



IDENTIFYING NEW METRICS USING IPEDS FINANCE DATA

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Executive Summary

This report responds to a request by the National Postsecondary Education Cooperative (NPEC) and the National Center for Education Statistics (NCES) to explore how existing data and indicators from the Integrated Postsecondary Education Data System (IPEDS) finance survey can be used to answer field-generated questions about higher education finance and resource utilization, as well as opportunities for new data and metrics that could be developed. The authors interviewed a broad range of stakeholders, including institutional representatives, policymakers, researchers, and representatives from professional organizations, to identify the field's most pressing higher education finance and resource utilization questions. We also created an inventory of other extant data sources used to describe higher education finance.

Our work resulted in a typology of field-generated questions about higher education finance and resource use, a framework for aligning existing data with questions, and subsequent analysis and recommendations for how the IPEDS finance survey might be revised to collect the types and amounts of data necessary to respond to the higher education field's needs. Our key findings and recommendations are summarized below.

Stakeholder Feedback

Stakeholders shared with us their observations on the most pressing finance questions facing the higher education community. The questions posed were grouped according to five categories:

1. **Institutional spending, revenues, and financial health:** What resources are used by institutions, and what revenue sources are used to pay for these resources? What is the financial health of an institution?
2. **Resource allocation and throughput:** How do institutions utilize their personnel and non-personnel resources?
3. **Service delivery costs:** What does it cost to produce selected outcomes?
4. **Productivity and return on investment:** What is the return on investment associated with how institutions allocate their resources? Which institutions are more or less productive?
5. **Policy and funding:** At what level should institutions be funded to ensure institutional success in achieving desired outcomes?

IPEDS Finance Data and Metrics

To evaluate existing finance data and metrics, we conducted semi-structured stakeholder interviews to generate a typology of field-generated questions about higher education finance and costs. We then used this typology as a framework to compare areas of interest in the field with available data from the IPEDS finance survey. Key findings are summarized below.

- **The IPEDS finance survey's usefulness for answering field-generated questions is constrained by both the types and amounts of data collected.**
The existing financial accounting and reporting structures used to categorize expenditure and revenue data limit how useful the data are for answering a broad range of questions.

Stakeholders attributed the value of the IPEDS Finance survey to: 1) being the only publicly-available source of finance data for most U.S. postsecondary institutions; 2) its ability to support comparisons among U.S. postsecondary sectors and institutions; and, 3) the longitudinal nature of the collection.

- **IPEDS data and related metrics are most useful for describing high level trends for institutional spending and revenues.**

Existing IPEDS finance data and the Delta Cost Project metrics are best suited to answer high-level questions about institutional spending, revenues, and personnel resources. While currently unavailable, new metrics that track an institution's financial health could be readily developed.

- **IPEDS data and related metrics are less able to answer questions about service delivery costs, return on investment, and productivity.**

Financial data collected by IPEDS are not structured to measure costs in ways that can answer questions about the value of particular programs, practices, or activities – nor can expenditure data be easily compared with outcomes. Additionally, existing measures often ignore both the quantity and quality of the inputs, making it difficult to assess return on investment and productivity.

- **IPEDS finance data are not well suited for answering questions about funding adequacy and equity.**

While stakeholders were keenly interested in establishing standards for what constitutes adequate and equitable funding for higher education – both for the basis of comparisons and for policy making – the data necessary to answer these questions currently fall outside the scope of the IPEDS finance survey.

Recommendations

Our findings suggest that the IPEDS finance survey should be revised or redesigned so that data are aligned with the questions that permeate the increasingly complex higher education landscape. Many of the same concerns and challenges identified in this study reflect those described in other reports and discussed by past Technical Review Panels. This report builds on these earlier efforts by contextualizing and prioritizing these opportunities for redesign. Specifically, we offer three recommendations for consideration.

1. **Redesign the IPEDS finance survey.**

In its current form, the IPEDS finance survey – including its data and the metrics available from Delta Cost – are not well aligned with most field-generated questions about higher education finance and resources. For IPEDS to answer these questions, it may be necessary to break from the strict application of existing cost-accounting frameworks (e.g., Governmental Accounting Standards Board [GASB] and Financial Accounting Standards Board [FASB]) as the primary framework for the survey's data collection. We identified two potential paths forward for NPEC's and NCES' consideration, each representing opposing points on a continuum of available options for improving higher education finance data.

- **Path 1 – Substantially revise the amount and types of finance data collected by the existing survey.**

This approach implies that the IPEDS finance survey retains its existing underlying structure, particularly its close ties to financial accounting standards. Within this path are opportunities to improve the utility of the IPEDS finance survey by implementing suggestions made by stakeholders to improve the validity and reliability of the data collected as well as incorporate additional priority elements into the collection.

- **Path 2 – Reconsider the survey’s underlying purpose and data collection structure, with an eye toward developing a fundamentally different approach to collecting data.**

Stakeholder interest in a broader range of data and metrics suggests a fundamental rethinking of the IPEDS finance survey’s underlying framework and the types and amount of data it collects. Implicit in this path is a shift away from the strict application of the existing financial accounting frameworks that are currently used to categorize institutions’ expenditure and revenue information.

These two paths come with tradeoffs. Path 1 preserves the longitudinal nature of IPEDS finance data and may reduce institutional reporting burden in the short run, while path 2 provides an opportunity to redevelop the survey to develop metrics that are well-aligned with stakeholders’ current needs.

2. **Create new financial health metrics.**

We propose eight potential metrics that describe aspects of institutions’ financial health. The current year’s results for these metrics would represent an institution’s present financial health, while the trend over time and future projections would reflect an institution’s long-term trajectory. These metrics could be added to IPEDS finance survey regardless of which redesign path is selected.

3. **Develop new metrics that describe institutional productivity.**

Measuring institutional productivity was among respondents’ highest priorities. In the absence of such measures, there were concerns that simplified ratios comparing spending to outputs will be inadequate, and potentially inappropriate, proxies for making institutions comparisons. We recommend that NCES and NPEC develop guidance for using existing data to develop productivity metrics. This includes highlighting cautions about the extent to which simplified ratios are effective tools for comparing productivity among institutions and exploring strategies for establishing metrics that are conceptually aligned with measures used by other federal agencies to evaluate the productivity of other organizations and returns on federal investments.

Introduction

The U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) finance survey represents one of the federal government's primary efforts to collect information about higher education institutions' revenues, expenditures, and overall financial positions. These data can then be used by institutional leaders, researchers, and policymakers to inform important decisions about institutional and public policies. Taken together, the IPEDS finance survey's most critical function is to provide useful and meaningful statistics that describe higher education finance in the United States. However, there have been longstanding concerns about the utility of the current IPEDS finance survey to various constituent groups.

Most recently, the effective and efficient use of resources in higher education have been front-and-center in education policy discussions. Institutional officials increasingly grapple with decisions about how to best invest scarce resources to improve student experiences across a broad range of outcomes. In many cases, institutions are rethinking their business models and taking more strategic approaches to connecting financial practices with institutional change. At the same time, policymakers and the public demand comprehensive and comparable information about how institutions perform on key measures, including cost, price, quality of services and experiences, and student outcomes. Before them are difficult decisions about how to allocate funding and student financial aid, as well as the responsibility for holding institutions accountable for private and public investments. Researchers require valid, reliable and timely information to rigorously evaluate postsecondary policies, programs, and service delivery systems.

