



National Center for Higher Education Management Systems

**Crossing the Starting Line:  
An Examination of Productivity at Indiana's  
Public Colleges and Universities**

Prepared by the National Center for Higher Education Management Systems

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and the Indiana Commission for Higher Education  
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## Executive Summary

These are curious times for higher education in America. The Obama administration has set an ambitious goal for the United States to regain its once-held prominence as the most educated country in the world by the year 2020. The nation's two largest philanthropic supporters of higher education have articulated similar goals for the nation: Lumina Foundation for Education has set a goal of 60 percent college attainment among working-aged adults in the U.S. by the year 2025; and the Bill and Melinda Gates Foundation has set a target for the nation to double the numbers of college degrees awarded to low-income students. Many states, including Indiana, are following suit to set similar goals; all with the intention of improving the competitiveness of their workforces and the lives of their residents. At the same time these expectations are being heaped on the higher education enterprise, most states (including Indiana) are losing their ability to maintain their current fiscal support for higher education.

Despite these difficult fiscal times, there remains a strong belief that it is important to maintain (or even improve) access to and completion in higher education. These beliefs are 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 point for debate about higher education finance policy. However, an important interrelated issue that is beginning to receive more attention is the ability of higher education institutions to improve levels of performance with the resources they already have – or with even fewer resources. Two important productivity-related questions arise when addressing this issue, and are the focal point of this report:

- What are the levels of unrestricted revenues provided to institutions by the state and students and what levels of institutional performance are generated in return?
- How much are institutions spending on education-related services and what levels of performance are they generating in return?

Despite the on-going dialog, there is still a great deal of reluctance among policymakers in many states to address the issue of higher education productivity “head on”; primarily because of a lack of political will and the perceived inability to overcome many of the controversies surrounding how productivity in higher education is measured. In Indiana, however, there is an expressed desire to pull together the best resources available to address this important issue, and recognition that there are some important things to be learned about higher education productivity; even if the baseline analysis falls short of perfection.

This report is commissioned by the Indiana Chamber of Commerce Foundation and funded by Lumina Foundation for Education. It highlights the results of a variety of productivity analyses for each of Indiana's public higher education institutions: the four-year universities, Vincennes University, and Ivy Tech Community College. For each analysis, the Indiana institutions are compared to peer institutions across the U.S. (institutions that were selected through negotiations between the Indiana institutions and the Indiana Commission for Higher

Education). The “system” is the primary unit of analysis for Ivy Tech Community College; comparing the Indiana two-year system to like systems in other states (although data are provided for each of the Ivy Tech campuses as well).

Two general methods are used to address higher education productivity. The first is a series of measures that gauge “performance relative to costs”. Costs include total public funding per full-time equivalent student (state, local, and tuition and fee revenues) and education and related expenditures per FTE student. Performance includes first-year retention rates, graduation rates, undergraduate credentials awarded per 100 FTE students, and research expenditures per full-time faculty (for research institutions only). The second are calculations of “cost per degree” taking into account the monetary value of various types of degrees in the state’s employment market. “Costs per degree” are adjusted for different levels of credentials (i.e. certificates, associate, bachelor’s, master’s, professional, and doctorate) and for credentials (1) in science, technology, engineering, and mathematics (STEM) and (2) health and health technologies. Some general findings include:

- Overall, most of the public institutions in Indiana are performing at average levels relative to their resources and education-related expenditures – compared to their peer institutions. Many are about as productive as the average of their peer institutions; some are more productive than the majority of their peers – and vice-versa. In all cases, there is certainly room for improvement.
- The “costs per degree” for Indiana’s institutions are also generally in line with peer averages. There are a few institutions that are less expensive than the average of their peers, and a few that are more expensive. Improvements in retention and graduation rates, and awarding more degrees in STEM and health fields would serve to drive down the costs per degree in Indiana’s institutions – improving their levels of productivity by this calculation.
- There is regional variation in institutional productivity – i.e. certain regions of the state that have more high cost per degree institutions than others – and vice-versa. Potential strategies designed to improve participation rates and to improve institutional productivity should take these factors into account; i.e. the locations of certain institutions relative to student demand and the costs per credential associated with them.
- Indiana awards fewer certificates and associate degrees relative to the adult population in need than the U.S. average and many fewer than other Midwestern states. While efforts to address institutional productivity should not be limited to two-year institutions, they should certainly be focused on them. In addition, increasing the number of two-year and less credentials in STEM and health fields provide great value to the recipients of the awards and to the state with respect to filling jobs in high-demand fields and increased tax revenues. Certificates and associate degrees in STEM

and most health fields provide greater earning potential than most bachelor's degrees in non-STEM and non-health fields.

- Many of Indiana's colleges and universities selected peer institutions that serve students who are more prepared for college-level work (i.e. with higher incoming ACT scores). While entering ACT scores are strongly associated with many of the student-related performance measures used in this study (particularly retention and graduation), they are not predictive of the productivity measures (the ratios of performance to resources and costs per degree). However, for the purpose of analyzing productivity over time, several of Indiana's institutions should revisit their peer selection methods – paying closer attention to selecting institutions that serve similar types of students.

Indiana can achieve its goals regarding increased degree production and college attainment rates of its adult population with substantial increases in productivity. This realization, at least in part, is the reason for Indiana's growing commitment to increase productivity in higher education. It currently stands as one of only a few states that are seriously engaged in this activity – both in terms of meaningful conversation and the actual implementation of policy.

This work provides a baseline and a tool to guide higher education policymakers and analysts to ask important questions about productivity and to provide a better analytical framework for answering them. 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 productivity in higher education.

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 study is an initial attempt to provide some valuable data and information, and supporting evidence for these discussions.

The full report along with the individual profiles for each of Indiana's public higher education institutions can be accessed at [www.achieveindiana.com](http://www.achieveindiana.com).

## Crossing the Starting Line: An Examination of Productivity at Indiana's Public Colleges and Universities

These are curious times for higher education in America. The Obama administration has set an ambitious goal for the United States to regain its once-held prominence as the most educated country in the world by the year 2020. The nation's two largest philanthropic supporters of higher education have articulated similar goals for the nation: Lumina Foundation for Education has set a goal of 60 percent college attainment among working-aged adults in the U.S. by the year 2025; and the Bill and Melinda Gates Foundation has set a target for the nation to double the numbers of college degrees awarded to low-income students. Many states, including Indiana, are following suit to set similar goals; all with the intention of improving the competitiveness of their workforces and the lives of their residents. At the same time these expectations are being heaped on the higher education enterprise, most states are losing their ability to maintain their current fiscal support for higher education.

Because of the economic crisis, states are struggling from a lack of revenues, yet there remains public pressure to maintain services for children (early childhood and K-12 education), to continue to be "tough on crime", and the obligation to provide health benefits to our poor and older adult residents (Medicaid). Meanwhile, many colleges and universities are offsetting declining state support by raising tuition and fees at levels much higher than inflation – inciting outcry from policymakers and the general public about the deteriorating affordability of a college education. As a result, the fiscal resources provided to higher education from public sources (from the state and students) are being scrutinized at a level that has not been seen in the past. Many policymakers are increasingly interested in how well these financial investments in the state's higher education system are paying off.

Despite these difficult fiscal times, there remains a strong belief among many higher education policymakers that it is important to maintain (or even improve) access to and completion in higher education. These beliefs are 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 point for debate about higher education finance policy. However, an important interrelated issue that is beginning to receive more attention is the ability of higher education institutions to improve levels of performance with the resources they already have – or with even fewer resources. Two important questions arise when addressing this issue, and are the focal point of this report:

- What are the levels of unrestricted revenues provided to institutions by the state and students and what levels of institutional performance are generated in return?
- How much are institutions spending on education-related services and what levels of performance are they generating in return?

As state policymakers scrutinize their investment in colleges and universities, and students and families experience dramatic hikes in tuition to offset declining state resources, a “productivity” dialog is emerging within the higher education policy framework; i.e. how well are institutions performing with the resources they already have? Despite the dialog, however, there is still a great deal of reluctance among policymakers in many states to address the issue of higher education productivity “head on”; primarily because of a lack of political will and the perceived inability to overcome many of the controversies surrounding how productivity in higher education is measured. In Indiana, there is an expressed desire to pull together the best resources available to address this important issue, and recognition that there are some important things to be learned about higher education productivity; even if the baseline analysis falls short of perfection.

Pressure is mounting for Indiana’s colleges and universities to produce more graduates. As part of its statewide strategic plan (*Reaching Higher: Strategic Initiatives for Higher Education in Indiana*), the Indiana Commission for Higher Education recently set ambitious goals for the state’s higher education enterprise: to produce 10,000 additional bachelor’s degrees by the year 2025, to increase certificate and associate degree production by 50 percent by 2015, to increase the number of students who transfer from two- to four-year institutions by 50 percent by 2015, to rank in the top ten states in the U.S. at each point in the education pipeline (high school graduation, college-going, and college completion) by 2015, and to rank in the top 10 U.S. states for on-time and minority graduation rates by 2015. Given Indiana’s budget constraints, many involved in the policy formulation and education processes of the state’s higher education enterprise are beginning to acknowledge that these goals cannot be attained by conducting “business as usual” – at current levels of cost per student and cost per completion. Some improvements in institutional productivity – with institutions performing at higher levels with the resources they already have – must be realized. In fact, another one of the Commission’s goals is for Indiana to rank as the most productive (degree production, efficiency) among the Lumina Foundation for Education’s productivity-grant states by 2015. Indiana is one of Lumina’s seven grantees.

This report is commissioned by the Indiana Chamber of Commerce Foundation and funded by Lumina Foundation for Education. The section below contains a more in-depth description of the methodology and data used to calculate productivity, followed by a summary of the results, and some key strategies for improving productivity. The detailed results for all of Indiana’s public institutions can be accessed on the Chamber’s website at [www.achieveindiana.com](http://www.achieveindiana.com).

## Analytical Framework

The postsecondary education community is not equipped with a wide variety of productivity measures that are directly comparable across institutions. And this is particularly the case for measures associated with quality. Colleges and universities have a variety of missions and the most important mission for one institution may be entirely different from that of another. However, one mission that cuts across all institutions is the retention and graduation of students, and overall degree production – the performance measures used in this analysis. In

some cases though, researchers and policy analysts struggle to address the “value-added” of institutions. For example, a 60 percent graduation rate at an institution that serves high proportions of low-income and minority students probably deserves more applause than an institution with an 80 percent graduation rate that is highly selective and serves students from predominately privileged families. Because of the differentiation in missions across institutions and the varying levels of preparation of first-time entering students, it is vital that analyses of productivity at the institution-level be conducted with like institutions. The peer institutions used for comparison purposes should have similar missions and serve similar types of students. Those selected for each of Indiana’s public institutions are displayed in the Appendix.

The most difficult barrier to conducting sound productivity analyses in postsecondary education, however, is the lack of available data on the institutional costs of producing college degrees. Expenditure data at the institutional, degree-program, and degree-level are not available in public databases. Therefore, the analytic capabilities associated with calculating actual costs of producing college graduates across institutions – and programs within them – have never been present.

Although data to calculate the costs of producing different college credentials across postsecondary institutions are not widely available, it is possible to gauge institutional performance on a few key measures relative to (1) what the public invests in the institution and (2) what the institution spends on education-related activities. It is also possible to calculate the production of credentials in relation to the monetary value of these credentials in each state’s employment market. For example, despite the lack of available data about the cost of producing engineering degrees, we know how many are produced in each state and that there is a substantial monetary return on an engineering degree relative to other types of degrees. This is the case for both the individuals in the form of increased personal income and to the state in the form of tax revenues. The same is true for different levels of credentials awarded – e.g. bachelor’s degree-holders earn more on average than associate degree-holders.

NCHEMS conducted a variety of productivity analyses for each of Indiana’s public higher education institutions: the four-year universities, Vincennes University, and Ivy Tech Community College. For each analysis, the Indiana institutions are compared to peer institutions across the U.S. (institutions that were selected through negotiations between the Indiana institutions and the Indiana Commission for Higher Education). The “system” is the primary unit of analysis for Ivy Tech Community College; comparing the Indiana two-year system to like systems in other states (although data are provided for each of the Ivy Tech campuses as well).

