2	17.7	60.4	168.9	145.8	87.3	162.7	115.6	146.1	137.7
Vermont	15,485	15,910	97	35.5	22.7	7.0	108.0	21.4	61.7	49.6	70.7	20.7	79.8	67.4	71.9	60.0
Virginia	9,396	9,653	97	35.4	19.6	23.8	62.8	22.0	51.9	81.6	100.7	116.0	76.4	114.1	99.7	98.1
Washington	9,638	10,071	96	42.9	22.9	18.4	98.7	15.3	47.5	94.6	112.9	86.0	115.2	76.1	87.5	95.4
West Virginia	10,018	12,012	83	26.1	19.1	12.9	36.5	15.3	46.1	48.2	78.8	50.5	35.7	63.8	71.2	58.0
Wisconsin	11,809	11,667	101	33.8	24.7	20.7	85.3	23.9	49.2	64.3	105.2	83.7	85.9	102.6	78.2	86.7
Wyoming	11,679	13,180	89	37.6	26.7	24.2	45.3	21.3	27.3	63.4	100.4	86.5	40.4	80.9	38.4	68.3
Average State	10,940	10,940	100	36.9	20.5	20.4	80.9	18.3	51.7	75.1	92.8	88.0	86.9	83.8	87.7	85.7
80th Percentile Performance				45.9	22.3	24.2	108.0	23.1	60.4							
Average Funding for Top Quintile				10,205	11,064	11,408	12,693	11,567	11,204							

Performing at or above the 80th percentile

Performance Relative to Funding – Public Research Institutions

State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	PERFORMANCE MEASURES: Six-Year Graduation Rate, 2003	PERFORMANCE MEASURES: Doctorate Degrees Per 1,000 Degrees (Bacc and Above), 2002-03	PERFORMANCE MEASURES: Bachelor's Degrees Per 100 FTE Undergrads, 2002-03	PERFORMANCE MEASURES: Research Expenditures Per FT Faculty ($), 2003	INDEX SCORES: Six-Year Graduation Rate	INDEX SCORES: Doctorate Degrees Per 1,000 Degrees (Bacc and Above), 2002-03	INDEX SCORES: Bachelor's Degrees Per 100 FTE Undergrads, 2002-03	INDEX SCORES: Research Expenditures Per FT Faculty ($), 2003	INDEX SCORES: Average Index Score
Alabama	13,118	14,898	88.1	54.5	33.3	17.1	72,470	82.1	89.3	79.1	78.0	82.1
Alaska	23,263	23,635	98.4	21.3	60.6	8.1	165,182	20.2	102.4	23.6	112.0	64.6
Arizona	13,477	13,964	96.5	53.0	35.0	22.4	93,601	85.2	100.2	110.0	107.4	100.7
Arkansas	12,200	14,103	86.5	39.9	31.2	16.7	60,165	63.5	88.5	81.5	68.4	75.5
California	19,216	16,789	114.5	74.7	49.5	23.6	195,107	99.8	117.8	96.5	186.3	125.1
Colorado	9,496	9,539	99.6	60.5	33.9	20.6	66,004	142.4	142.0	148.4	110.9	135.9
Connecticut	19,479	16,510	118.0	69.5	45.7	24.3	50,741	94.4	110.5	101.0	49.3	88.8
Delaware	14,946	13,955	107.1	74.0	29.7	21.9	72,699	119.0	84.9	107.9	83.5	98.8
Florida	11,041	11,726	94.2	60.9	26.7	22.1	78,905	116.5	90.8	129.6	107.9	111.2
Georgia	14,338	14,312	100.2	61.8	45.1	20.6	143,755	96.9	125.8	99.0	161.0	120.7
Hawaii	27,004	25,282	106.8	54.0	35.9	20.0	127,699	47.9	56.7	54.3	81.0	60.0
Idaho	12,114	14,512	83.5	37.7	30.7	17.4	62,175	58.3	84.4	82.3	68.7	73.4
Illinois	13,515	13,347	101.3	61.2	34.6	24.9	79,842	102.9	103.5	128.3	95.9	107.6
Indiana	13,677	13,878	98.6	57.9	37.4	18.0	56,282	93.6	107.6	89.1	65.0	88.8
Iowa	15,046	14,747	102.0	65.2	40.2	21.1	94,291	99.1	108.8	98.5	102.5	102.2
Kansas	10,835	11,260	96.2	54.3	32.9	19.5	73,642	108.2	116.5	118.7	104.8	112.1
Kentucky	15,801	16,719	94.5	50.2	36.0	18.0	81,675	67.3	86.1	73.9	78.3	76.4
Louisiana	10,096	11,412	88.5	43.7	26.4	16.8	69,387	86.0	92.5	101.4	97.5	94.3
Maine	15,688	16,531	94.9	59.9	24.0	17.8	77,919	81.2	58.0	73.9	75.6	72.2
Maryland	18,746	17,635	106.3	67.1	47.3	22.5	102,914	85.4	107.1	87.6	93.5	93.4
Massachusetts	15,534	13,987	111.1	56.7	35.5	20.2	67,910	90.9	101.2	99.5	77.8	92.4
Michigan	14,696	13,898	105.7	64.3	34.6	20.7	86,884	103.7	99.5	102.1	100.2	101.4
Minnesota	21,150	18,584	113.8	54.4	59.6	17.3	148,764	65.7	128.2	64.0	128.3	96.5
Mississippi	11,662	14,055	83.0	51.7	30.0	20.1	91,614	82.5	85.3	98.1	104.5	92.6
Missouri	14,968	15,361	97.4	60.3	36.4	21.4	40,095	88.1	94.7	95.7	41.8	80.1
Montana	9,386	11,059	84.9	45.0	16.9	17.5	84,666	91.4	60.8	109.0	122.7	96.0
Nebraska	14,041	13,789	101.8	59.5	60.9	18.3	73,933	96.8	176.4	91.1	85.9	112.6
Nevada	11,623	11,559	100.5	42.4	21.7	16.1	56,577	82.4	75.1	95.7	78.5	82.9
New Hampshire	10,617	9,990	106.3	70.9	18.1	19.2	111,735	159.3	72.2	132.2	179.3	135.8
New Jersey	16,356	13,874	117.9	68.0	39.2	20.0	119,094	110.0	113.0	98.9	137.6	114.9
New Mexico	13,435	15,035	89.4	42.3	35.0	17.1	103,703	63.1	92.9	78.0	110.6	86.1
New York	18,365	16,684	110.1	63.8	59.2	21.0	70,541	85.7	141.6	86.6	67.8	95.4
North Carolina	17,502	18,233	96.0	64.8	41.8	20.2	73,129	79.7	91.6	76.2	64.3	78.0