The National Postsecondary Education Cooperative (NPEC) within the National Center for Education Statistics (NCES) commissioned this paper to examine the usefulness of existing IPEDS Finance data and indicators, as well as explore opportunities for new metrics might be developed to address pressing questions by key stakeholder groups. Specifically, we were asked to consider the following:

- 1) What finance data are needed to answer important questions about higher education finance? More specifically, are there possible finance metrics, (i.e., coefficients, statistics) that can better describe to data users the financial aspects of postsecondary institutions?
- 2) How can current IPEDS finance data be used to answer those questions?
- 3) How can the current IPEDS finance data be better defined or refined (through instructions or questioning) to answer those questions?
- 4) Should IPEDS consider collecting additional data to enhance potential new metrics? What is missing from the IPEDS Finance collection that prevents the IPEDS Finance data from being useful or used more?

The purpose of this report is to summarize our findings and recommendations to NPEC and NCES for improving the IPEDS finance survey. We begin by describing the current IPEDS finance survey and The Delta Cost Project, an independent effort to repackage IPEDS finance data and provide performance metrics in an easy-to-use format. We then discuss our approach to answering the questions posed to us by NPEC and NCES and, in turn, summarize our findings.

We conclude with recommendations for modifying the IPEDS finance survey so that the resulting data and metrics more closely align with stakeholder information needs.

Overview of the Current IPEDS Finance Survey & Delta Cost Project

IPEDS Finance Survey

IPEDS is the most comprehensive federal data source for higher education finance. Since 1992, colleges receiving federal financial aid under Title IV of the Higher Education Act have been required to report data to NCES for the IPEDS database.¹ There are now 12 separate surveys in the annual IPEDS reporting cycle, with four surveys containing finance data (Finance, Human Resources, Academic Libraries, and Student Financial Aid).

Most of the finance data of interest are contained in the finance survey (the focus of this paper). The IPEDS finance survey has three separate versions, each of which reflect differences in accounting standards and institutional control. Private nonprofit colleges and a small number of public colleges file based on Financial Accounting Standards Board (FASB) accounting standards, while nearly all public colleges file based on Governmental Accounting Standards Board (GASB) accounting standards. For-profit colleges complete a different survey that contains additional details on tax payments and owner's equity that do not apply to other sectors and does not have a section on endowment values. Table 1 summarizes key types of data collected by the IPEDS finance survey. (See Appendix A for more detailed description.)

Across each version of the finance survey, there are sections for revenues, expenses, student financial aid, and assets and liabilities (net position). Revenue categories include tuition and fees, governmental appropriations and grants, gifts and investment income, and revenue from auxiliary enterprises and independent operations. Expenditure categories include instruction, research, public service, academic support, student services, institutional support, auxiliary enterprises, hospital facilities, and operations and maintenance. Public colleges reporting under GASB also report pension expenditures, a recent addition to the survey.

¹ Ginder, S. A., Kelly-Reid, J. E., & Mann, F. B. (2016). *2015-16 Integrated Postsecondary Education Data System (IPEDS) methodology report*. Washington, DC: National Center for Education Statistics.

Table 1. Summary of Data Collected by IPEDS Finance Survey

Main category	Metrics within each category
Statement of net position	Assets, liabilities, net assets, owner's equity
Revenues	Tuition and fees, auxiliary enterprises, appropriations, gifts, investment income
Expenditures	Functional classification: Instruction, research, public service, academic support, institutional support, student services Natural classification: Wages, benefits, depreciation, operations and maintenance
Scholarships and discounts	Federal/state grants, institutional grants, tuition discounts
Endowments	Beginning and end-of-year values

In the 2016-17 IPEDS data collection (for fiscal year 2016), a significant change was made to the survey's expenditure portion. Previous versions included a matrix for functional and natural classifications – breaking down each expenditure category (functional classification) into natural classifications such as salaries and wages, fringe benefits, operation and maintenance, depreciation, and interest payments. The 2016-17 survey collected functional and natural classifications separately (with the exception of salaries and wages), which means that expenditures are now only available as a total instead of broken down by functional classification.

There are three additional parts of the IPEDS finance survey that public colleges and universities must complete: Part J on revenues, Part K on expenditures, and Part L on debts and assets are reported to the Census Bureau to help them develop statistical estimates and are unavailable to the public. As shown in Appendix A, some categories are broadly similar to categories in the publicly-available IPEDS data files. Yet, there are more details on revenues and expenditures by functional and natural classification reported to Census.

Several other IPEDS surveys collect other information about institutional finance and resources. The academic libraries survey contains information on library expenditures on books and other materials, operations and maintenance, and employee expenses. The human resources survey includes information on salaries of full-time staff members who are not working in medical schools. However, this survey only includes the fall semester, which is not a comprehensive figure for colleges that have year-round instruction. The IPEDS Human Resources survey also has information on the number of employees and total outlays in categories such as research, public service, fiscal operations, and administrative support.

The student financial aid survey includes information on the amounts of federal grant, loan, and veterans benefit revenue a college receives. There are some checks in the IPEDS data collection process to see whether the student financial aid and finance data differ from data reported in other parts of IPEDS. IPEDS currently has few metrics of institutional productivity, but does have credential completions by race/ethnicity and gender in the completions survey and an undergraduate student-to-faculty ratio metric in the fall enrollment survey.

The Delta Cost Project

A related effort is the Delta Cost Project, which is managed by the American Institutes for Research, with NCES also hosting the data on the IPEDS website. Delta Cost aggregates IPEDS finance data to support comparisons over time and adjust for changes in accounting standards and the IPEDS survey questionnaire. The project initially included IPEDS data from 1987 to 2005 and has been updated to include data through 2013.²

The Delta Cost database includes a number of calculated metrics of interest to analysts (see Table 2 for summary). Most metrics focus on institutional finance, with education and general (E&G) expenditures (core expenditures excluding auxiliary enterprises) and education and related (E&R) expenditures (an estimate of direct educational costs) most widely used by the higher education community. Delta Cost also includes metrics about institutional subsidy levels, tuition reliance, and stable operating revenue (excluding volatile factors) such as donations or investment income.

Table 2. Summary of Delta Cost Project Data Metrics

Main category	Metrics within each category
Revenues	Net student tuition, stable operating revenue, tuition reliance, government reliance
Expenditures	Education and general spending (E&G), education and related spending (E&R)
Subsidies	Sticker subsidy, average subsidy
Productivity	E&R spending per degree/completion, degrees/completions per 100 FTE students

The E&G and E&R metrics are frequently compared to degree and credential completions as proxy measures for institutional productivity. Such calculations, however, are subject to limitations. First, the underlying IPEDS expenditure categories are still broad. If a college decides to classify spending as student services instead of institutional support, a larger portion counts toward E&R; IPEDS documentation provides some guidance but leaves colleges with a fair amount of flexibility in placing expenditures. Second, these metrics are an imperfect measure of return on investment due to the degree completions measure not separating transfer students from native students.