There are two general methods used to address higher education productivity. The first is a series of measures that gauge performance relative to costs. The second are calculations of “cost per degree” taking into account the monetary value of various types of degrees in the state’s employment market. Below are descriptions of each.

## Performance Relative to Costs

Costs include (1) the costs to states and students – total state, local, and tuition and fee revenues and (2) institutional expenditures on education and related activities. These measures are calculated for all Indiana public institutions and their peer institutions. More detailed descriptions of each are provided below.

1. Total Funding per Full-Time Equivalent Student represents the primary costs to states and students. Total funding includes state and local appropriations plus tuition and fee revenues to institutions. 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 – revenues that are not restricted to specific activities (e.g. research, agriculture, athletics, etc.). (Sources: National Center for Education Statistics (NCES), Integrated Postsecondary Education Data System (IPEDS) Finance and Fall Enrollment Surveys).
2. Education and Related (E&R) Expenditures per Full-Time Equivalent Student represents the resources institutions devote to student learning and completion. E&R expenses include all spending for instruction and student services, plus a portion of spending on academic and institutional support and for operations and maintenance of buildings. E&R spending is sometimes also called a “full cost of education” measure. It includes spending from all revenue sources, for all students including undergraduates, graduates and others, and all courses of instruction across types of disciplines. These expenditures are most directly associated with the student-related performance measures used in this study – discussed below. (Sources: NCES, IPEDS Finance and Fall Enrollment Surveys. Calculation provided by the Delta Project on Postsecondary Education Costs, Productivity, and Accountability).

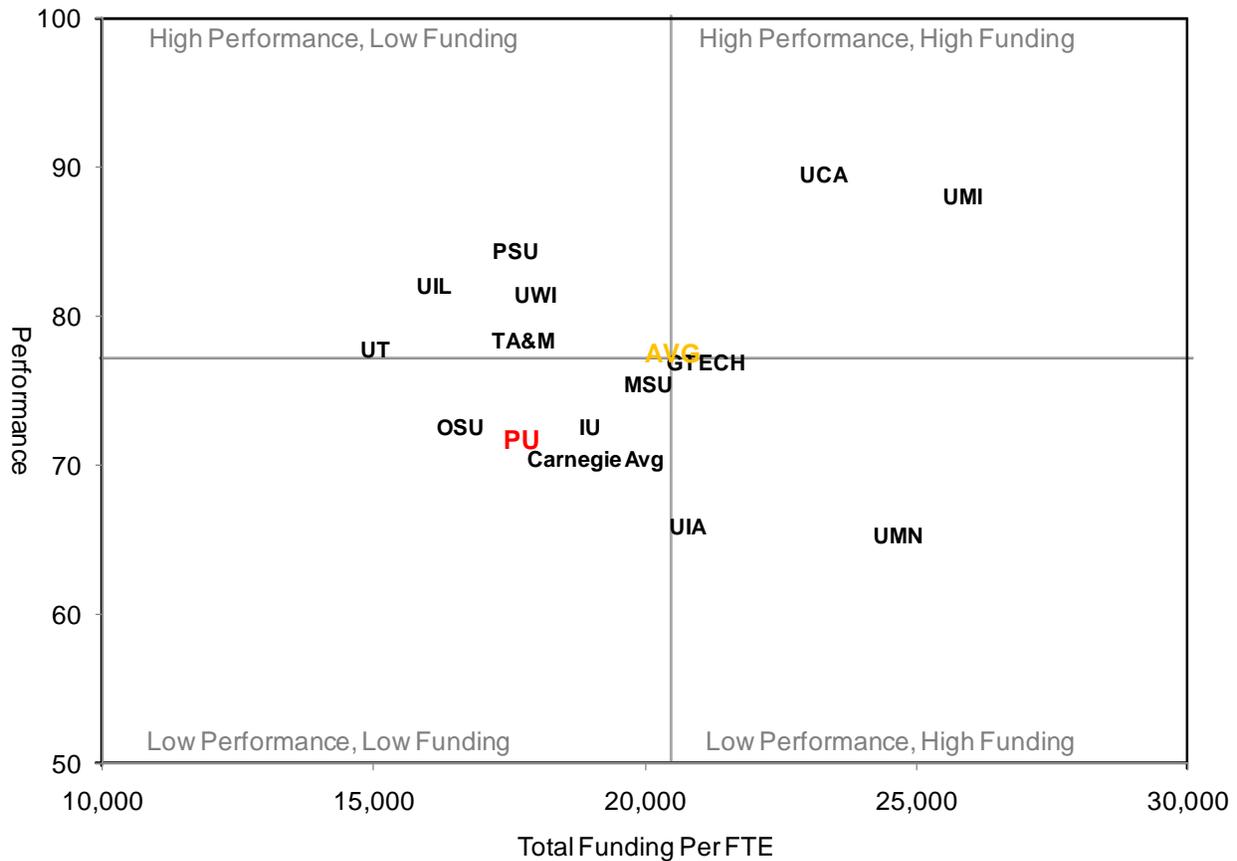
The performance measures for each institution include first-year retention rates, graduation rates, undergraduate credentials awarded per full-time equivalent, and research expenditures (for the research universities only). They are calculated as:

1. First-Year Retention Rates – the percentage of first-time degree-seeking students in the fall semester enrolled in the following fall semester. (Source: NCES, IPEDS Fall Enrollment Survey).
2. Graduation Rates – the percentage of first-time, degree-seeking, full-time students entering in the fall semester who graduate within 150 percent of program time – three years for associate degree-seeking students at two-year institutions and six years for baccalaureate degree-seeking students at four-year institutions. (Source: NCES, IPEDS Graduation Rate Survey).

3. Undergraduate Credentials per 100 FTE Undergraduates – certificates, associate, and bachelor’s degrees awarded per 100 full-time equivalent undergraduates. (Sources: NCES, IPEDS Completions and Fall Enrollment Surveys).
4. Research Expenditures per Full-Time Faculty – for research universities only. (Sources: NCES, IPEDS Finance and Fall Staff Surveys).

For each Indiana institution and its peers, a series of scatter plots are provided that display the ratios of performance to costs for each of the performance measures above. These plots display the position of each institution on the performance axis (Y axis) and the funding axis (X axis). They also display the ratios of performance to costs for the peer average and the Carnegie average. The Carnegie average for each institution includes all institutions in the U.S. that have the same classification as the Indiana institution – e.g. public research extensive institutions for IU-Bloomington and Purdue-West Lafayette, public research intensive institutions for Ball State University, etc. The chart below is an example of the six-year graduation rate relative to total revenues for Purdue University and its peer institutions (see Appendix for the full names of the peer institutions).

**Figure 1:** Performance Relative to Total Funding – Six-Year Graduation Rates (Purdue University and its Peer Institutions)



In this case, Purdue University is not as well funded as the peer average and also performs below the peer average. The institutions in the top left quadrant (the most productive quadrant of the chart) are performing above average with below-average funding (Pennsylvania State University, University of Wisconsin, Texas A&M, University of Illinois, and University of Texas). In fact, Pennsylvania State University, University of Wisconsin, and Texas A&M are performing at substantially higher levels than Purdue with roughly the same level of funding – an indication that, in this particular case, there is room for improvement without additional investments from the state and students. Conversely, the Universities of Minnesota and Iowa are performing at low levels with above average funding. For this ratio of performance relative to funding, Purdue and Indiana Universities are more in line with the Carnegie average (the average of all public research extensive institutions) than their selected peers. These figures – displaying the ratios of performance relative to funding and expenditures – are the basis for determining performance relative to costs. They are provided for each of the performance measures listed above, and for each Indiana public institution and its peers (located at [www.achieveindiana.com](http://www.achieveindiana.com)). A detailed summary of the results is provided in the next section.

### Cost per Credential/Degree

Absent consistent state or institutional data on the costs (or funding) required to produce various credentials, this report uses data on the market-value of degrees to develop an alternate method for measuring and comparing postsecondary productivity (i.e. funding and expenditures per degree or certificate) for Indiana public institutions and their peers. Using the market value of different degrees to “adjust” degree production in states, this alternate measure of productivity effectively accounts for the varying production costs that states face in generating their particular mix of credentials. Thus, if two institutions have similar funding levels, but one institution produces more bachelor’s degrees and the other produces more certificates, the one with greater bachelor’s degree production will have a lower “cost per degree” using this alternate productivity measure, and therefore would be considered more “productive”. Figure 2 displays the calculations (using Purdue University as an example) used to determine the “weighted degrees”, using both reported data on completions, and completions adjusted with market-value weights (Figure 2).

For the Indiana public institutions and their peers, the numbers of certificates and degrees awarded by level are weighted by the median earnings associated with each in the state’s employment market (the state where each institution is located). The median earnings for each state come from the 2008 American Community Survey Public Use Microdata Samples. The index score used in the weighting is calculated by dividing median earnings (for each degree level) by the median earnings of bachelor’s degree-holders. The actual numbers of awards are then multiplied by the index score to generate weighted awards. For example, the median earnings of associate degree-holders in Indiana are \$30,552 versus \$36,662 for bachelor’s degree holders, meaning the median earnings of associate degree-holders in Indiana are 83 percent of the earnings of bachelor’s degree-holders, thus the index value is .83 (Figure 2). Higher degree levels generate larger weights because, on average, they have greater value in the state’s labor market. In all states, certificates and associate degrees generate smaller

weights than bachelor’s degrees and graduate and professional degrees generate larger weights.

**Figure 2: Degrees Weighted by the Value to the State and Individuals: Median Earnings In the State’s Employment Market (Purdue University)**

Degree-Level	Median Earnings	Indexed to Bachelor's Degrees	Awards	Weighted Awards
Certificates	20,589	0.56	153	86
Certificates STEM	45,554	1.24	3	4
Certificates Health	26,396	0.72	0	0
Associates	30,552	0.83	124	103
Associates STEM	51,737	1.41	420	593
Associates Health	42,234	1.15	31	36
Bachelors	36,662	1.00	3,498	3,498
Bachelors STEM	63,351	1.73	2,087	3,606
Bachelors Health	52,793	1.44	449	647
Masters	47,514	1.30	713	924
Masters STEM	73,324	2.00	539	1,078
Masters Health	57,030	1.56	74	115
Doctorates	61,103	1.67	211	352
Doctorates STEM	78,416	2.14	346	740
Doctorates Health	105,586	2.88	43	124
First-Professionals	47,725	1.30	0	0
First-Professionals Health	101,839	2.78	240	667
<b>TOTAL</b>			<b>8,931</b>	<b>12,572</b>

Calculation for Weighted Degrees: Index Value x Actual Awards = Weighted Awards  
 In the Case of Certificates Above: 0.56 x 153 = 86

Larger weights are also applied to certificate and degree production in (1) the areas of science, technology, engineering, and mathematics (STEM), and (2) health and health sciences. Policymakers in many states, including Indiana, are increasingly interested in increasing the production of STEM and health credentials. STEM credentials are highly valued because of their merit in the knowledge-based economy and their strong association with global economic competitiveness. STEM credentials also provide more to individuals and the state in form of higher earnings – and in many states (including Indiana), certificates and associate degrees in STEM fields generate higher earnings than bachelor’s degrees in non-STEM fields. Nearly all health professions are in high demand, and the earnings associated with them are also greater than most other professions. And while we do not have specific costs associated with STEM and health degree programs, there is general agreement that they are the most expensive degrees to produce. These degree fields are also chosen because there are direct links between the degrees and occupations associated with them; unlike most other degree fields (e.g. business, history, psychology, etc.).

For Purdue University, using weighted awards, the following calculations are made to determine cost per degree:

1. Total Revenues per Degree =  $\$726,998,041 / 12,572$  (Weighted Awards) =  $\$57,828$
2. Education and Related Expenditures per Degree =  $\$684,186,851 / 12,572 = \$54,423$

With these measures, the lower the costs per degree, the more productive the institution is. The costs per degree for all Indiana public institutions relative to their peers are highlighted in the next section.