				PERFORMANCE MEASURES				INDEX SCORES				
State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	Six-Year Graduation Rate, 2003	Doctorate Degrees Per 1,000 Degrees (Bacc and Above), 2002-03	Bachelor's Degrees Per 100 FTE Undergrads, 2002-03	Research Expenditures Per FT Faculty ($), 2003	Six-Year Graduation Rate	Doctorate Degrees Per 1,000 Degrees (Bacc and Above), 2002-03	Bachelor's Degrees Per 100 FTE Undergrads, 2002-03	Research Expenditures Per FT Faculty ($), 2003	Average Index Score
North Dakota	10,062	11,488	87.6	53.0	22.3	16.2	60,542	103.5	77.5	97.1	84.5	90.7
Ohio	11,668	11,724	99.5	56.0	30.0	18.0	49,730	107.1	102.3	105.3	68.0	95.7
Oklahoma	10,676	12,144	87.9	55.9	35.2	18.0	55,521	103.2	115.9	101.9	73.3	98.5
Oregon	12,002	13,049	92.0	56.1	28.9	21.6	61,812	96.5	88.4	113.6	75.9	93.6
Pennsylvania	17,619	16,547	106.5	67.1	42.2	21.0	99,472	91.0	101.8	87.4	96.4	94.1
Rhode Island	12,715	11,850	107.3	55.8	29.9	17.7	83,645	105.7	100.8	102.8	113.1	105.6
South Carolina	13,794	14,821	93.1	64.6	37.4	19.9	75,305	97.7	100.8	92.3	81.4	93.1
South Dakota	9,485	10,913	86.9	52.7	24.2	15.2	39,942	108.3	88.7	95.8	58.7	87.9
Tennessee	13,340	14,904	89.5	46.0	26.8	18.3	54,514	69.3	71.7	84.5	58.6	71.0
Texas	10,675	11,566	92.3	54.8	35.6	20.1	79,581	106.3	123.1	119.6	110.3	114.8
Utah	12,967	13,762	94.2	47.4	30.0	21.2	96,488	77.4	86.9	105.9	112.4	95.6
Vermont	17,272	18,174	95.0	70.0	16.9	20.0	45,892	86.5	37.2	75.6	40.5	59.9
Virginia	12,529	12,366	101.3	67.7	36.3	20.8	74,243	122.7	117.4	115.5	96.2	113.0
Washington	14,675	14,699	99.8	67.4	39.9	25.3	114,465	102.8	108.3	118.3	124.8	113.6
West Virginia	13,675	15,542	88.0	56.4	31.0	17.4	54,678	81.4	79.5	77.1	56.4	73.6
Wisconsin	15,142	14,026	108.0	65.5	56.9	19.0	111,638	104.7	162.1	93.2	127.6	121.9
Wyoming	13,711	15,193	90.2	56.7	24.2	20.8	38,275	83.7	63.5	94.3	40.4	70.5
Average State	14,289	14,289	100	57.2	35.5	19.5	82,977	89.8	99.1	93.6	93.1	93.9
80th Percentile Performance				67.1	42.2	21.4	103,703					
Average Funding for Top Quintile				15,054	16,851	14,704	16,623					