Another concern with the Delta Cost dataset rests with how some institutions report data to IPEDS at the OPEID level, which can represent multiple IPEDS UnitIDs (usually the case of branch campuses or a system of higher education). This ‘parent-child’ issue is less prevalent than it was in the past in IPEDS data, but it is still a concern for analysts to consider. Delta Cost reassigned child institutions to their parent if they ever reported that way since 1987, and as a result a larger number of institutions have aggregated data. Ozan Jaquette and Edna Parra’s 2016

² Delta Cost Project. (2011, December). *Delta Cost Project documentation of IPEDS database and related products*. Washington, DC: Author.

article argues that the Delta Cost database should not be used for public colleges because analyses can be affected by the aggregation strategy, although there is debate among the higher education community regarding that assessment.³

Study Design

We used two different methods to gather data about the state of the higher education finance landscape and questions of interest to the broader community. We interviewed a range of individual stakeholders and groups of stakeholders over the course of several months to gather their opinions on how to improve the utility of IPEDS finance data. These stakeholders included 23 representatives of for-profit, non-profit, and public colleges. Participants were primarily experienced institutional researchers and finance officers, but also included policymakers, researchers, and other leaders in higher education.⁴

The semi-structured interviews generally lasted 45-60 minutes and covered a broad range of questions tailored to respondents' roles and experiences (see Appendix B for interview protocol). We asked about the current state of higher education finance data, the types of sources they used on a regular basis, and their recommendations for improving the IPEDS finance survey. Some individuals participated in a follow-up interview to clarify points or expand on ideas. Additionally, we presented a draft of the paper and preliminary recommendations to NPEC (April 2017) and the IPEDS state data users conference (May 2017). We received feedback from stakeholders on both occasions and incorporated it into subsequent drafts of this report.

We also conducted a scan of available higher education finance data sources beyond the IPEDS surveys and the Delta Cost. We began with sources about which we were initially aware and expanded this list through discussions with stakeholders. The list of higher education finance data sources considered in our work can be found in Appendix D.

Findings

The purpose of the IPEDS finance survey is to provide useful and meaningful statistics that describe patterns of resource allocation in higher education. To be both useful and meaningful, however, IPEDS finance data must:

1. Respond to critical questions in the field in ways that address stakeholders' information needs; and
2. Provide users with valid, reliable data that are comparable at meaningful levels of disaggregation.

³ Jaquette, O. & Parra, E. (2016). The problem with the Delta Cost Project database. *Research in Higher Education*, 57(5), 630-651.

⁴ Altogether, we interviewed eight institutional representatives, two academic researchers, six stakeholders who have worked with agencies and organizations to collect and disseminate higher education finance data, three representatives from membership organizations, three officials from the U.S. Department of Education, and two policymakers. We used a semi-structured interview protocol that allowed us to target and adapt questions according to different audiences.

Stakeholders shared with us their thoughts on both the most pressing finance questions facing the higher education community and the extent to which existing data and metrics were useful in answering these questions. They also described what they saw as the strengths and weaknesses of the IPEDS finance survey in its current form, identifying specific opportunities for providing the types and quality of data needed. We report key findings from these interviews in the sections that follow.

Questions from the Field

During our interviews, stakeholders raised many pressing higher education finance questions that they wrestled with on a regular basis. The questions posed by interviewees were subsequently grouped according to five categories (Table 3):

1. **Institutional spending, revenues, and financial health:** What resources are used by institutions, and what revenue sources are used to pay for these resources? What is the financial health of an institution?
2. **Resource allocation and throughput:** How do institutions utilize their personnel and non-personnel resources?
3. **Service delivery costs:** What does it cost to produce selected outcomes?
4. **Productivity and return on investment:** What is the return on investment associated with how institutions allocate their resources? Which institutions are more or less productive?
5. **Policy and funding:** At what level should institutions be funded to ensure institutional success in achieving desired outcomes? (See Appendix C for additional detail on questions posed by stakeholders.)

Below we discuss each category of questions in further depth.

Table 3. Typology of Field-generated Questions

	Institutional Spending, Revenues, and Financial Health	Resource Utilization	Service Delivery Costs	Return on Investment and Productivity	Policy and Funding
Description	What resources are used by institutions, and what revenue sources are used to pay for these resources? What is the financial health of an institution?	How do institutions utilize their personnel and non-personnel resources?	What does it cost to produce a particular student outcome? What is the institution’s “return on investment” associated with how resources are currently allocated?	Which institutions are more or less productive?	At what level <i>should</i> institutions be funded to ensure institutional success in achieving desired outcomes?

Institutional spending, revenues, and financial health. Stakeholders stressed the importance of being able to construct descriptive profiles of institutional finances over time. This information is most useful when it is categorized by sector (e.g., public four-year, public two-year, etc.), geographic location (e.g., state), and institution, particularly for colleges looking to use IPEDS data for benchmarking purposes. Broadly, the questions posed fell into three general categories. (Appendix C provides additional detail on the questions posed by stakeholders.⁵)

- **Expenditures and Revenues**

Stakeholders reiterated that the higher education community relies on IPEDS finance data to answer questions about how much institutions spend, in total and by function. For example, stakeholders wanted to know what is being spent on student instruction. Similarly, IPEDS finance data also respond to questions about which sources institutions receive revenue and the distribution of revenue across sources. In both instances, the questions posed indicated comparisons among institutions – for instance, the extent to which spending by function differs across sectors.

Stakeholders also posed questions about institutional spending at the sub-function, or program, level. For instance, several stakeholders wanted to know more about how much institutions spent on mentoring, developmental education, and advising activities. Similarly, stakeholders posed questions about differences in spending for graduate and undergraduate students. In all cases, there was a keen interest in answering questions focused on benchmarking individual institutions against national or sector-specific averages and trends. While respondents noted potential challenges in doing so within the existing IPEDS finance survey framework, many stakeholders shared that they saw the significance of being able to answer questions about how much institutions spend (e.g., instructional and academic support) for certain subgroups (e.g., Pell Grant recipients, racial/ethnic minorities, graduate and undergraduate students).

Likewise, stakeholders posed descriptive questions about institutional revenues, in total and by source. There also was interest in understanding how revenues varied according to student subgroups (e.g., resident/nonresident, upper/lower division, graduate/undergraduate).

- **Linking Spending and Revenues**

Stakeholders posed questions about how institutional spending is linked to the amount and types of revenues received. Of particular interest were questions about how institutions spend dollars from specific revenue sources. For instance, what does a student's tuition dollars pay for? What do institutions spend their restricted and unrestricted funds on? Of interest was benchmarking institutional decision making against national and sector-level norms.

⁵ The questions listed in Appendix C should be considered representative examples from our interviews with stakeholders. In some instances, our conversations were focused on the importance of the topic, generally, while in other instances stakeholders identified specific questions of interest.

- **Institutions' Financial Health**

The financial health of higher education institutions is a critical issue for policymakers and consumers. In our interviews, stakeholders expressed a need for indicators describing the extent to which institutions have sustainable business models, both in the short- and long-term.

Resource Allocation

There is growing recognition on the part of the higher education community that summary spending and revenue data does little to shed light on differences in how institutions deploy tangible resources to meet objectives. Ultimately, the dollars spent by institutions are invested in tangible resources used to produce observed outcomes. Stakeholders posed questions about differences in institutional staffing profiles. For example, how many and what types of personnel do institutions employ? How does the mix of faculty and staff at individual institutions compare to national and sector-level norms? Recognizing that human resource information is collected by the IPEDS human resources survey, stakeholders noted that staffing detail from this companion survey provides some basic insights into resource allocation strategies used by institutions.

Service Delivery Costs

There is increasing interest in estimating the cost of programs and services and comparing these costs to alternative designs and interventions as well as program effects. For instance, institutional officials shared that they were often faced with questions about what specific campus initiatives cost and, as noted above, stakeholders more generally were interested in knowing more about what institutions spent on specific activities that cut across or were not easily disentangled for expenditures organized according to IPEDS functional and natural classifications.

Return on Investment and Productivity

Respondents were quick to note that efforts to monitor and evaluate institutions strictly on cost were inherently problematic. Instead, it was important to also ask and answer questions that evaluated the relationship between the quality and quantity of resources used and resulting outcomes. That is, stakeholders were interested in answering questions not only about “what do programs and services cost?” but also “what do institutions get for the dollars they spend?” Here, stakeholders posed questions thought of as most useful to institutions in their efforts to be more strategic in how they deploy scarce resources and benchmarking institutional performance. For instance, which institutions maximize student success given available resources? Which institutions are more and less “productive?” What does it cost to produce certain student outcomes?