### Summary of Results

One of the most general definitions of productivity is “a measure of output per unit of input” ([www.dictionary.com](http://www.dictionary.com)). A shortcoming of nearly all measures of productivity in higher education is the sensitivity to extremely high or low levels of inputs; in this case, revenues from states and students and education-related expenditures. Institutions that have very low revenues and expenditures relative to others in the analysis will appear productive even with mediocre performance; and institutions with very high revenues and expenditures will appear unproductive even with good performance. There are a few of these outliers in some of Indiana’s peer groups. Since the two measures of cost used in this study are such important components of the analysis, it is helpful to see where Indiana’s institutions stand relative to their peer institutions. Figure 3 displays (1) the state, local, and tuition and fee revenues and (2) the education and related expenditures for the Indiana public institutions relative to their peer institutions.

**Figure 3: Revenues and Education-Related Expenditures: Indiana Institutions and Their Peer Averages (2007-08)**

Indiana Public Institutions	State, Local, and Tuition and Fee Revenues		Education and Related Expenditures	
	IN Institution	Peer Average	IN Institution	Peer Average
Ivy Tech System	5,426	7,093	4,889	8,511
Vincennes University	8,670	8,422	7,254	8,950
Indiana University-East	10,459	10,509	8,619	10,288
Indiana University-Kokomo	10,967	11,732	9,945	11,394
Purdue University-North Central	8,870	10,243	9,600	10,111
Purdue University-Calumet	10,098	11,369	9,950	11,169
Indiana University-Southeast	10,061	10,114	9,159	9,912
Indiana University-Northwest	10,804	11,238	9,524	10,451
Indiana University-South Bend	10,781	10,122	9,418	9,957
University of Southern Indiana	9,683	10,441	7,871	10,800
Indiana University-Purdue University-Fort Wayne	10,032	11,284	9,916	10,963
Indiana State University	13,753	12,521	12,917	11,689
Indiana University-Purdue University-Indianapolis	18,068	18,062	20,460	18,225
Ball State University	13,182	12,816	13,821	12,136
Purdue University-West Lafayette	17,616	20,539	16,579	18,564
Indiana University-Bloomington	18,960	19,630	17,000	18,479

The revenues for most of Indiana's institutions are in line with their peer averages (between 90 and 110 percent of peer average). Those with noticeably fewer revenues than their peers (highlighted red) are Ivy Tech, Purdue University's North Central and Calumet campuses, IU-Purdue Fort Wayne, and Purdue University's main campus. Only Indiana State has substantially more revenues than its peer average (highlighted blue). On the expenditure side, seven of Indiana's institutions spend substantially less than their peer averages on education and related activities. The E&R expenditures at Ivy Tech are just slightly more than half those of their peer average – an indication, to some degree, that more of their overall revenues are spent in non education-related activities relative to their peers. More investigation is needed to determine why there is such a large discrepancy between revenues and E&R spending at Ivy Tech. Indiana State, IUPUI, and Ball State spend substantially more on E&R activities than their peer average.

Given the focus on student performance (in addition to revenues and expenditures), it is also useful to examine the levels of preparation of students entering Indiana's public institutions – relative to those entering their peer institutions. The only good measure available for this is the entering ACT and SAT scores of first-time students. Entering SAT scores are converted to ACT scores using a concordance table provided by ACT and the College Board. Each of Indiana's public four-year institutions has lower entering ACT scores than its peer average (see the state profiles available at [www.achieveindiana.com](http://www.achieveindiana.com)). These data are not available for community colleges, primarily because they do not require ACT or SAT scores for admission.

As one might imagine, the correlations between entering ACT scores and the performance measures used in this analysis are quite high. For the Indiana universities and their peers (a total of 116 institutions) the correlation coefficients between ACT scores and both retention and graduation rates are 0.84 out of 1.0; meaning that the higher the entering ACT scores, the higher the rates of first-year retention and graduation within six years. The relationship between ACT scores and degrees awarded per 100 FTE students is not as strong (0.52). However, the relationships between entering ACT scores and the ratio of performance to costs (the first measure of productivity used in this study) are not nearly as strong; meaning that despite the levels of preparation of incoming students, some institutions perform better with the resources they have than others. For example, Figure 4 displays the relationship between entering ACT scores and the ratio of graduation rates to total funding for Indiana's bachelor's and master's universities and their peer institutions. There are several observations to be drawn from these data. First, the relationship between entering ACT scores and ratio of performance to funding is not particularly strong; one can't explain away this measure of productivity (and the others as well) by knowing the entering ACT scores. Relative to their peers, the institutions below the line are less productive than expected and those above the line are more productive than expected.

**Figure 4:** The Relationship between Entering ACT Scores and Productivity (Ratio of Graduation Rates to Total Revenues) – Bachelors and Masters Universities

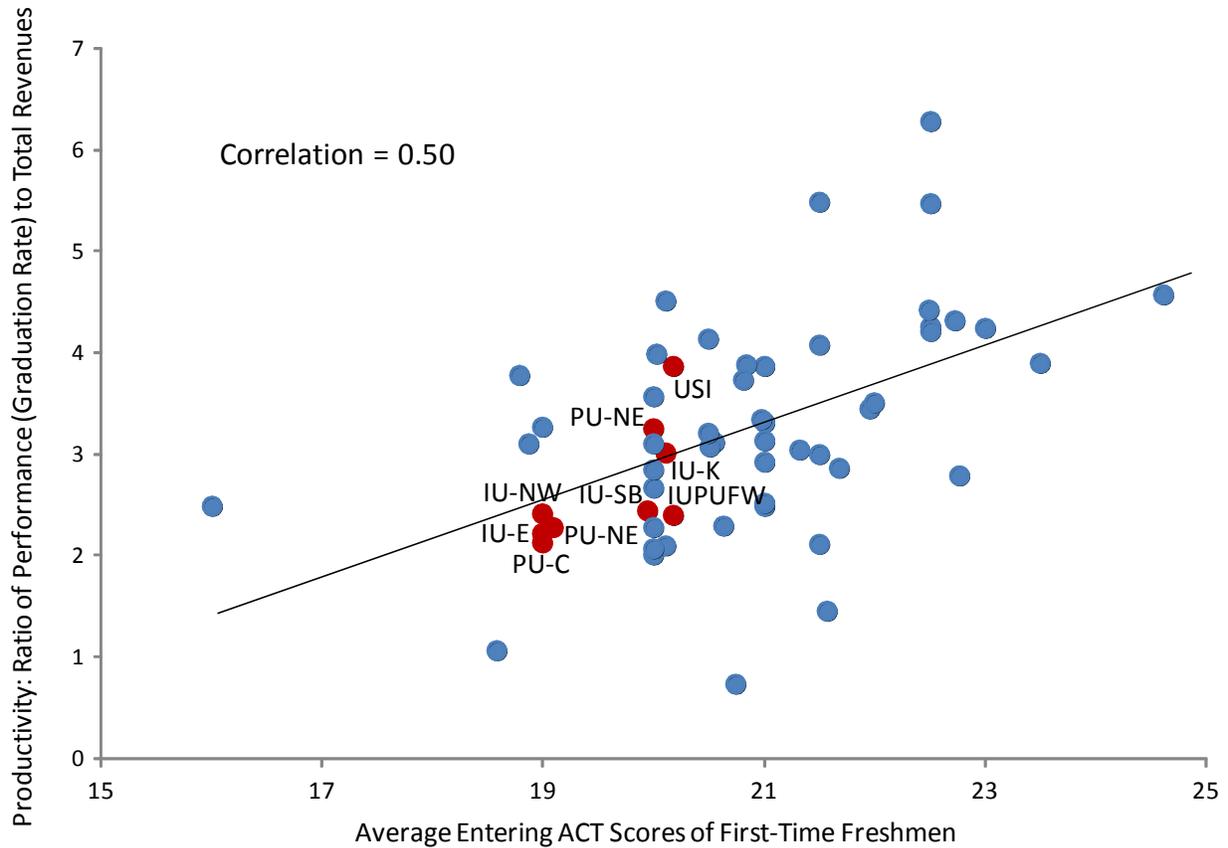
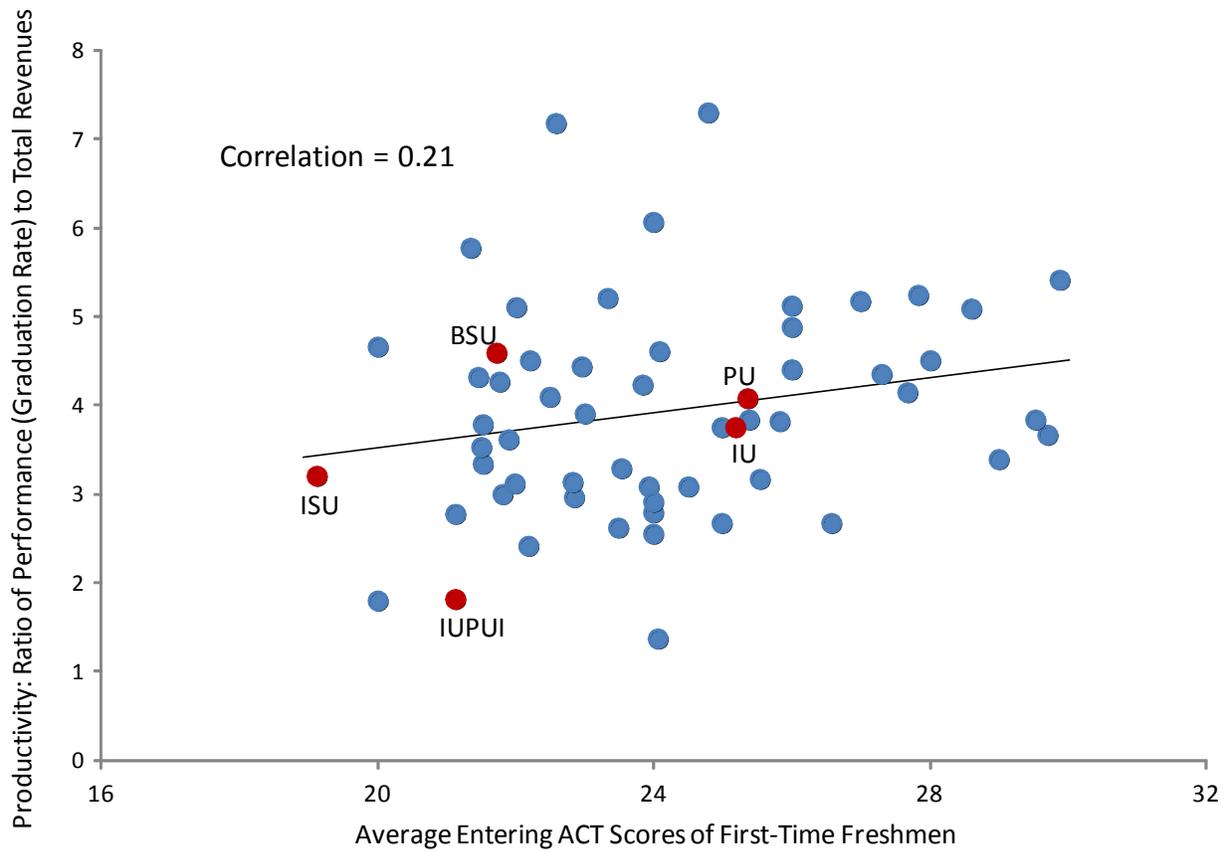


Figure 5 displays the same data for the research institutions and their peers. For these institutions, the relationship between entering ACT scores and the ratio of performance funding is even lower (0.21). On this measure of productivity, Ball State is more productive than expected and IUPUI is less productive than expected.