Performing at or above the 80th percentile

Performance Relative to Funding – Public Bachelor's and Masters Institutions

State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	PERFORMANCE MEASURES: Six-Year Graduation Rate 2003	PERFORMANCE MEASURES: Bachelor's Degrees Per FTE Undergrads, 2002-03	INDEX SCORES: Six-Year Graduation Rate 2003	INDEX SCORES: Bachelor's Degrees Per FTE Undergrads, 2002-03	INDEX SCORES: Average Index Score
Alabama	7,471	8,466	88.2	35.2	17.1	79.8	108.0	93.9
Alaska	11,288	10,736	105.1	17.5	7.7	31.3	38.2	34.8
Arkansas	7,219	8,503	84.9	35.3	15.5	79.7	97.3	88.5
California	10,184	9,154	111.2	43.7	20.3	91.6	118.7	105.2
Colorado	5,365	5,808	92.4	28.6	15.7	94.6	144.7	119.7
Connecticut	10,908	9,598	113.7	38.4	18.0	76.9	100.3	88.6
Delaware	13,507	13,553	99.7	33.3	13.2	47.2	52.0	49.6
Florida	11,686	12,142	96.2	44.7	22.4	70.7	98.6	84.7
Georgia	7,556	8,128	93.0	31.7	14.3	75.0	94.4	84.7
Hawaii	21,011	20,025	104.9	34.6	20.1	33.2	53.5	43.4
Idaho	8,736	9,792	89.2	32.4	15.0	63.5	81.9	72.7
Illinois	9,606	9,644	99.6	44.4	22.7	88.5	125.9	107.2
Indiana	8,388	8,755	95.8	26.0	12.3	57.1	75.2	66.1
Iowa	9,897	9,780	101.2	65.1	22.6	127.9	123.4	125.6
Kansas	8,306	8,592	96.7	45.9	18.7	102.6	116.4	109.5
Kentucky	8,820	9,696	91.0	37.3	15.3	73.8	84.6	79.2
Louisiana	6,327	7,307	86.6	25.5	13.0	67.0	94.8	80.9
Maine	10,543	10,682	98.7	40.0	19.7	72.0	98.4	85.2
Maryland	10,458	10,372	100.8	51.1	19.9	94.7	102.7	98.7
Massachusetts	9,132	8,297	110.1	46.2	18.1	106.9	116.8	111.9
Michigan	10,220	10,022	102.0	41.4	18.3	79.4	97.4	88.4
Minnesota	8,350	7,937	105.2	46.3	16.8	112.1	112.8	112.5
Mississippi	9,532	11,545	82.6	45.9	16.1	76.4	74.6	75.5
Missouri	8,874	9,406	94.3	48.2	18.9	98.6	107.3	103.0
Montana	8,691	10,250	84.8	33.8	16.5	63.3	85.9	74.6
Nebraska	8,176	8,299	98.5	41.8	17.3	96.8	111.6	104.2
New Hampshire	8,410	8,035	104.7	46.8	18.0	112.0	120.0	116.0
New Jersey	11,477	9,566	120.0	58.9	23.6	118.2	132.0	125.1
New Mexico	9,941	11,671	85.2	25.1	17.0	41.4	77.7	59.5
New York	9,404	8,464	111.1	44.7	20.4	101.4	128.9	115.2