Policy and Funding

Stakeholders expressed interest in exploring resource adequacy for higher education institutions. For instance, how much money is needed to provide a quality education, and who should provide the funds necessary? That is, at what level *should* institutions be funded to ensure institutional success in achieving desired outcomes?

Data and Metrics

Stakeholders viewed efforts by Delta Cost to package IPEDS finance data into consistent and comparable indicators and metrics as useful for profiling trends and comparisons among sectors. In Table 4 we map these metrics against the questions of interest to the higher education community that were identified by stakeholders in our interviews. However, in doing so we identified gaps between what is available and the types of indicators that stakeholders would find most useful and meaningful. We asked respondents to describe potential new metrics that could be developed using IPEDS finance data. In doing so, we did not constrain their thinking to metrics that could be generated with existing IPEDS data, but rather asked them to think more broadly about what types of indicators would be most useful and meaningful based on other existing data sources or their own experiences. We also report suggested metrics according to our stakeholder question typology.⁶

- **Institutional spending, revenues, financial health and resource utilization.** Delta Cost metrics are generally best suited to answer high-level questions about institutional spending, revenues, and personnel resources. Even then, their utility diminished or disappeared when questions focused on smaller units of aggregation than what is currently reported. The most frequent suggestion for improving existing Delta Cost metrics was to consider different approaches to aggregating expenditure data. For instance, when considering potential new metrics that describe institutions' resource utilization and revenues, stakeholders were most interested in metrics that tracked spending according to activities that fall within functional categories (e.g., within academic support, advising) and other efforts not easily classified under one functional classification (e.g., athletics, information technology). In these instances, the IPEDS finance survey would need to be revised to collect new data from institutions. Alternatively, stakeholders identified opportunities to develop indicators of institutions' financial health that could be developed that expand on the revenue, expenditure, and balance sheet portions of the current survey or data that colleges currently report on their financial statements. Respondents also cited the need to aggregate data to support institution-level comparisons.
- **Service delivery costs.** The metrics generated by Delta Cost were less useful for answering questions about the cost of delivering programs and services. Accounting requirements are not structured to measure cost in ways that can answer questions about the value of particular activities, nor can expenditure data be easily compared with outcomes. Earlier efforts by Delta Cost to aggregate expenditure information according to E&G, education-related expenses, and E&R were attempts to organize institutional expenditures into meaningful and comparable metrics that describe institutions' operating and instructional costs. While these metrics provide a general sense of institutional spending, respondents were interested in more granular data that could be used to examine unit costs and estimate the costs of specific programs and services.

⁶ In listing possible metrics, we report those identified by stakeholder respondents. As we discuss in our recommendations, a key consideration for future work will be to prioritize the questions that should be answered by the IPEDS finance survey and align metrics with these questions.

- **Return on investment and productivity.** Delta Cost generates indicators that compare expenditures to completion outcomes as well as other measures of throughput within an institution (e.g., total degrees per 100 students). While stakeholders identified several additional metrics that might be calculated using existing IPEDS finance data (e.g., completions per \$100,000 spent), they also were cautious about overstating the value of these indicators for characterizing the returns to investment within institutions. Rather, respondents felt that returns to investment needed to be considered in light of a broader set of outcomes, including short- and medium-term outcomes that could be used to compare returns on shorter and longer time horizons. On the input side of the equation, stakeholders expressed interest in metrics that captured returns to spending on specific programs and activities as well as dollars spent for instruction and academic supports for student subgroups.

Stakeholders distinguished between metrics that could be used to evaluate the returns to spending and institutional productivity. The common concern was that existing and possible future measures that limited comparisons between spending (cost) and outcomes ignored both the quality of the inputs and outputs. Focusing on strictly the quantitative aspects of productivity (e.g., financial returns operationalized in terms of credit generation) may trigger institutions to minimize costs without consideration of the quality of the outcomes received. Rather, respondents expressed interest in one or more indices that could be used to compare the relative productivity of higher education institutions.

There were some concerns raised about the federal government creating productivity metrics, as this could create the perception that the Department of Education is endorsing certain ways to evaluate institutional performance. If NCES were to release productivity metrics, they have the ability to create documentation and best practices for using the metrics that could help prevent individuals who use the metrics inappropriately from gaining traction with their analyses. An additional concern is that any productivity metrics created could potentially be gamed by unscrupulous colleges; this is a real concern but one that already exists in the realm of public-sector and private-sector accountability efforts.

- **Policy and funding.** While stakeholders discussed the importance and timeliness of establishing standards for what constitutes adequate and equitable funding for U.S. postsecondary institutions, respondents also recognized that the data necessary to answer these questions likely fell outside the scope of the IPEDS finance survey.

Table 4. Available Data & Possible New Metrics

	Available from IPEDS or Delta Cost	Stakeholder Suggestions for New Metrics Using IPEDS Data
Institutional Spending, Revenues, and Financial Health	<ul style="list-style-type: none"> - Expenses by functional and natural classification (presented separately as of 2016-17) - Staffing levels and salary/benefit expenditures - Revenue by functional category - Net student tuition - Stable operating revenue - Reliance on tuition - Reliance on government funds - Sticker subsidy - Average subsidy 	<ul style="list-style-type: none"> - Spending per sub-functional categories (e.g., activities within academic support – mentoring, developmental education, advising) - Spending on categories such as athletics, information technology, and marketing regardless of which functional classification it is placed under - Spending per student groups - Net revenue* - Revenue per student groups - Average compensation spending per FTE employee* - Distribution of compensation and non-compensation spending* - Indicators describing an institution’s financial health (e.g., days of cash on hand; net operating margin; revenue diversity; discount rates for tuition and required student changes; marketing/recruiting expenses as percentage of total revenue; ratio of total assets to outstanding debt)*
Resource Utilization	<ul style="list-style-type: none"> - Undergraduate student-to-faculty ratio - Staffing levels by functional expenditure category - Full-time instructional staff by academic rank and tenure status 	<ul style="list-style-type: none"> - Staff to faculty ratios* - FTE faculty/total student credit hours or clock hours* - FTE faculty per student* - Administrative staff per student*
Service Delivery Costs	<ul style="list-style-type: none"> - Education and general expenses - Education-related share of expenses 	<p>Unit Costs**</p> <ul style="list-style-type: none"> - Cost per credits attempted, not completed - Cost per student* - Cost for completing gateway courses <p>Activity & Program Costs</p> <ul style="list-style-type: none"> - Cost per program, degree type, student type
Return on Investment and Productivity	<ul style="list-style-type: none"> - Completions by credential type, race/ethnicity, and gender (Pell status coming soon) - Expenditures per completion - E&R expenditures per completion - Total degrees per 100 FTE students - Total completions per 100 FTE students 	<p>Return on Investment</p> <ul style="list-style-type: none"> - Completion per \$100,000 spent* - Completions per FTE faculty* - Completions per spending on E&R, overall and for different groups of students (e.g., undergraduate vs. graduate, by type of credential awarded) * <p>Productivity</p> <ul style="list-style-type: none"> - Standardized indicator for institutional-level productivity
Policy and Funding		<ul style="list-style-type: none"> - Resource-adjusted estimates for cost to complete (by student subgroups, majors/disciplines, and sectors) - Ratio of cost to complete to revenues from public sources

*Metrics that might be developed using existing IPEDS finance data or with minor revisions.

**Unit costs could be estimated for expenditures classified according to existing functional categories. Stakeholders also were interested in unit cost estimates that reflected sub-function activities and programs.