Entering ACT scores are important factors in understanding institutional performance; but are much less important in understanding productivity. Some institutions perform better with their resources than others – even when taking preparation into account. In addition, entering ACT scores should be an important factor in selecting peer institutions. Many of Indiana’s institutions chose peers that serve students with higher levels of college preparation. If they hadn’t, the relationship between ACT scores and performance would not be a concern. For the purpose of analyzing productivity over time, many of Indiana’s institutions should revisit their peer selection methods – paying closer attention to selecting institutions that serve similar types of students.

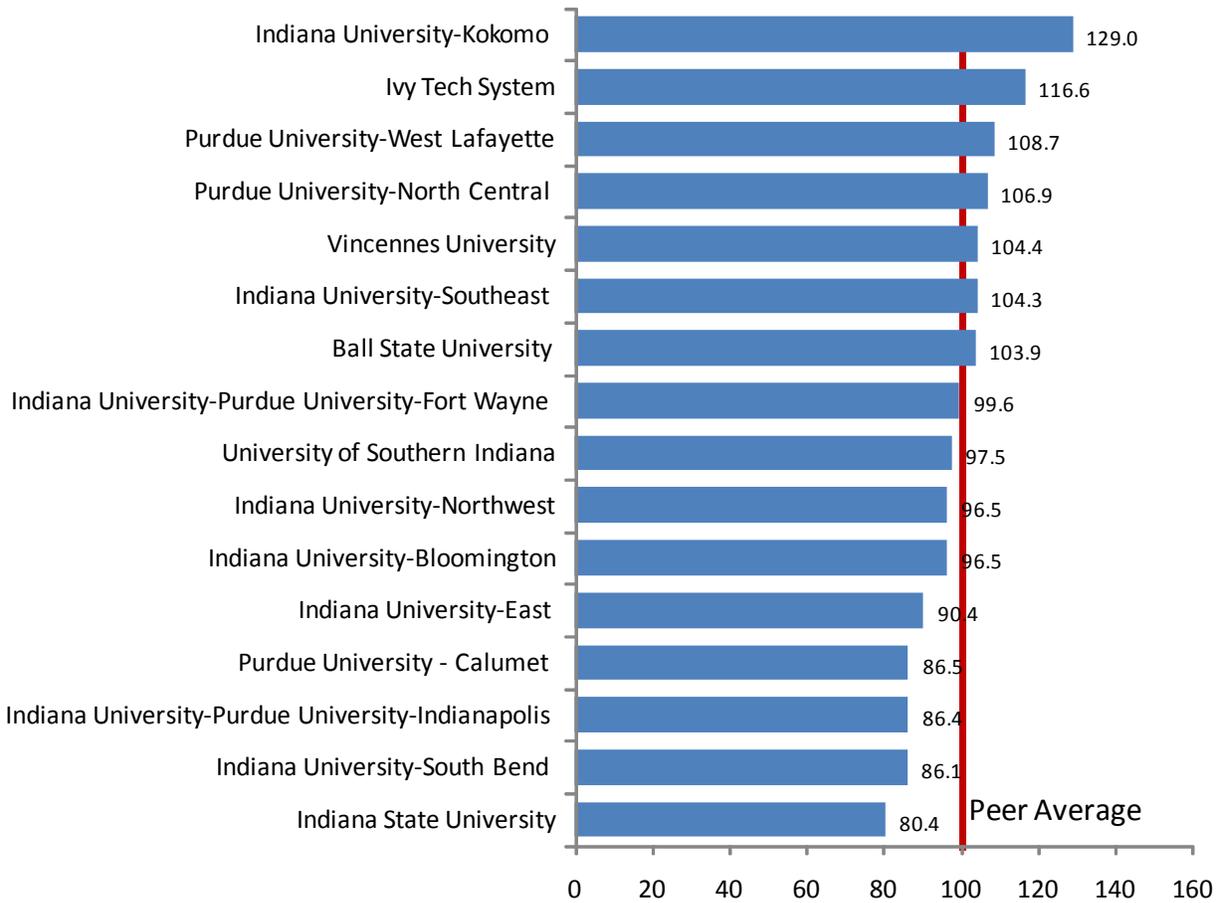
**Figure 5:** The Relationship between Entering ACT Scores and Productivity (Ratio of Graduation Rates to Total Revenues) – Research Universities



### Performance Relative to Costs

Given the volume of data and charts that were generated for each of Indiana’s public institutions (more than 300), it is imperative within the scope of this report that the results of the productivity analyses be summarized fairly broadly. More detailed data on performance and costs for each Indiana institution and their peers are available in the Appendix. In addition, profiles for each Indiana institution are available at [www.achieveindiana.com](http://www.achieveindiana.com)). Figure 6 summarizes the performance relative to funding (state, local, tuition, and fee revenues) for each Indiana institution relative to its peer institutions. The values represent index scores for the average ratio of performance to funding across the three persistence and completion performance measures described above: first-year retention rates, graduation rates, and undergraduate credentials/degrees awarded per 100 FTE undergraduate students. The red line represents the index score associated with the average ratio of performance to funding for the peer institutions.

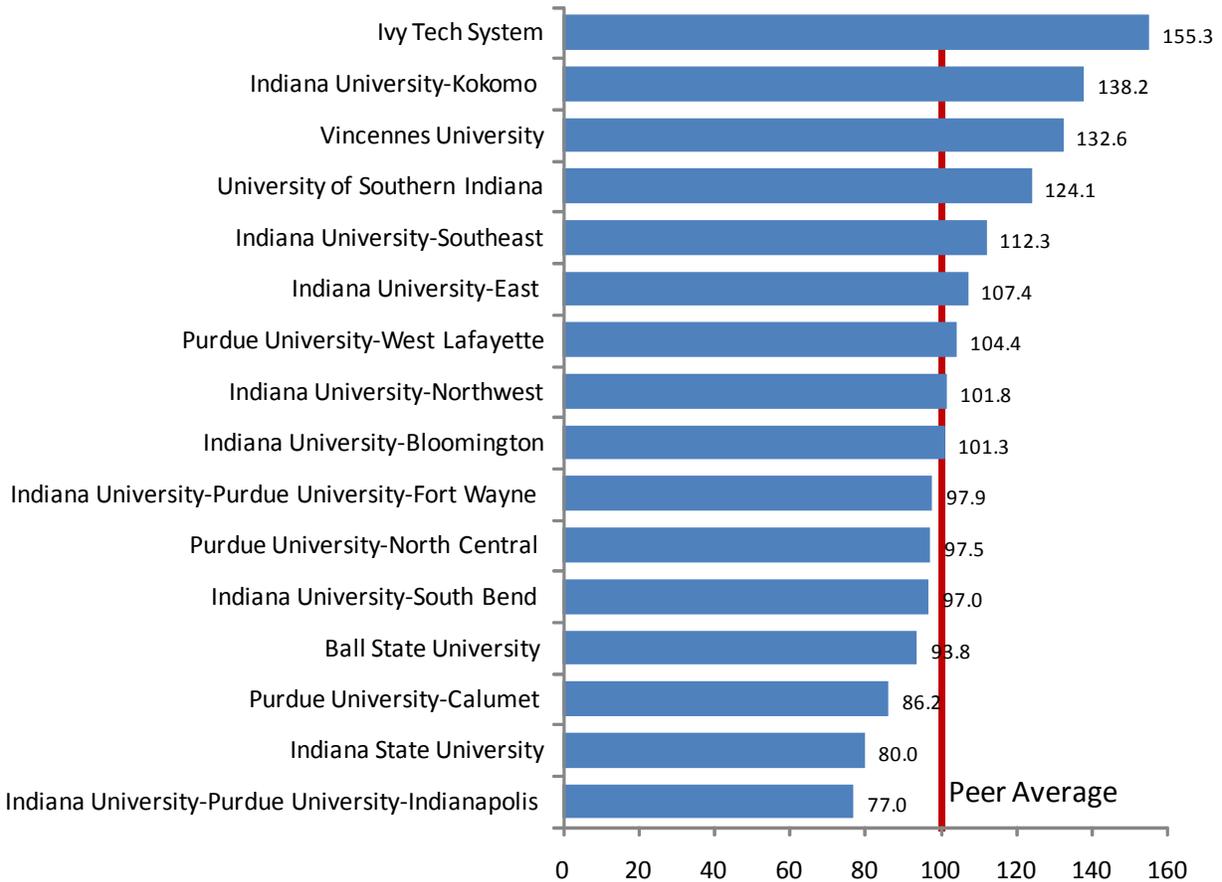
**Figure 6: Index Scores for Performance Relative to Total Funding (2007-08)**



The institutions with index values higher than their peer average are more productive on average than their peer institutions. These include IU-Kokomo, Ivy Tech System, PU-West Lafayette, PU-North Central, Vincennes, IU-Southeast, and Ball State. Those with lower values are less productive than their peers – i.e. USI, IU-Northwest, IU-Bloomington, IU-East, PU-Calumet, IUPUI, and ISU. In all cases, however, there are several peer institutions that are performing better than the Indiana institution relative to their resources; so even those that are well above average have some room for improvement.

Figure 7 summarizes the performance relative to education and related expenditures for each Indiana institution relative to its peer institutions. E&R expenditures are what the institutions spend on activities related to instruction and student service – the expenditures most closely tied to the performance measures of retention and completion.

**Figure 7: Index Scores for Performance Relative to Education and Related Expenditures (2007-08)**



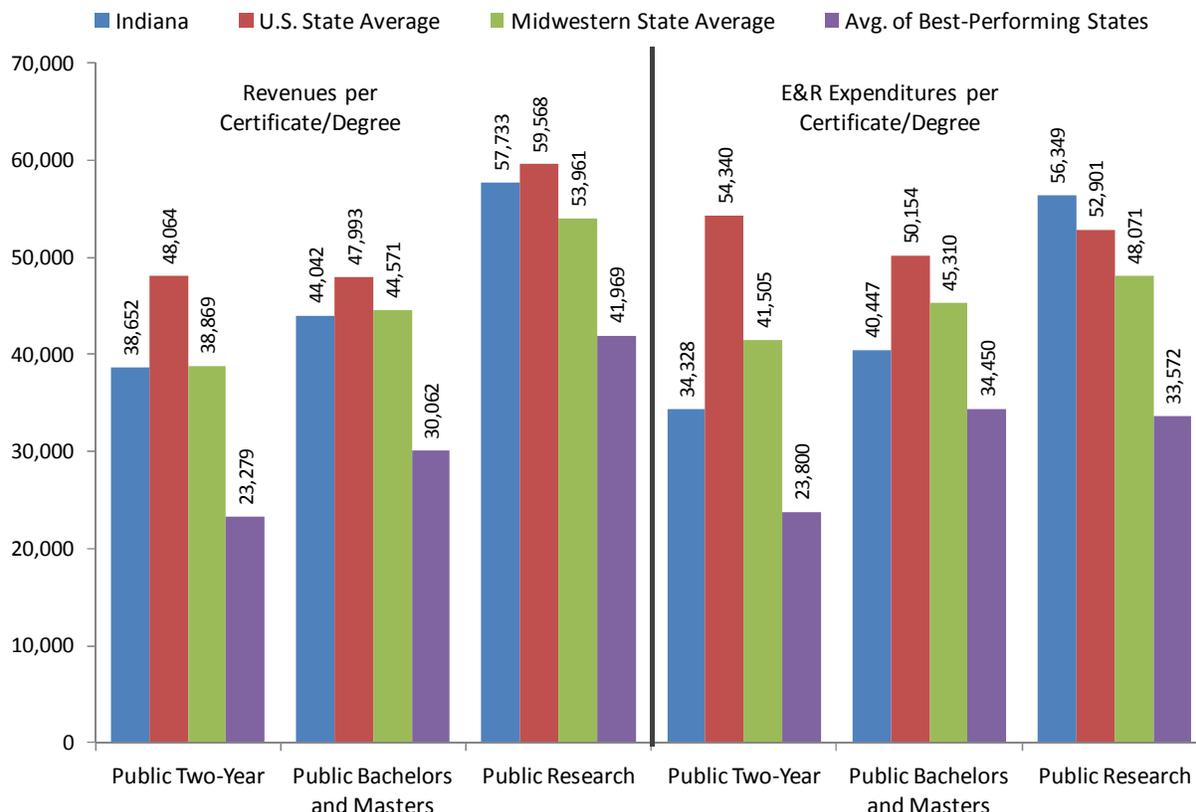
Ivy Tech, IU-Kokomo, Vincennes, USI, IU-Southeast, IU-East, Purdue, IU-Northwest, and IU-Bloomington perform better than their peers on average (on retention, graduation, and degree production) relative to their expenditures on E&R activities. Those with values below 100 are less productive on average than their peers.