				PERFORMANCE MEASURES		INDEX SCORES		
State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	Six-Year Graduation Rate 2003	Bachelor's Degrees Per FTE Undergrads, 2002-03	Six-Year Graduation Rate 2003	Bachelor's Degrees Per FTE Undergrads, 2002-03	Average Index Score
North Carolina	10,761	11,072	97.2	51.1	17.5	88.7	84.7	86.7
North Dakota	7,217	8,371	86.2	31.3	16.0	71.9	102.3	87.1
Ohio	9,494	9,238	102.8	34.2	12.4	71.1	71.7	71.4
Oklahoma	6,096	7,153	85.2	29.3	16.8	78.8	125.6	102.2
Oregon	9,241	10,279	89.9	31.8	18.7	59.5	97.5	78.5
Pennsylvania	9,550	8,861	107.8	53.3	17.8	115.7	107.5	111.6
Rhode Island	10,007	9,671	103.5	41.9	18.3	83.2	101.2	92.2
South Carolina	7,776	8,618	90.2	48.8	18.1	108.9	112.5	110.7
South Dakota	6,188	6,749	91.7	34.2	12.9	97.4	102.2	99.8
Tennessee	8,646	9,238	93.6	38.9	16.3	80.9	94.1	87.5
Texas	8,054	8,808	91.4	33.4	18.0	72.9	109.4	91.1
Utah	6,277	6,902	90.9	37.6	13.7	104.7	106.3	105.5
Vermont	9,884	10,637	92.9	36.7	17.4	66.4	87.5	76.9
Virginia	8,715	9,007	96.8	59.0	20.1	125.9	119.2	122.6
Washington	8,646	8,925	96.9	56.1	22.1	120.8	132.3	126.5
West Virginia	7,068	8,200	86.2	39.3	13.6	92.1	88.8	90.5
Wisconsin	8,258	8,191	100.8	50.6	18.5	118.8	121.1	119.9
Average State	9,178	9,178	100	40.4	17.3	84.5	100.7	92.6
80th Percentile Performance				48.8	20.1			
Average Funding for Top Quintile				9,377	10,745			

Performing at or above the 80th percentile

Performance Relative to Funding – Public Two-Year Institutions

				PERFORMANCE MEASURES			INDEX SCORES			
State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	Total Credentials Awarded per 100 FTE Undergrads, 2003	Three-Year Graduation Rate, 2003	Associate Degrees Awarded at 2-year Colleges (2002-03) Per 1,000 Adults (25 to 64) with an Associate Degree (2000)	Total Credentials Awarded per 100 FTE Undergrads, 2003	Three-Year Graduation Rate, 2003	Associate Degrees Awarded at 2-year Colleges (2002-03) Per 1,000 Adults (25 to 64) with an Associate Degree (2000)	Average Index Score
Alabama	4,818	5,549	86.8	17.4	20.7	47.6	101.4	76.9	116.5	98.3
Alaska	17,755	15,226	116.6	10.9	32.0	1.0	23.2	43.2	0.9	22.4
Arizona	6,212	6,067	102.4	19.6	21.6	42.4	104.6	73.2	95.1	90.9
Arkansas	5,442	6,787	80.2	22.9	18.8	50.9	109.0	57.0	102.0	89.3
California	5,853	4,993	117.2	13.8	34.1	54.2	89.2	140.7	147.5	125.8
Colorado	5,043	5,560	90.7	20.3	21.3	28.4	118.2	78.9	69.4	88.8
Connecticut	8,919	7,806	114.3	17.0	13.8	24.9	70.4	36.3	43.3	50.0
Delaware	9,171	9,112	100.7	18.1	13.8	29.7	64.1	31.1	44.3	46.5
Florida	4,977	5,466	91.1	18.7	34.1	45.0	110.6	128.4	112.0	117.0
Georgia	5,001	5,665	88.3	30.5	28.5	27.6	174.0	103.7	66.1	114.6
Hawaii	7,965	7,412	107.5	17.3	15.1	39.1	75.4	42.0	71.7	63.0
Idaho	6,667	7,793	85.6	20.2	22.3	21.6	84.0	59.0	37.6	60.2
Illinois	5,819	5,454	106.7	19.4	23.0	50.6	114.9	86.7	126.1	109.2
Indiana	5,156	5,736	89.9	15.2	15.0	22.5	85.7	53.8	53.3	64.3
Iowa	6,033	6,692	90.2	23.8	35.2	68.3	115.1	108.3	138.6	120.7
Kansas	7,122	7,813	91.2	23.6	35.8	66.2	97.8	94.2	115.2	102.4
Kentucky	5,421	6,217	87.2	23.0	14.9	39.4	119.5	49.3	86.1	85.0
Louisiana	6,850	8,120	84.4	28.9	23.3	34.4	114.9	59.1	57.6	77.2
Maine	7,963	8,549	93.1	23.4	37.4	20.1	88.7	90.1	31.9	70.2
Maryland	9,095	8,817	103.1	15.1	13.1	45.8	55.4	30.5	70.5	52.2
Massachusetts	7,202	6,527	110.3	18.2	17.4	28.0	90.0	54.8	58.2	67.7
Michigan	6,826	5,984	114.1	14.4	15.1	39.1	78.0	51.9	88.9	72.9
Minnesota	7,306	6,982	104.6	24.4	31.9	42.8	113.2	94.0	83.4	96.9
Mississippi	4,988	5,929	84.1	15.4	40.3	75.9	83.9	139.9	173.8	132.6
Missouri	6,245	6,588	94.8	16.7	23.2	44.8	81.9	72.4	92.3	82.2
Montana	5,450	6,792	80.2	19.5	32.6	33.1	93.1	98.7	66.3	86.0
Nebraska	6,366	7,160	88.9	18.8	38.3	46.1	84.8	110.1	87.5	94.2
Nevada	5,605	5,718	98.0	8.1	5.8	26.3	45.9	20.8	62.5	43.0