Strengths and Weaknesses of the Current IPEDS Finance Survey

Stakeholders reiterated the importance and value of a federal data collection that captures information on higher education institutions' expenditures, human resources, and revenues. In its current form, the IPEDS Finance survey was viewed as useful for answering basic questions about institutional finance. However, its usefulness stemmed not so much from the types and quality of data collected, but instead was attributed to two main factors:

1. Coverage

The IPEDS finance survey is the only publicly-available source of finance data for most U.S. postsecondary institutions.

2. Comparability

The IPEDS finance collection represents an important data source for making comparisons among U.S. postsecondary institutions.

However, the usefulness of this information for answering field-generated questions has been constrained by both the types and amounts of data collected by the IPEDS Finance survey as well as its reporting conventions, notably challenges introduced by differences in accounting and reporting standards (i.e., GASB, FASB, and for-profit standards).⁷ Furthermore, although the IPEDS finance collection supports some comparisons over time, stakeholders voiced concerns about the validity of time trend data given the periodic changes in data collection (largely tied to changes in accounting standards).

A number of respondents mentioned that it is difficult to compare private and public colleges due to the differences in GASB and FASB accounting standards. (For-profit colleges generally preferred to do comparisons within their own sector, reducing this concern.) A common example was the issue of pass-throughs for federal grant aid; the Pell Grant is a federal grant under GASB but either a pass-through or a federal grant under FASB. State grants are even more complicated, as some states' grants appear as appropriations, some as a pass-through, and some as neither.

Respondents also were concerned about whether colleges consistently reported the same types of expenditures in the same natural expenditure categories. For example, academic advising could fall under instruction, academic support, or student services – and large changes in a reported value in a short period of time suggest that a college likely changed its classification system or had a new budget officer. There was also little confidence that the data were consistently comparable across colleges for these reasons.

Respondents differed in the value of the full functional and natural expenditures matrix that was eliminated from the IPEDS finance survey in the 2016-17 academic year. Individuals with business office and accounting experience expressed concerns about the utility of the data and

⁷ It is noteworthy that many of the same concerns and challenges expressed by stakeholders in our study reflect those that were described in a 2015 NPEC report, *Improving the IPEDS Finance Component*, authored by HCM Strategists.

respondent burdens, while some IPEDS stakeholders and individuals in the research and policy community reported finding the data useful without being a significant reporting burden. For example, one institutional researcher noted that his institution used the detailed information in the reporting matrix when talking with legislators about operating costs.

Additionally, several respondents felt that in its current form the IPEDS finance survey fell short of being able to answer pressing questions in the field, citing that the collection was not designed with these questions in mind. A critical limitation is the use of financial accounting conventions for reporting. To address this limitation, a number of stakeholders suggested that the survey be redesigned to explicitly respond to priority questions and with new data elements and metrics in mind.

Stakeholders shared their thoughts on ways in which the existing IPEDS finance collection might be improved by either adding or deleting items, or further standardizing the definitions used to categorize institutional expenditures and revenues. Our analysis suggests that stakeholder input and recommendations might be broken into five broad categories:

1. **Breaking data down into smaller classifications.**

Stakeholders raised four possible ways in which institution-level data could be broken down into smaller classifications:

- Credit/non-credit
- Graduate/undergraduate
- Lower/upper division
- By individual program

There also seemed to be more support from stakeholders for the first two classifications than the last two given to the relative sizes of these populations. Providing finance data separately or otherwise accounting for non-credit students (such as those enrolled in continuing education or certain types of remedial coursework) would create a more accurate expenditure metric than pre-FTE metrics that are only based on credit-bearing courses. The graduate/undergraduate distinction also had appeal to some respondents as a logical way to break down revenue and expenditure data. Additionally, there was general support for reporting more data at the child level for institutions that currently use a parent/child reporting relationship so institutions can be better compared at the UnitID level instead of having to aggregate up to the OPEID level for certain metrics.

There were two main concerns about the more nuanced reporting categories (particularly for smaller colleges): institutional burden and the accuracy of reported data. In addition to colleges potentially collecting more data to meet reporting requirements, these changes would require some colleges to change their financial reporting structures. For example, institutions that currently gather finance data at the program level would need to reorganize their internal data structures if separate data are to be collected for graduate and undergraduate students in a department that offers courses at both levels. Some respondents were concerned that institutions would struggle to accurately define these categories, creating erroneous differences across institutions. The general preference was

to leave program-level financial data to external sources such as the Delaware Cost Study and the National Community College Benchmarking Study (see Appendix D for more details).

2. Expanding or clarifying existing revenue data.

Stakeholders mentioned the need for clearer definitions of existing revenue categories, with the issue of Pell Grants being treated as a pass-through or not being a common concern. There were multiple requests for more nuanced information on net tuition revenue and net revenue per student, particularly regarding how grants and scholarships are applied to a student's financial aid package. Additionally, respondents sought information on resident/non-resident tuition revenue, a key category of interest for public colleges.

3. Expanding or clarifying existing expenditure data.

A key limitation of current expenditure data is that dollar amounts collected at the institutional level may be distorted by various factors that make expenditure data non-comparable across institutions. There were frequent concerns about whether colleges place the same types of spending in the same expenditure categories within the survey, and better definitions could help. This was particularly the case with expenditures on instruction and academic/student support.

Additionally, there was considerable interest among stakeholders in categorizing institutional expenditures in ways that better aligned with how institutions organize their programs and services. In some instances, this might involve considering ways that expenditures on activities within functional categories might be collected (e.g., advising). Respondents also wanted information on the following categories that are currently unavailable as separate categories in IPEDS but are of particular interest to the field, including information technology, athletics, admissions and marketing, and housing and residence life.⁸ The National Association of College and University Business Officers' (NACUBO) Financial Accounting and Reporting Manual (FARM) was referenced as a useful resource in potentially helping to create these new expenditure categories (see Appendix D for more details).

4. Removing items that have limited usage, may have poor reliability, and are not well aligned with key questions in the field.

Not all items on the survey are considered useful to stakeholders and others may have poor reliability. Moving forward, a careful review of existing items for their alignment with key questions in the field as well as known weaknesses is a necessary step. NCES also collects some information on how frequently individual IPEDS items are downloaded from the Data Center; although this does not account for people who download complete survey data files, it would be helpful to bring usage data into discussions about which metrics should be kept and which ones could be eliminated. Releasing usage data was also a recommendation from a 2016 Institute for Higher Education Policy (IHEP) report that included input from a group of higher education

⁸ Colleges are asked near the beginning of the IPEDS survey to check whether athletics are reported as an auxiliary enterprise or a student service, but spending on athletics is not broken out in IPEDS data.

finance experts.⁹ Additionally, NCES should consider commissioning a broader survey of IPEDS keyholders and data users to gather their feedback about metrics to eliminate if the finance survey retains its current structure.

5. Provide support for changes in accounting standards.

Although the IPEDS finance collection supports some comparisons over time, stakeholders voiced concerns about the validity of time trend data given the periodic changes in data collection. Frequent changes to accounting standards are viewed as having undermined the quality and usefulness of the survey's longitudinal comparisons. Whenever accounting standards change, it would be useful to ask colleges to report data using both the old and new standards for a year or two to help develop a crosswalk between the two reporting standards.

Summary

The purpose of this report was to evaluate the usefulness of existing IPEDS data and indicators, as well as explore opportunities for new data elements and metrics that might be developed. Our efforts were grounded in stakeholder input that clarified and prioritized questions of most interest to the higher education community, as well as their evaluation of the utility and meaningfulness of existing data and metrics. This two-part strategy allowed us to examine the extent to which available data and metrics are aligned with stakeholder interests and needs.