Costs per Credential/Degree

Calculating “cost per degree” is another approach used to determine institutional productivity. The method used for these calculations is described in the section above. Absent data on the actual costs to produce particular degrees, degree production is weighted by the value of certain types of degrees in the state’s employment market – i.e. the median annual wages associated with each degree. This is done by degree level (certificates, associates, bachelors, masters, doctoral, and professional) and by type of degree: (1) science, technology, engineering, mathematics (STEM), (2) health and health technologies, and (3) all other types of degrees. The same two measures of funding are used: (1) state, local, and tuition and fees revenues, and (2) education and related expenditures.

Before highlighting the results for each of Indiana’s institutions relative to their peers, it is useful to examine the costs per degree in Indiana public sectors relative to similar sectors across the U.S. Figure 8 displays the revenues and E&R expenditures per degree for each of Indiana’s public sectors of higher education relative to the U.S. state average, the average of the Midwestern states, and the average of the best-performing states (the average of the lowest three states). In this case, values below the peer averages mean greater productivity.

**Figure 8: Revenues and E&R Expenditures per Credential/Degree (2007-08)**



The total public funds (state, local and tuition and fee revenues) per degree in Indiana are lower than the average of the 50 states for each of the three public sectors of higher education. The revenues per degree for the public two-year and bachelors and masters sectors are roughly the same as those in other Midwestern states. However, the revenues per degree in Indiana’s public research sector are higher than those in other Midwestern states. For all three sectors, there are states that have substantially lower revenues per degree.

The E&R expenditures per degree in Indiana are much lower than the 50 state and Midwestern averages in the public two-year and bachelors and masters sectors. However, they are much higher in the public research sector. Again, in each case there are several states that exhibit substantially better levels of degree productivity. As one might imagine, expanding access and improving student success in the least expensive sectors of higher education would result in an

overall reduction in costs for the state system of higher education. This recognition, in part, is what has led to the purposeful expansion of the Ivy Tech system in Indiana.

Figure 9 displays the revenues per degree for each of the Indiana institutions relative to their peer averages. Ivy Tech, IU-Kokomo, PU-North Central, PU-Calumet, and IU-Southeast produce substantially more certificates and degrees relative to their revenues than their peers. Indiana State, IU-Northwest, IU-South Bend, IU-East, and IU-Bloomington produce substantially fewer degrees relative to their revenues than their peers.

**Figure 9: Total Funding (State, Local, Tuition and Fee Revenues) per Credential/Degree (2007-08)**

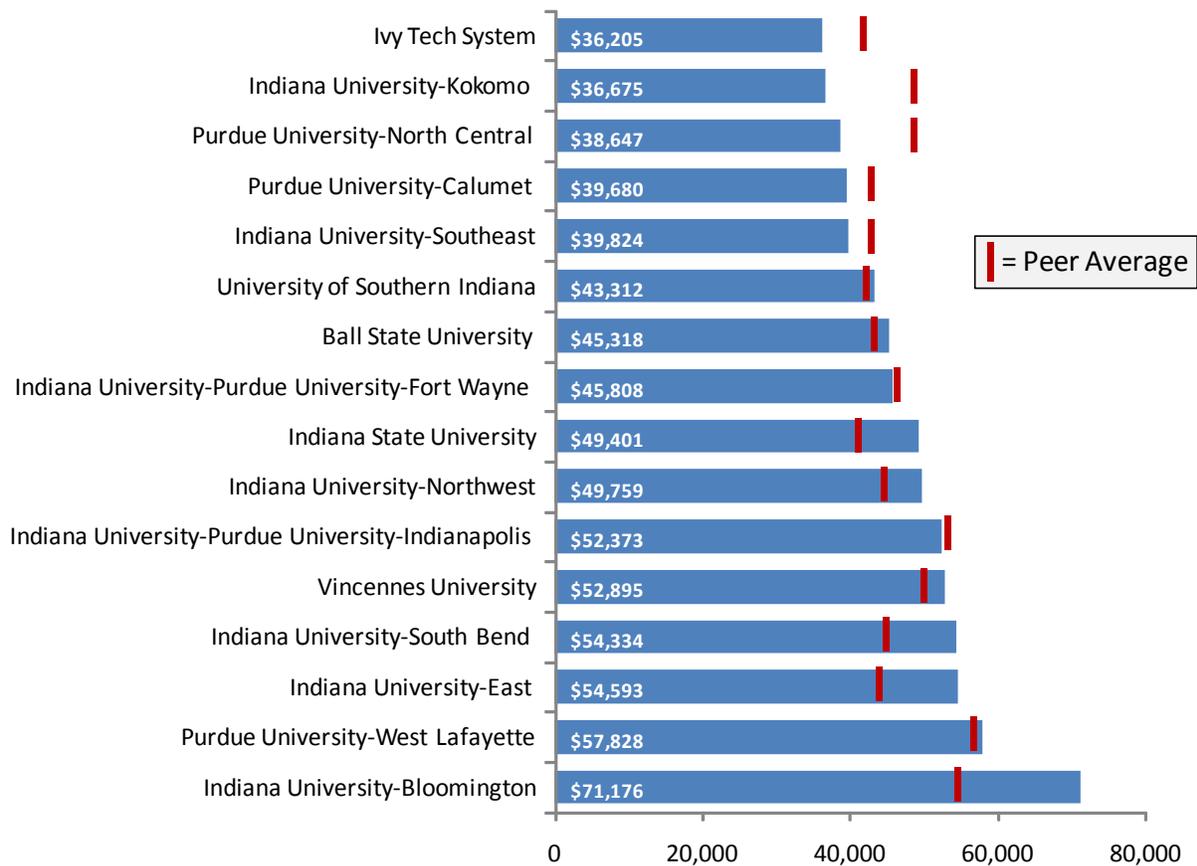
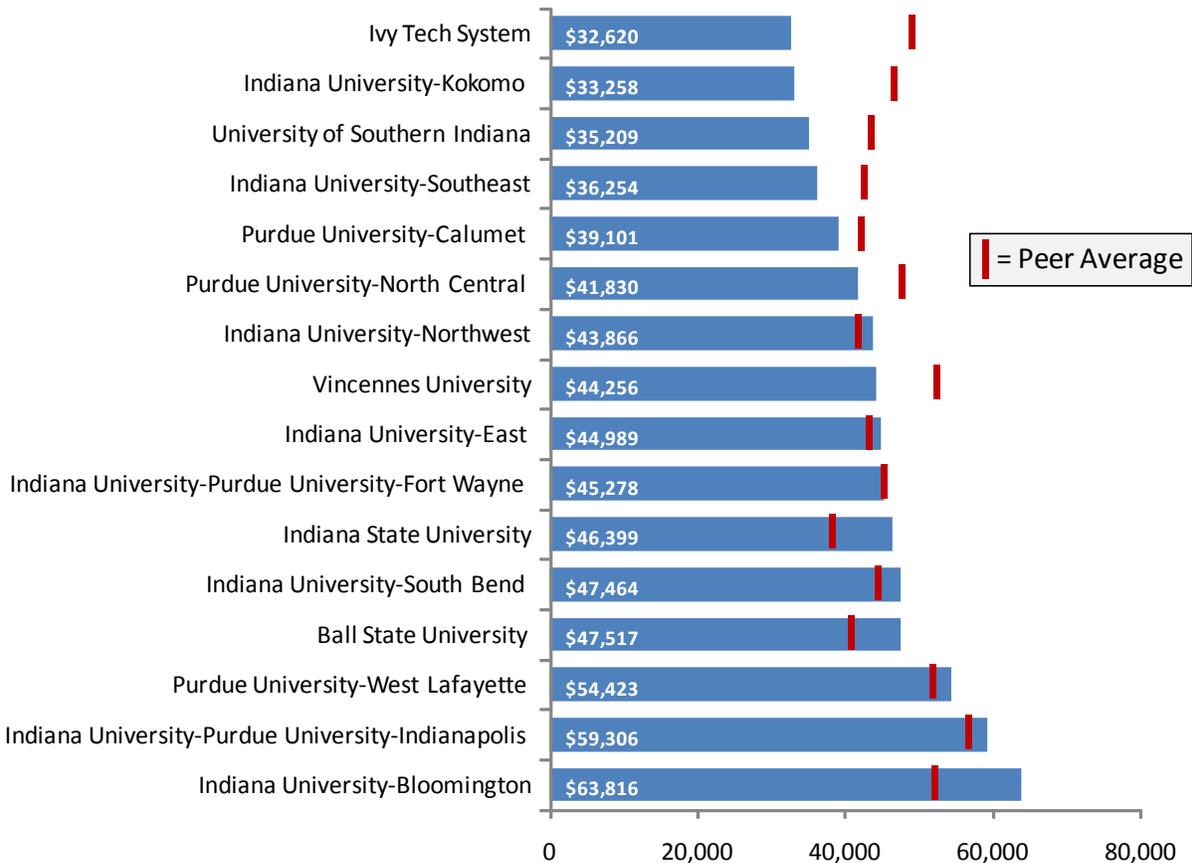


Figure 10 displays the results for E&R expenditures per degree. Ivy Tech, IU-Kokomo, USI, IU-Southeast, PU-North Central, and Vincennes spend much less on education-related activities per credential/degree awarded than their peer averages. ISU, Ball State, and IU-Bloomington spend more than their peers on E&R activities per degree. Higher retention, graduation, and two- to four-year transfer rates, with the same levels of revenues and E&R expenditures, would reduce the costs per degree for each of Indiana’s institutions – yielding greater levels of productivity.