				PERFORMANCE MEASURES			INDEX SCORES			
State	Total Funding Per FTE, 2002-03	Adjusted for COL and Fac Sal	COL (50%) Fac Sal (50%)	Total Credentials Awarded per 100 FTE Undergrads, 2003	Three-Year Graduation Rate, 2003	Associate Degrees Awarded at 2-year Colleges (2002-03) Per 1,000 Adults (25 to 64) with an Associate Degree (2000)	Total Credentials Awarded per 100 FTE Undergrads, 2003	Three-Year Graduation Rate, 2003	Associate Degrees Awarded at 2-year Colleges (2002-03) Per 1,000 Adults (25 to 64) with an Associate Degree (2000)	Average Index Score
New Hampshire	8,131	8,652	94.0	25.5	43.3	17.3	95.2	102.9	27.2	75.1
New Jersey	6,917	5,968	115.9	14.3	13.0	40.8	77.7	44.9	92.8	71.8
New Mexico	6,595	7,820	84.3	12.9	10.6	54.5	53.5	27.8	94.7	58.7
New York	7,485	6,775	110.5	18.8	22.1	37.4	89.7	67.1	75.1	77.3
North Carolina	6,073	7,299	83.2	20.9	18.8	42.7	92.6	53.1	79.4	75.0
North Dakota	6,464	7,639	84.6	28.2	34.5	44.4	119.4	92.9	79.0	97.1
Ohio	6,329	6,412	98.7	15.6	16.9	33.5	78.9	54.1	71.1	68.0
Oklahoma	5,061	6,093	83.1	17.8	19.9	62.8	94.4	67.2	140.0	100.6
Oregon	7,466	7,640	97.7	14.4	16.3	45.6	60.9	43.8	81.2	61.9
Pennsylvania	8,451	8,263	102.3	16.8	18.6	21.0	65.9	46.3	34.6	48.9
Rhode Island	6,488	6,291	103.1	14.5	10.4	25.5	74.5	34.2	55.2	54.6
South Carolina	5,356	6,365	84.1	21.3	14.8	39.7	108.4	47.8	84.8	80.3
South Dakota	5,503	6,346	86.7	43.5	66.4	39.6	221.8	215.2	84.8	174.0
Tennessee	5,046	5,879	85.8	13.6	11.9	36.6	74.9	41.8	84.5	67.1
Texas	4,607	5,207	88.5	11.5	15.0	48.5	71.3	59.1	126.5	85.6
Utah	5,581	6,391	87.3	22.8	45.1	41.6	115.2	145.2	88.4	116.3
Vermont	5,004	4,906	102.0	14.6	18.0	13.7	96.5	75.5	38.0	70.0
Virginia	4,363	4,705	92.7	16.0	14.7	42.2	109.9	64.2	121.9	98.7
Washington	5,896	6,151	95.9	21.7	29.5	71.3	113.8	98.6	157.4	123.3
West Virginia	5,095	6,165	82.6	27.3	18.1	18.7	143.4	60.5	41.3	81.7
Wisconsin	13,418	12,238	109.6	38.5	33.7	40.1	101.7	56.7	44.5	67.6
Wyoming	9,674	11,030	87.7	20.0	30.6	74.8	58.8	57.1	92.1	69.3
Average State	6,725	6,725	100	19.7	24.0	39.8	94.7	73.5	80.3	82.9
80th Percentile Performance				23.6	34.1	50.6				
Average Funding for Top Quintile				7,631	7,016	6,876				

Performing at or above the 80th percentile