We found that stakeholders from the higher education community view the IPEDS finance survey as a valuable resource. In its current form, the IPEDS finance survey answers basic, high-level questions about institutional finance. The value placed on the survey's data is closely tied to the fact that it is the only publicly-available source of higher education finance data for most U.S. postsecondary institutions. Although the longitudinal nature of the collection also is a strength, over time the validity of time trend data has been undermined due to periodic changes in data collection that have been tied to changes in external accounting and reporting standards.

Nevertheless, the IPEDS Finance survey's capacity to generate data and metrics that address the broad range of contemporary questions facing policymakers, institutional leaders, consumers, and researchers is constrained by both the types and amounts of data collected as well as its reporting conventions, notably challenges introduced by its ties to financial accounting and reporting standards (i.e., GASB, FASB, and for-profit standards). Put simply, stakeholders reported that in its current form the IPEDS finance survey falls short of being able to answer pressing questions in the field, citing that the collection was not designed with these questions in mind.

Given the constraints inherent in the survey's design, existing metrics created by Delta Cost are limited in their ability to address all but the most basic questions about trends in institutional spending, revenues, and personnel resources. Other metrics that relate spending with outcomes and measures of student progress toward degrees run the risk of oversimplifying answers to

⁹ Rorison, J., & Voight, M. (2016). *Putting the "integrated" back into IPEDS: Improving the Integrated Postsecondary Education Data System to meet contemporary data needs*. Washington, DC: Institute for Higher Education Policy.

complex questions about returns to spending and institutional productivity. Recommendations made by stakeholder respondents suggest opportunities for constructing new metrics that could be useful for unpacking and comparing institutions' finances. However, many of the metrics identified would require new types of and levels of aggregation in data that are not supported by the existing data collection approach.

Recommendations

Taken together, our findings suggest that efforts to improve upon existing and expand the higher education finance metrics available from the IPEDS finance survey will need to be grounded in a larger effort to revise or redesign the collection so that the data are aligned with the questions that permeate the increasingly complex higher education landscape. Opportunities to improve the IPEDS finance survey are not new. Many of the same concerns and challenges expressed by stakeholders in our study reflect those that were described in the 2015 NPEC report, *Improving the IPEDS Finance Component*, and subsequently discussed by a Technical Review Panel convened in 2016. This report builds on these earlier efforts by contextualizing and prioritizing these opportunities in light of information needs by the survey's primary stakeholders.

Looking forward, we offer three recommendations for NPEC's and NCES' consideration. The first responds to larger concerns about the current structure of the IPEDS finance survey and the survey's capacity to provide the types of data and metrics needed to address the range of questions facing the higher education community. The latter recommendations identify two types of metrics that could be developed that would fill critical information gaps.

Recommendation 1: IPEDS Finance Survey Redesign

Based on respondent feedback and our investigation of sources, data, and metrics that describe higher education finance, it became clear that the current landscape of higher education finance data is not well-aligned with the questions of interest to institutional officials, researchers, and policymakers. In order for the IPEDS finance survey to answer these important questions, it is necessary to step away from current accounting-based elements in certain cases. Meanwhile, other questions of interest require accounting-based elements that may need to be adjusted to better meet the needs of the field.

We identified two potential paths forward for NPEC's and NCES' consideration that represent a continuum of the available options for improving higher education finance data. The first option would maintain the survey's existing underlying financial accounting framework but substantially alter the amount and types of financial data collected to make it more useful to stakeholders. The second option would abandon the survey's close ties with the existing financial accounting-based framework and explicitly design the survey to respond to priority questions, with new data elements and metrics in mind. Both paths have their strengths and weaknesses that deserve careful consideration. We discuss our thoughts on the two paths below, with more space being devoted to the second path because the first path has been explained at length earlier in the paper and adheres more closely to current accounting standards.

Path 1: Substantially revise the amount and types of finance data collected

This approach to redesigning the survey implies that the collection retains its existing underlying structure, particularly its close ties to existing financial accounting standards. Doing so suggests that the current approach to categorizing and aggregating financial data is sufficiently flexible to respond to the range of questions posed by stakeholders. This path forward necessitates implementing many of the suggestions made by stakeholders in this and other efforts (e.g., the 2015 NPEC report mentioned above) to improve the validity and reliability of the data collected (e.g., improving definitions), as well as incorporate additional priority elements into the collection while potentially eliminating little-used metrics that are not relevant to stakeholders.

Within this path there are opportunities to improve the utility of the IPEDS finance survey by developing new metrics using existing data, particularly regarding the current survey's relative lack of metrics regarding financial health. However, new metrics would largely be limited to further describing, at a high level institutional spending and revenues; additional metrics that get at other questions about cost, productivity, and funding or that aggregate data in more meaningful ways may not be accomplished within the existing data collection framework.

Selecting this path has the benefit of maintaining the longitudinal nature of the existing survey as well as, in the short term, minimizing any new burden placed on institutions resulting from changes. Doing so, however, will continue to limit the extent to which survey's data can answer many of the field-generated questions identified in this study.

Path 2: Redesign Survey to Reflect Priority Questions in the Field

Alternatively, stakeholder interest in a broader range of metrics points toward the need to fundamentally rethink the IPEDS finance survey's underlying framework and the types and amounts of data collected. Implicit in such a redesign effort would be a shift away from the strict application of the existing financial accounting frameworks that are currently used to categorize institutions' expenditure and revenue information. A redesigned IPEDS finance survey could collect financial, resource, and outcome data that support:

1. Different types of aggregation than what is currently reported, including spending on activities that fall within functional categories (e.g., within academic support, advising) and other efforts not easily classified under one functional classification (e.g., athletics, information technology) that can be used to produce valid and reliable estimates that can be used to benchmark and compare institutions.
2. Linking institutional spending and revenues (i.e., sources with uses), particularly in ways that allow aggregation of expenditures and revenues to better understand how institutions spend the dollars that they receive.
3. Characterizing the types of resources (e.g., faculty time) used by institutions to produce observed outcomes – that is, what goods and services do institutions purchase to achieve a broad range of student outcomes (e.g., student credit hours, completions).

4. Relating measures of institutional spending and real resource use with extant outcome measures, in aggregate and for specific student groups (e.g., race/ethnicity, Pell Grant receipt, residency status).

While the findings from this study provide important context for redesigning the IPEDS finance survey, such an effort will need to be grounded in an established set of priorities for questions in the field. Our interviews with stakeholders, particularly those involved in other efforts to collect data on institutional finance and resources, point toward several key considerations for an alternative design, including:

1. What financial information is most relevant for tracking institutional spending and revenues? What benchmarks are most widely used or valued by the field for evaluating spending and revenues? At what level of granularity is institutional spending data most useful and reliable?
2. What categories are most useful for organizing expenditure and revenue data?
3. What real resources are most important for understanding the production processes in place at institutions?
4. What outcomes are most relevant for assessing institutional productivity and can be reliably linked with institutional spending measures?

We identified two alternative examples – one from higher education and the second from K-12 education – as potential starting points for developing an alternative cost accounting framework.

- **The Source/Use Concept.** The “source/use concept” is a potential alternative framework for collecting and reporting institutional finance data. The concept breaks with the application of fund-accounting principles, prioritizes “fiduciary accountability” and the production of financial statement and does not present financial data in ways that reflect institutions’ financial decision making. Instead, the concept presents a summary picture of institutional operations and their financing that is derived from and linked to the institutional accounting system and relates types of revenues (sources) to types of expenditures (uses). The resulting matrix communicate both where money comes from and where it goes. The source and use data categories can be varied and the matrix can be dissected or expanded to meet particular information needs.