**Figure 10: Education and Related Expenditures per Credential/Degree (2007-08)**

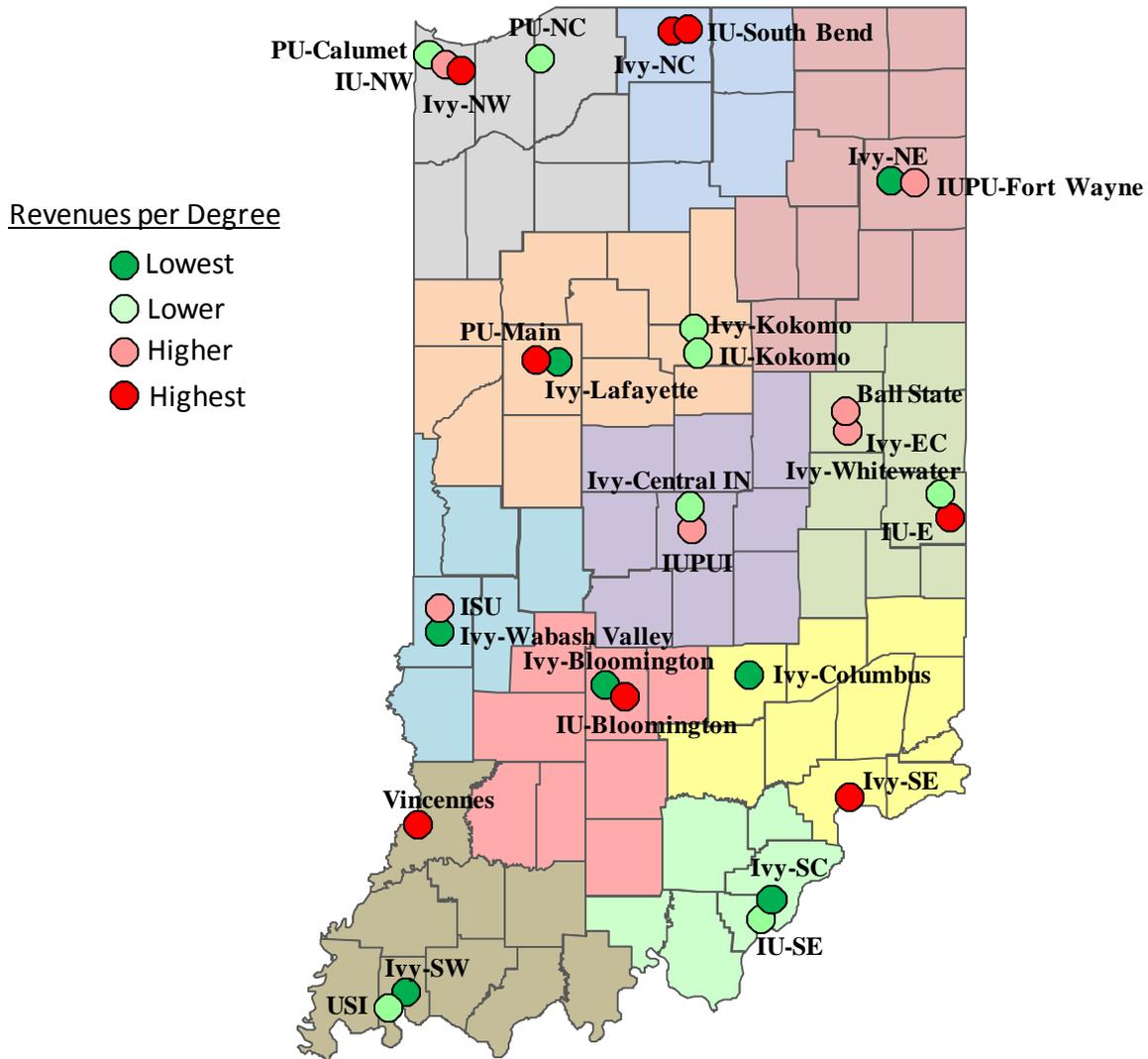


While Ivy Tech is treated as a system in these analyses, there is great variation across its campuses. The revenues per certificate and degree range from \$19,174 at the South Central campus to \$62,530 at the Southeast campus. The E&R expenses per certificate and degree range from \$21,703 at the South Central campus to \$43,141 at the Northwest campus. The results for each of the campuses are displayed in the profile for Ivy Tech (located at [www.achieveindiana.com](http://www.achieveindiana.com)).

Productivity at the Regional Level

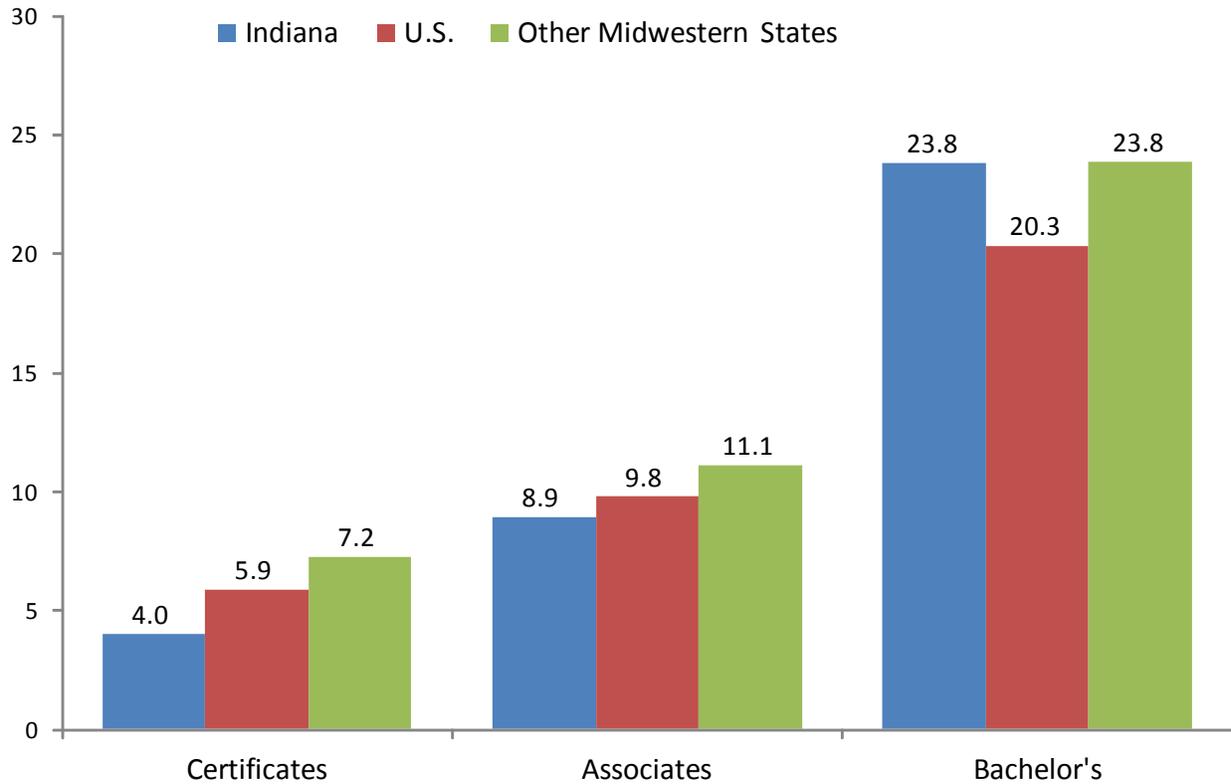
Figure 11 displays the revenues (total funding) per degree for each of the Indiana institutions in four categories from low to high, overlaying the economic growth regions established by the Indiana Department of Workforce Development. There are certain regions of the state that have more high cost per degree institutions than others – and vice-versa. For example, both institutions in the north central region of the state (Ivy Tech North Central and IU- South Bend) have relative high costs per credential awarded, whereas those in the south central region (Ivy Tech South Central and IU-Southeast) have relatively low costs per credential. Potential strategies designed to improve participation rates and to improve institutional productivity should take these factors into account; i.e. the locations of certain institutions relative to student demand and the costs per credential associated with them.

**Figure 11: Total Funding per Certificate/Degree for Indiana Public Institutions and the Economic Growth Regions of the State**



Finally, it is helpful to relate these findings to the overall context of degree production in Indiana. One of the other shortcomings of these types of analyses is the “disconnect” between institutional productivity and the overall degree production of the state system of higher education. A state can have relatively productive public institutions, while not producing enough college degrees among its residents. Figure 12 shows the “market penetration” of Indiana’s overall system of higher education (including private institutions); i.e. undergraduate credentials awarded per 1,000 18 to 44 year olds with no college degree. This is a measure of degree production relative to the state’s adult population in need of a college degree.

**Figure 12: Undergraduate Credentials Awarded per 1,000 18 to 44 Year Olds With No College Degree (2008)**



Indiana awards fewer certificates and associate degrees relative to the population in need than the U.S. average and many fewer than other Midwestern states. However it awards the same number of bachelor's degrees relative to the population in need as its Midwestern counterparts, and substantially more than the U.S. average. Migration data available from the 2000 Decennial Census and the 2005 to 2008 American Community Surveys indicate that Indiana is a net-exporter of adult residents with bachelor's degrees and a net importer of adults with associate degrees – a mismatch between supply and demand ([www.higheredinfo.org](http://www.higheredinfo.org)). It is not advisable for the state to reduce the number of bachelor's degrees produced because of the benefits it reaps from importing students from out-of-state (e.g. the revenues generated while the students are in Indiana and the reputation – from their out-of-state draw – of many of Indiana's public universities). However, it is clear that Indiana is an under-producer of undergraduate certificates and associate degrees. While efforts to address institutional productivity should not be limited to two-year institutions, they should certainly be focused on them. In addition to the expansion of Ivy Tech (already underway), improvements in retention, completion, and transfer rates for Ivy Tech students would serve to more effectively meet demand for college credentials of two-years and less, and educate many more students at a lower cost per degree. In addition, increasing the number of two-year and less credentials in STEM and health fields provide great value to the recipients of the awards and to the state with respect to filling jobs in high-demand fields and increased tax revenues.

## Strategies for Addressing Productivity and Cost Reduction

There are a variety of strategies available to address productivity and cost containment or reduction in higher education costs per degree. The following are several of the most talked-about strategies discussed by policymakers across the U.S. Some are being implemented in some states (including Indiana). Others are on wish-lists of policymakers – to be more seriously considered when political opportunity arises.

1. Increasing College-Readiness among High School Graduates. The more prepared students are for college-level course work, the fewer burdens they place on colleges and universities (e.g. the need for developmental coursework, more intensive student services, etc.) and the more likely they are to succeed in college. Strategies include increasing the rigor of the high school curriculum (like Indiana’s “Core 40” requirement implemented in 2007), expanding opportunities for high school students to take Advanced Placement and dual enrollment courses.
2. Improve the Educational Pathways for Older Adults to Re-Enter Higher Education. These strategies include awarding credit for prior learning and improving the delivery of remedial/developmental education. Some of the more successful efforts to improve the delivery of remedial education to adults include the provision of remedial and college-level work simultaneously so adults experience immediate progress toward a credential (e.g. Washington’s Integrated Basic Education Skills Training program). Conversations regarding each of these have been underway in Indiana for a few years. Ivy Tech is currently piloting accelerated programs for adults.
3. Improving Educational Productivity. These strategies include:
  - a. Developing “learning communities” that assign students to cohort groups to learn from one another and experience more structured programs of study.
  - b. Establishing three-year bachelors programs that allow students to take more accelerated courses and attend college year-around.
  - c. Course redesign that improves the outcomes in certain courses at reduced institutional costs – particularly for remedial and general education courses. This has been proven effective by the National Center for Academic Transformation (NCAT).
  - d. Expand opportunities for effective on-line learning. More colleges and universities are turning to on-line learning as a way to expand access and reduce costs.
  - e. Reducing rework. Some strategies include counting all credits for which students enroll against the maximum number that will be underwritten by state funds (a “cap” beyond which students pay the full cost of education), reducing the time period during which no-penalty drops are allowed, and limiting the number of times students may enroll in one course.

- f. Improving transfer policy by providing clearly articulated agreements across all institutions in the state regarding which courses effectively transfer from institution to institution, and creating more incentives for students to earn associate degrees prior to transfer – e.g. Florida’s policy that grants all students who transfer with associate degrees automatic junior status at any of the four-year public universities.
4. Fund Institutions on the Basis of Completion and Performance. There is a considerable movement among state higher education policymakers across the country to figure out strategies to allocate state funds in ways that reward institutions for completions rather than enrollments. There is general agreement among most policymakers that in order to sustain a funding formula that rewards college completion over time, it must be effectively built into the base allocation to institutions – as opposed to a set-aside pool of funds. Indiana has made as much movement in this area as any state in the U.S.
  5. Gaining Efficiencies by Reducing Costs. While many of these are particularly difficult, they nonetheless are strategies that are increasingly considered among institutions that face considerable budget constraints. They involve cutting costs and eliminating services. Options for cutting costs include (but are not limited to) reducing benefits to faculty and administrative staff, conserving energy and/or improving energy efficiency, reducing supplies, and consolidating (with other institutions) purchases of software, licenses and library materials. Eliminating services include actions such as cutting courses, eliminating academic programs, eliminating co- and extra-curricular activities, and student support services such as on-campus health facilities.

Many of these strategies (and others) are discussed in more detail in *Good Policy, Good Practice*, a report written by the National Center for Higher Education Management Systems (NCHEMS) and the National Center for Public Policy and Higher Education (NCPPE), with support from the Lumina Foundation for Education.

## Conclusion

Overall, most of the public institutions in Indiana are performing at average levels relative to their resources and education-related expenditures – compared to their peer institutions. Many are about as productive as the average of their peer institutions; some are more productive than the majority of their peers – and vice-versa. There is certainly room for improvement. One reality is that institutions in Indiana (as well as many others across the U.S.) are under a great deal of pressure from state policymakers to maintain or improve their performance with the same (or in some cases fewer) resources. The diminishing ability of the state to maintain its support for higher education, the reluctance of policymakers and the general public to allow institutions to raise tuition and fees to levels that price out many of the state’s residents, and the general anxiety felt by many state residents regarding the recent economic downturn lead to greater levels of scrutiny regarding how well institutions perform

with the resources they already have. There is growing sentiment that they can “take a hit” like the rest of us. Another reality is that Indiana will not achieve its goals regarding increased degree production and college attainment rates of its adult population without substantial increases in productivity. These realizations, at least in part, are the reason for Indiana’s growing commitment to increase productivity in higher education. It currently stands as one of only a few states that are seriously engaged in this activity – both in terms of meaningful conversation and the actual implementation of policy.

This work is not the definitive approach to understanding which institutions in Indiana are productive relative to their resources, but rather provides a baseline and a tool to guide higher education policymakers and analysts to ask important questions about productivity and to provide a better analytical framework for answering them. 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 productivity in higher education.

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. For example, measures of quality are missing, although higher education institutions have avoided developing standardized measures of quality for decades. There is not comparable data available for transfer (for institutions outside of Indiana) – one of the most important missions of two-year institutions. Second, they fall short of providing all the information needed to fully determine when institutions are 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 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, in spite of the imperfections, these analyses represent an important tool for gaining a better understanding of institutional performance relative to resources. 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 study is an initial attempt to provide some valuable baseline data and information, and supporting evidence for these discussions. More important than the current levels of productivity of Indiana’s public institutions is the emphasis on improvement over time. Improved productivity is critical for Indiana to achieve its goals to develop a more educated and economically competitive workforce.

## Appendix

### Indiana Public Institutions and Their Peer Institutions: Cost and Performance Measures

Peer Institutions	Cost Measures		Performance Measures			
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students	Research Expenditures per Full-Time Faculty
University of California-Berkeley	\$23,336	\$23,121	89.6	96.5	26.8	\$191,031
University of Colorado at Boulder	\$13,006	\$13,932	66.5	83.8	23.0	\$93,465
University of Illinois at Urbana-Champaign	\$16,128	\$12,604	82.0	93.7	22.9	\$143,447
Indiana University-Bloomington	\$18,960	\$17,000	72.6	90.4	19.7	\$43,470
University of Kansas	\$19,387	\$17,125	59.7	79.1	20.8	\$78,987
University of Michigan-Ann Arbor	\$25,998	\$26,725	88.0	96.1	24.1	\$110,468
Michigan State University	\$20,090	\$17,046	75.2	90.3	23.2	\$101,119
Ohio State University-Main Campus	\$16,717	\$18,134	72.7	92.8	21.3	\$125,245
Pennsylvania State University-Main Campus	\$17,678	\$14,887	84.6	92.3	26.3	\$189,678
The University of Texas at Austin	\$15,024	\$16,859	77.8	90.8	25.2	\$161,917
University of Wisconsin-Madison	\$18,035	\$16,297	81.3	93.6	23.4	\$228,476
Purdue University-Main Campus	\$17,616	\$16,579	71.8	86.0	21.1	\$84,246
Peer Avg	\$19,630	\$18,479	76.8	90.5	23.2	\$129,296
Carnegie Avg	\$19,419	\$18,011	70.6	87.5	22.9	\$120,432

Peer Institutions	Cost Measures		Performance Measures			
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students	Research Expenditures per Full-Time Faculty
University of California-Berkeley	\$23,336	\$23,121	89.6	96.5	26.8	\$191,031
Georgia Institute of Technology-Main Campus	\$21,064	\$14,700	77.2	93.2	19.6	\$434,560
University of Illinois at Urbana-Champaign	\$16,128	\$12,604	82.0	93.7	22.9	\$143,447
Indiana University-Bloomington	\$18,960	\$17,000	72.6	90.4	19.7	\$43,470
University of Iowa	\$20,861	\$16,346	66.0	83.1	21.3	\$113,773
University of Michigan-Ann Arbor	\$25,998	\$26,725	88.0	96.1	24.1	\$110,468
Michigan State University	\$20,090	\$17,046	75.2	90.3	23.2	\$101,119
University of Minnesota-Twin Cities	\$24,659	\$22,310	65.7	87.9	21.3	\$125,448
Ohio State University-Main Campus	\$16,717	\$18,134	72.7	92.8	21.3	\$125,245
Pennsylvania State University-Main Campus	\$17,678	\$14,887	84.6	92.3	26.3	\$189,678
Texas A & M University	\$17,798	\$15,846	78.3	92.1	22.1	\$182,616
The University of Texas at Austin	\$15,024	\$16,859	77.8	90.8	25.2	\$161,917
University of Wisconsin-Madison	\$18,035	\$16,297	81.3	93.6	23.4	\$228,476
Purdue University-Main Campus	\$17,616	\$16,579	71.8	86.0	21.1	\$84,246
Peer Avg	\$20,539	\$18,564	77.4	91.4	22.7	\$159,678
Carnegie Avg	\$19,419	\$18,011	70.6	87.5	22.9	\$120,432

Peer Institutions	Cost Measures		Performance Measures			
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students	Research Expenditures per Full-Time Faculty
Northern Arizona University	\$13,456	\$11,075	52.6	68.0	20.3	\$27,691
Illinois State University	\$11,541	\$12,428	70.0	83.4	25.1	\$20,684
Northern Illinois University	\$13,518	\$12,302	51.2	74.9	23.5	\$19,881
Ball State University	\$13,182	\$13,821	60.4	77.4	22.8	\$19,555
Central Michigan University	\$11,274	\$9,442	57.5	76.7	19.3	\$5,958
Eastern Michigan University	\$12,892	\$11,463	35.7	70.4	19.2	\$6,590
Western Michigan University	\$13,452	\$11,555	55.1	73.2	21.6	\$33,979
University of Southern Mississippi	\$12,995	\$11,178	43.4	71.4	21.4	\$66,582
University of North Carolina at Greensboro	\$14,581	\$13,618	52.5	75.2	18.4	\$16,598
University of Akron Main Campus	\$13,801	\$11,404	34.1	67.9	16.1	\$25,248
Bowling Green State University-Main Campus	\$13,407	\$11,980	57.9	73.3	21.8	\$8,342
Kent State University Kent Campus	\$8,504	\$8,447	49.1	71.6	16.3	\$22,515
Miami University-Oxford	\$16,546	\$15,676	80.7	89.5	25.8	\$15,789
Ohio University-Main Campus	\$13,452	\$11,762	70.0	80.5	23.6	\$35,888
University of Toledo	\$14,797	\$14,929	45.3	68.8	17.2	\$57,089
Indiana University of Pennsylvania-Main Campus	\$10,785	\$13,027	50.2	73.5	19.6	\$1,570
University of North Texas	\$10,736	\$9,727	45.4	74.5	21.0	\$14,309
The University of Texas at Arlington	\$12,240	\$9,156	36.3	59.6	24.2	\$69,579
College of William and Mary	\$16,812	\$19,641	91.1	95.7	25.0	\$35,707
George Mason University	\$13,232	\$13,750	60.9	83.5	23.1	\$40,209
James Madison University	\$11,292	\$10,911	82.4	91.4	21.3	\$6,935
Marshall University	\$10,404	\$10,455	44.3	70.5	17.9	\$26,983
University of Wisconsin-Milwaukee	\$11,872	\$11,382	41.8	68.3	17.1	\$40,925
Peer Avg	\$12,816	\$12,136	55.1	75.6	20.9	\$26,896
Carnegie Avg	\$12,923	\$12,344	47.5	72.1	20.0	\$23,589

Peer Institutions	Cost Measures		Performance Measures			
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students	Research Expenditures per Full-Time Faculty
University of Alabama at Birmingham	\$29,244	\$32,252	39.8	78.9	20.1	\$154,805
University of Colorado Denver	\$8,172	\$19,217	36.7	69.6	20.0	\$55,403
University of South Florida	\$12,851	\$10,125	48.1	87.1	22.8	\$131,697
University of Illinois at Chicago	\$18,379	\$21,329	48.1	77.4	21.8	\$120,788
Indiana University-Purdue University-Indianapolis	\$18,068	\$20,460	32.6	66.1	21.3	\$72,515
University of Louisville	\$17,955	\$19,329	45.7	77.1	17.9	\$87,590
Wayne State University	\$18,696	\$16,991	33.6	64.7	17.3	\$83,056
University of New Mexico-Main Campus	\$18,344	\$13,105	44.3	76.8	18.5	\$83,582
University at Buffalo	\$23,204	\$20,747	62.0	86.6	20.7	\$59,053
University of Cincinnati-Main Campus	\$16,520	\$15,678	46.1	82.6	21.1	\$76,251
Temple University*	\$20,111	\$18,345	61.8	86.6	20.3	\$42,878
University of Utah	\$17,561	\$13,924	51.1	80.7	25.9	\$68,985
Virginia Commonwealth University	\$15,694	\$15,420	49.0	84.3	18.2	\$60,324
Peer Avg	\$18,062	\$18,225	46.1	78.3	20.4	\$84,379
Carnegie Avg	\$14,497	\$12,586	53.7	78.2	20.6	\$63,403

Peer Institutions	Cost Measures		Performance Measures			
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students	Research Expenditures per Full-Time Faculty
University of Northern Colorado	\$6,956	\$8,982	49.9	70.1	20.6	\$5,729
Florida Atlantic University	\$13,169	\$11,173	39.4	74.4	26.5	\$32,735
Indiana State University	\$13,753	\$12,917	44.0	65.5	19.7	\$21,268
Wichita State University	\$11,777	\$10,451	38.7	69.6	19.4	\$59,877
Louisiana Tech University	\$10,652	\$9,256	47.2	69.4	18.8	\$38,401
University of Maryland-Baltimore County	\$15,545	\$13,512	59.4	86.5	21.8	\$71,491
University of Southern Mississippi	\$12,995	\$11,178	43.4	71.4	21.4	\$66,582
SUNY at Binghamton	\$14,963	\$14,627	78.4	90.4	23.3	\$34,742
University of North Carolina at Greensboro	\$14,581	\$13,618	52.5	75.2	18.4	\$16,598
Portland State University	\$10,808	\$9,888	33.7	65.3	22.4	\$39,655
Indiana University of Pennsylvania-Main Campus	\$10,785	\$13,027	50.2	73.5	19.6	\$1,570
The University of Texas at Dallas	\$14,274	\$11,638	59.0	82.1	34.7	\$103,164
Peer Avg	\$12,521	\$11,689	49.7	74.5	22.2	\$40,984
Carnegie Avg	\$12,923	\$12,344	47.5	72.1	20.0	\$23,589

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
University of South Alabama	\$15,490	\$13,339	32.6	66.1	16.9
University of Alaska Anchorage	\$15,283	\$13,834	22.1	67.8	15.7
Boise State University	\$10,433	\$8,967	29.9	62.5	16.7
Indiana University-Purdue University-Fort Wayne	\$10,032	\$9,916	24.0	61.1	18.2
Northern Kentucky University	\$11,276	\$10,533	33.0	65.3	18.0
Southeastern Louisiana University	\$9,094	\$9,672	28.5	62.8	15.1
Eastern Michigan University	\$12,892	\$11,463	35.7	70.4	19.2
University of Nebraska at Omaha	\$10,021	\$10,049	42.5	68.0	18.0
CUNY College of Staten Island	\$10,292	\$11,951	25.6	81.4	19.8
Youngstown State University	\$10,606	\$11,006	34.3	70.0	16.0
University of Central Oklahoma	\$9,311	\$8,905	36.0	59.0	19.3
Eastern Washington University	\$10,681	\$11,924	48.2	71.6	22.3
Peer Avg	\$11,284	\$10,963	32.7	67.2	17.9
Carnegie Avg	\$10,879	\$10,926	43.4	68.3	19.5