This flexibility to report finance data in meaningful units mirrors our recommendations for developing a data collection approach that breaks from the strict function and object codes that typify accounting-based frameworks. It also provides a means to link expenditure and revenue information in meaningful ways. The matrix is not intended to be a substitute for conventional financial statements; instead, it is best suited for collecting summary data. Accordingly, if this approach was adopted some financial accounting data might still be collected by the IPEDS finance survey.

One possible model for applying the source/use concept was developed and tested by the National Center for Education Management Systems (NCHEMS).¹⁰ Results from this test suggested that the approach was both feasible and cost effective to implement. Overtime, states also have used different source/use matrices to collect financial implementation.

- **Resource Cost Modeling (RCM).** This approach prioritizes measuring educational resources in terms of physical ingredients organized according to service delivery.¹¹ As initially conceptualized, the approach integrates finance and resource data from different databases used to track spending and revenues, human resources, and student information. While RCM was developed and tested as an approach to modeling resources in K-12 education (in one state), higher education institutions involved in efforts to implement Activity-based Costing and strategic finance are implementing analogs to this initial concept.¹²

The benefit of selecting either approach to redesigning the IPEDS finance survey is in the opportunity to redevelop the survey in a way that collects data and develop metrics that are well-aligned with contemporary information needs. The downside, however, is that such a break with the existing survey and data collection framework in the short term may impose additional burden on institutions as well as potentially disrupt some aspects of the collection's longitudinal data.

Recommendation 2: Develop Metrics to Gauge Institutions' Financial Health

After reviewing available data sources outside of IPEDS (see Appendix D for more details) and interviews with a range of stakeholders, we propose eight potential metrics of financial health to add to the IPEDS finance survey that expand on the revenue, expenditure, and balance sheet portions of the current survey. In general, the current year's results for these metrics represent a college's present financial health, while the trend over time and future projections reflect a college's longer-term trajectory. These metrics could be added to IPEDS regardless of which type of finance survey redesign is desired.

1. **Days of cash on hand.** This metric, which can be readily calculated based on information available on financial statements, represents the number of days for which operations can be funded through available cash or other liquid assets. Too few days of cash on hand is a concern if there is an unexpected shortfall in revenue or increase in expenses, while too much cash on hand may suggest a suboptimal use of assets.
2. **Net operating margin (with and without investment proceeds).** This metric, which is the change in net assets in the past year, reflects whether a college is gaining or losing

¹⁰ Allen, R. & Coller, D. (1980). *The higher education finance manual: The source/use concept*. Boulder, CO: National Center for Higher Education Management Systems.

¹¹ Chambers, J. (1999). *Measuring resources in education: From accounting to the Resource Cost Model approach*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics.

¹² For example, Anguiano, M. (2013). *Cost structure of post-secondary education: Guide to making activity-based costing meaningful and practical*. University of California-Riverside; and Massey, W. (2016). *Reengineering the university: How to be mission centered, market smart, and margin conscious*. Baltimore, MD: Johns Hopkins Press.

money in its operations. While for-profit colleges would consider this to be a profit or loss, nonprofit colleges still need to generate excess revenue to invest in future improvements and to enhance their financial position. The net operating margin should be calculated both with and without gains or losses from investments to get an idea of whether the college's financial position improved aside from any changes in the financial markets.

3. **Revenue diversity.** As many colleges are dependent on students to provide a large percentage of their total revenue, the percentage of total revenue coming from students is a key metric of financial health. This should include tuition and fee revenue as well as revenue from housing and dining for campuses with residence halls.
4. **Discount rates for tuition and required student charges.** A common theme among stakeholders was that IPEDS does not have an adequate measure of tuition discount rates. There is room for a better measure in a revised IPEDS finance survey to allow institutions to make better comparisons about their pricing strategies. There was particular interest in improving information on funded versus unfunded discount rates as well as requests for discount rates for different subgroups of students (such as resident and nonresident students).
5. **Marketing/recruiting expenses as a percentage of total revenue.** This is a useful measure of financial health because colleges with a high percentage of funds going toward marketing or recruiting students may be struggling to enroll students – a potential concern going forward. This could also allow for a measure of student acquisition costs to be calculated, which is another useful measure of a college's ability to attract students.
6. **Ratio of total assets to outstanding debt.** This metric, which is easily calculated from balance sheet information, serves as a proxy for whether a college has the ability to borrow additional money if needed. It also aligns well with existing measures of financial health used for financial responsibility scores and credit rating agencies' methodologies.
7. **Endowment spending rates.** The IPEDS finance survey currently includes the beginning and ending values of the endowment in a given year but does not provide enough information to determine why the endowment value changed (investment returns, new donations, and withdrawals). To clarify this, breaking the endowment change into its three components would help institutions and the public better understand a college's financial situation. This would allow for endowment spending rates to be calculated, which is a key measure of interest but is only available through the NACUBO-Commonfund endowment survey (and not for individual institutions). It would also separate actual gifts from pledged gifts, which is useful because not all promised gifts are actually received.
8. **Facility quality and maintenance expenditures.** The IPEDS finance survey currently does not capture important details about how much money a college needs to spend to maintain its facilities. There is an operations and maintenance expenditure classification, but this reflects how much money a college actually spends in the given year instead of

how much money it needs to spend in order to maintain quality facilities. Two additional metrics would help provide better information on future facility needs. The first is the age of existing facilities, as older facilities tend to require additional spending relative to newer facilities. The second is an estimate of deferred maintenance expenses, which will eventually need to be addressed and reflect a long-term liability.

Recommendation 3: Develop Measures that Describe Institutional Productivity

Effective use of resources is an increasingly important consideration for higher education institutions. In an environment of increasingly scarce resources and declining enrollments, institutions face difficult decisions about how to put available funding, personnel, and other resources to best use. Policymakers and the public also require better information on which to evaluate institutional performance. However, the ability to assess and compare the performance of institutions and systems has largely been constrained by the information available on the quantity and qualities of resources used to produce observed outcomes

Among the questions posed by stakeholders and metrics considered, measuring institutional productivity was among respondents' highest priorities. In the absence of such a measure, there were concerns that simplified ratios that compare spending to outputs will evolve as proxies. Focusing on strictly the quantitative aspects of productivity (e.g., financial returns operationalized in terms of credit generation) may trigger alternative metrics that incentivize institutions to minimize costs without consideration of the quality of the outcomes received. Accordingly, we recommend that NPEC and NCES develop an approach to measuring productivity using the IPEDS finance survey.

One approach would be to follow or adapt recommendations by the National Research Council (NRC) in its report, *Improving Measurement of Productivity in Higher Education*.¹³ The framework offers a relevant starting point for considering how IPEDS finance survey data, linked with data from other IPEDS collections, might be used to measure *instructional productivity*. Although limiting the metric to focus on institutions' instructional mission limits what we might learn about the value of investments in research and other aspects of the enterprise, instruction is a core and common function across all higher education sectors.

Specifically, the NRC's recommends a baseline productivity measure estimated as the ratio of:

1. The quantity an institution's output, expressed to capture degrees or completions *and* passed credit hours; and
2. The quantity of inputs, including both labor and non-labor resources used in the production process.