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Eastern Illinois University	\$10,259	\$12,580	56.3	80.5	24.3
Southern Illinois University Edwardsville	\$11,607	\$12,805	48.9	71.9	20.7
University of Southern Indiana	\$9,683	\$7,871	37.4	65.7	16.7
Morehead State University	\$10,446	\$11,890	34.9	70.0	17.6
Murray State University	\$11,123	\$11,874	47.4	72.8	21.1
Northern Kentucky University	\$11,276	\$10,533	33.0	65.3	18.0
Western Kentucky University	\$10,366	\$9,877	42.4	71.7	18.5
Southeast Missouri State University	\$11,505	\$9,837	50.8	68.9	19.5
The University of Tennessee at Chattanooga	\$9,775	\$10,342	40.5	60.8	16.8
The University of Tennessee-Martin	\$8,895	\$10,186	48.7	70.5	16.4
University of Wisconsin-Parkside	\$9,921	\$11,006	31.8	63.6	16.5
Peer Avg	\$10,441	\$10,800	42.9	69.3	18.7
Carnegie Avg	\$10,879	\$10,926	43.4	68.3	19.5

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Auburn University-Montgomery	\$11,760	\$9,288	23.5	57.7	18.3
Augusta State University	\$8,542	\$8,756	19.6	66.6	13.4
Columbus State University	\$9,128	\$10,358	28.4	68.8	16.7
Indiana University-Purdue University-Fort Wayne	\$10,032	\$9,916	24.0	61.1	18.2
Indiana University-South Bend	\$10,781	\$9,418	26.4	58.7	16.3
Indiana University-Southeast	\$10,061	\$9,159	32.7	60.0	20.1
Emporia State University	\$10,846	\$10,196	44.2	68.8	16.3
Northern Kentucky University	\$11,276	\$10,533	33.0	65.3	18.0
Nicholls State University	\$8,918	\$9,981	26.6	66.8	15.2
Southeastern Louisiana University	\$9,094	\$9,672	28.5	62.8	15.1
Salem State College	\$10,909	\$12,250	43.5	70.3	18.4
Peer Avg	\$10,122	\$9,957	30.0	64.3	16.9
Carnegie Avg	\$11,072	\$10,977	46.3	73.7	20.2

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Auburn University-Montgomery	\$11,760	\$9,288	23.5	57.7	18.3
California State University-Bakersfield	\$11,771	\$11,885	44.5	71.3	23.1
Indiana University-Northwest	\$10,804	\$9,524	26.1	62.1	19.8
Purdue University-Calumet Campus	\$10,098	\$9,950	21.5	59.9	18.5
Nicholls State University	\$8,918	\$9,981	26.6	66.8	15.2
University of Michigan-Flint	\$11,811	\$11,347	36.2	69.2	19.9
Angelo State University	\$10,588	\$10,828	32.8	55.3	16.5
Texas A & M University-Corpus Christi	\$13,317	\$9,570	39.5	59.2	20.5
Lamar University	\$10,421	\$9,095	32.3	63.7	17.1
The University of Texas at Tyler	\$11,462	\$10,622	31.8	65.4	23.3
California State University-San Marcos	\$12,663	\$12,868	45.1	69.5	22.5
Arizona State University at the West Campus*	NA	NA	NA	NA	NA
Peer Avg	\$11,238	\$10,451	32.7	63.6	19.5
Carnegie Avg	\$11,159	\$11,882	42.7	67.6	19.9

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Auburn University-Montgomery	\$11,760	\$9,288	23.5	57.7	18.3
Augusta State University	\$8,542	\$8,756	19.6	66.6	13.4
Columbus State University	\$9,128	\$10,358	28.4	68.8	16.7
Indiana University-Purdue University-Fort Wayne	\$10,032	\$9,916	24.0	61.1	18.2
University of Southern Indiana	\$9,683	\$7,871	37.4	65.7	16.7
Indiana University-South Bend	\$10,781	\$9,418	26.4	58.7	16.3
Indiana University-Southeast	\$10,061	\$9,159	32.7	60.0	20.1
Salem State College	\$10,909	\$12,250	43.5	70.3	18.4
University of Michigan-Flint	\$11,811	\$11,347	36.2	69.2	19.9
Minot State University	\$10,019	\$10,106	30.5	67.9	19.1
Austin Peay State University	\$9,234	\$10,276	31.7	64.4	17.9
Midwestern State University	\$9,403	\$10,202	31.1	70.2	21.5
Peer Avg	\$10,114	\$9,912	30.4	65.0	18.0
Carnegie Avg	\$11,072	\$10,977	46.3	73.7	20.2

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Kennesaw State University	\$8,213	\$8,394	35.5	75.1	17.5
Southern Illinois University Edwardsville	\$11,607	\$12,805	48.9	71.9	20.7
University of Southern Indiana	\$9,683	\$7,871	37.4	65.7	16.7
Purdue University-Calumet Campus	\$10,098	\$9,950	21.5	59.9	18.5
University of Michigan-Dearborn	\$13,735	\$12,836	53.5	80.5	21.7
Kean University	\$13,305	\$13,909	43.5	77.6	19.7
William Paterson University of New Jersey	\$15,913	\$14,877	45.3	75.3	19.3
University of North Carolina-Wilmington	\$14,693	\$12,841	67.2	85.4	23.0
University of Central Oklahoma	\$9,311	\$8,905	36.0	59.0	19.3
The University of Tennessee at Chattanooga	\$9,775	\$10,342	40.5	60.8	16.8
University of Wisconsin-Platteville	\$8,730	\$10,132	54.8	71.7	16.1
Peer Avg	\$11,369	\$11,169	44.0	71.2	19.0
Carnegie Avg	\$10,879	\$10,926	43.4	68.3	19.5

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
University of Arkansas at Pine Bluff	\$11,284	\$9,132	27.9	58.6	12.8
Clayton State University	\$8,470	\$9,154	22.6	55.2	20.8
Lewis-Clark State College	\$10,994	\$11,824	24.9	50.2	19.5
Indiana University-Kokomo	\$10,967	\$9,945	33.0	53.5	27.1
Indiana University-South Bend	\$10,781	\$9,418	26.4	58.7	16.3
Indiana University-Northwest	\$10,804	\$9,524	26.1	62.1	19.8
Purdue University-North Central Campus	\$8,870	\$9,600	20.1	56.3	21.5
Shawnee State University	\$10,680	\$10,802	34.5	56.4	15.5
University of South Carolina-Aiken	\$9,937	\$10,862	38.5	66.9	18.5
University of South Carolina-Upstate	\$9,645	\$10,843	36.0	63.3	20.5
Peer Avg	\$10,243	\$10,111	29.0	58.1	19.2
Carnegie Avg	\$8,907	\$12,641	40.1	66.9	17.3

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Auburn University-Montgomery	\$11,760	\$9,288	23.5	57.7	18.3
University of Alaska Southeast	\$21,765	\$21,066	15.7	50.9	16.6
Lewis-Clark State College	\$10,994	\$11,824	24.9	50.2	19.5
Indiana University-Kokomo	\$10,967	\$9,945	33.0	53.5	27.1
Louisiana State University-Shreveport	\$8,444	\$8,456	14.7	59.3	18.2
Missouri Southern State University	\$9,958	\$11,883	34.9	61.4	21.9
Montana State University-Billings	\$11,624	\$12,302	29.2	55.1	16.9
Minot State University	\$10,019	\$10,106	30.5	67.9	19.1
Eastern Oregon University	\$12,791	\$11,174	26.8	53.1	28.3
The University of Texas of the Permian Basin	\$15,046	\$9,222	31.0	53.3	20.4
Bluefield State College	\$5,680	\$10,073	6.0	59.9	18.5
Peer Avg	\$11,732	\$11,394	24.6	56.6	20.4
Carnegie Avg	\$8,907	\$12,641	40.1	66.9	17.3

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Auburn University-Montgomery	\$11,760	\$9,288	23.5	57.7	18.3
Indiana University-Kokomo	\$10,967	\$9,945	33.0	53.5	27.1
Indiana University-Southeast	\$10,061	\$9,159	32.7	60.0	20.1
Indiana University-East	\$10,459	\$8,619	23.1	58.3	18.9
Purdue University-North Central Campus	\$8,870	\$9,600	20.1	56.3	21.5
Louisiana State University-Shreveport	\$8,444	\$8,456	14.7	59.3	18.2
University of Michigan-Flint	\$11,811	\$11,347	36.2	69.2	19.9
Missouri Southern State University	\$9,958	\$11,883	34.9	61.4	21.9
Montana State University-Billings	\$11,624	\$12,302	29.2	55.1	16.9
Minot State University	\$10,019	\$10,106	30.5	67.9	19.1
Eastern Oregon University	\$12,791	\$11,174	26.8	53.1	28.3
University of South Carolina-Aiken	\$9,937	\$10,862	38.5	66.9	18.5
University of Wisconsin-Parkside	\$9,921	\$11,006	31.8	63.6	16.5
Peer Avg	\$10,509	\$10,288	28.8	60.2	20.4
Carnegie Avg	\$8,907	\$12,641	40.1	66.9	17.3

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
John C Calhoun State Community College	\$6,278	\$5,933	10.3	57.4	12.4
Hartnell College	\$7,854	\$6,750	23.2	44.6	10.7
Northwest Florida State College	\$5,471	\$6,610	30.1	57.8	35.1
Southwestern Illinois College	\$6,614	\$6,031	24.9	47.1	29.9
Vincennes University	\$8,670	\$7,254	23.8	65.0	17.9
Des Moines Area Community College	\$5,833	\$7,535	38.6	48.1	17.8
Eastern Iowa Community College District	\$7,329	\$7,280	25.2	45.2	23.6
Delta College	\$8,468	\$8,687	19.4	65.1	28.7
Grand Rapids Community College	\$8,593	\$8,685	14.9	51.4	16.1
Kalamazoo Valley Community College	\$8,268	\$7,524	10.1	52.8	21.5
Lansing Community College	\$9,386	\$8,944	10.2	43.9	24.7
Century Community and Technical College	\$7,786	\$8,676	13.5	47.9	20.1
SUNY College of Technology at Canton	\$10,912	\$13,543	32.8	64.9	27.1
Morrisville State College	\$12,278	\$15,196	17.8	95.8	19.8
Fayetteville Technical Community College	\$6,646	\$7,251	10.1	61.4	14.7
Midlands Technical College	\$6,774	\$8,328	8.6	47.6	21.3
Spokane Community College	\$6,262	\$7,276	21.4	49.8	24.4
Milwaukee Area Technical College	\$18,166	\$19,592	16.5	50.8	22.9
Peer Avg	\$8,422	\$8,950	19.5	55.4	21.6
Carnegie Avg	\$7,529	\$8,115	20.4	50.5	19.6

Peer Institutions	Cost Measures		Performance Measures		
	Total Public Funds (State, Local, Tuition and Fees) per FTE Student	Education Related Expenditures per FTE Student	Graduation Rate within 150% of Program Time	First-Year Retention Rate	Undergraduate Credentials per 100 Undergraduate FTE Students
Ivy Tech System	\$5,426	\$4,889	10.3	55.0	15.3
Colorado Public Associates System	\$5,969	\$6,875	23.2	45.2	14.6
Connecticut Public Associates System	\$10,758	\$12,309	10.3	51.9	13.8
Hawaii Public Associates System	\$9,869	\$11,581	14.5	54.6	17.3
Kentucky Public Associates System	\$5,381	\$7,649	21.8	53.4	18.5
Louisiana Public Associates System	\$6,456	\$9,441	15.6	44.9	14.8
North Carolina Public Associates System	\$7,077	\$8,216	19.9	53.2	13.1
Tennessee Public Associates System	\$6,744	\$7,975	11.1	51.0	13.8
Virginia Public Associates System	\$6,121	\$6,888	14.6	52.4	13.5
Washington Public Associates System	\$7,124	\$9,286	27.9	54.1	17.6
Peer Avg	\$7,093	\$8,511	16.9	51.6	15.2
Carnegie Avg	\$7,285	\$7,939	20.6	52.3	14.7