The suggested output measure (numerator) is a weighted mix of total credits with a multiplier that reflects additional benefits associated with achieving academic credentials. The multiplier could be adjusted to incorporate different specifications across institutional types. The suggested

¹³ National Research Council. (2012). *Improving Measurement of Productivity in Higher Education*. Washington, DC: The National Academies Press.

input measure (denominator) is a composite index based on: full-time equivalent labor hours, intermediate inputs, and the rental value of capital. NRC describes the basic data required by the model's framework as:

- Student credit hours, tracked by individual students and the departments of record. This would represent new data for the IPEDS survey and could be gathered from institutions' enrollment management systems.
- Degrees and certificates awarded, by discipline.
- Direct instructional and student services expenditures and a prorated share of expenditures on academic support, institutional support, and plan operations.
- Number of employees and compensation (by faculty and tenure status) and equal opportunity (EEO) category.

The measure would be initially compiled for institutions, with the potential for aggregation to systems, sectors, and states.

Developing and implementing NRC's recommendations would require more thought and attention on the part of NPEC and NCES. Although the Council articulates a plan for how such a measure might be constructed, the authors also acknowledge that its recommendations provide a general, rather than specific, roadmap for doing so. Additionally, implementing such a measure would likely require substantive changes to the data collected by the IPEDS finance and human resources surveys, although the nature and extent of these changes is dependent on the model's final specification. The changes could be accomplished in the context of our second proposed path for redesigning the survey.

The strengths of this approach rest with the careful work done by the NRC to develop a measurement framework that aligns with other productivity indices developed by the Bureau of Labor Statistics (BLS) to produce productivity statistics. A potential drawback to this approach is the complexity and lack of transparency in its measurement strategy. It is not a measure that can be easily decomposed into component parts – rather, it provides a standalone indicator of institutional performance that can be tracked over time and used to benchmark and compare institutions.

Given this limitation, we suggest that NPEC and NCES simultaneously develop a set of straightforward spending-based measures that can be used to describe institutions' unit costs and returns to spending. Stakeholder respondents identified a number of potentially useful metrics, many of which may be calculated with using IPEDS data (see Table 4). This list is a starting point for considering the types of indicators that could be used to contextualize a single measure of instructional productivity.

Appendix A: Summary of the Current IPEDS Finance Survey

Part A: Elements reported in the IPEDS Data Center

Statement of net position

Assets: Current, capital (land, infrastructure, buildings/equipment, construction), noncurrent

Liabilities: Current/noncurrent (GASB only), long-term

Net assets: Restricted (permanently/temporarily in FASB), unrestricted

Owner's equity (for-profit only)

Revenues by source

Operating revenues: Net tuition and fees, grants and contracts, sales and services (auxiliary enterprises, hospital, independent operations)

Nonoperating revenues: Appropriations, nonoperating grants, gifts, investment income

Other sources: Capital appropriations, grants/gifts, additions to permanent endowments

Expenses by type and source

Functional classification: Instruction, research, public service, academic support, student services, institutional support, net scholarships/fellowships, auxiliary enterprises, hospital services, independent operations

Natural classifications: Salaries/wages, benefits, operation/maintenance of plant, depreciation, interest

Income taxes (for-profit only)

Scholarships and fellowships

Pell Grants

Other grants (federal/state/local)

Institutional grants (restricted/unrestricted)

Discounts (tuition/fees and auxiliary enterprises)

Endowment assets (FASB and GASB only)

Beginning of year assets

End of year assets

Pensions (GASB only)

Pension expense

Net pension liability

Deferred pension-related inflows and outflows

Part B: Elements reported to the Census Bureau and not made publicly available (GASB institutions only)

Revenues

Broken down by education and general/independent operations, auxiliary enterprises, hospitals, and agricultural services: Tuition and fees, sales and services, federal grants/contracts (excluding Pell), state/local current and capital appropriations, state/local grants/contracts

For the entire institution: Property/non-property tax receipts, private gifts/grants, interest and dividend earnings, realized capital gains

Expenditures

Broken down by education and general/independent operations, auxiliary enterprises, hospitals, and agricultural services: Employee benefits, payments to state retirement funds, current expenditures, construction, purchases (equipment/land)

For the entire institution: Interest on all outstanding debt

Debts and assets

Long-term debt outstanding at beginning/end of fiscal year

Long-term debt issued/retired during fiscal year

Short-term debt outstanding at beginning/end of fiscal year

Appendix B: Interview Protocol and Questions

Key Talking Points for Introducing the Study

Study Purpose

We are conducting a research study at the request of the National Postsecondary Education Cooperative (NPEC). The study's goals are to:

- Catalogue the most pressing finance questions encountered in the field
- Consider what data are and are not available to answer these questions
- Identify opportunities for developing new data resources and metrics that can be used to address existing gaps

Of particular interest are the ways in which the IPEDS Finance survey meets existing needs and how it might be improved – both in terms of clarifying or adding data and developing new metrics.

Participant Selection

Participants were selected based on their national reputation as an IPEDS data producer or consumer, or as an expert in examining issues related to higher education finance.

Information on Participating

- Our goal is to speak with you for about 45 minutes.
- The information you provide will be combined with those from other stakeholders. Your specific responses will not be identified.
- The report we produce for NCES may include a list of organizations that were consulted during the process, but you will not be personally identified as having spoken with us.
- We will be happy to share the study's findings with you, immediately following approval from NPEC.

Interview Questions

Questions Posed by Institutional Officials, External Stakeholders & Policymakers

1. What are the most pressing finance questions that you are asked to answer? To what extent are they able to answer the questions with available data and metrics?

Areas to Probe:

- a. Institutional comparisons
 - i. Allocations of resources among institutions and comparisons of institutional performance
 - ii. Time trends
 - iii. Early warning indicators
 - iv. Effects of policies and programs intended to change the distribution of revenues and expenditures
- b. Costs and cost effectiveness
 - i. Questions related to “why” costs are what they are and how costs might be expected to shift given a particular intervention
 - ii. Resource data at the academic program, function, or activity level
 - iii. Detailed information on spending and potential cost drivers
- c. Resource allocation and decision-making information
 - i. Links costs to practices and educational structures
 - ii. Resource cost information (e.g., activity based accounting)

Finance Data & Indicators

2. What types of finance data do you use on a regular basis? What are the strengths and weaknesses of these data sources?

Prompts:

- a. To what extent do you rely on IPEDS Finance data? What specific data elements and metrics do you use? What are the strengths and weaknesses of these metrics? How might they be improved? What opportunities are there for new metrics using existing IPEDS Finance data?
 - b. On what alternative data sources (i.e., other than the IPEDS Finance survey) and metrics do you use to answer key questions?
3. What types of new finance metrics would you like to see created? Are there opportunities to refine existing data or metrics? Are there concerns about the feasibility or burden of potential new metrics?

Appendix C: Summary of Stakeholder Questions

Categories	Sample Questions
Institutional spending, revenues, and financial health	<ol style="list-style-type: none"> 1. How is money spent by an institution in total and what revenue sources are used to pay for certain expenditures, particularly at the sub-function level (e.g., within functions such as instruction)? To what extent is institutional spending in line with intended use? 2. How does an institution's spending compare to national averages and other institutions in its sector? How does spending compare across student subgroups (e.g., Pell recipients, first generation, racial/ethnic minorities, adult learners; graduate and undergraduate students)? 3. How much is spent on major instruction-related program areas (e.g., instruction, advising, student support, technology, research)? 4. How much funding (from various revenue sources) does an institution receive, on a per student basis? How do revenues vary across student subgroups (e.g., resident/nonresident students, upper/lower division students, graduate/undergraduate students)? 5. For what does a student's tuition pay? On what do institutions spend restricted and unrestricted funds? 6. What is an institution's financial health in both the short and long term?
Resource utilization	<ol style="list-style-type: none"> 1. How do institutions' staffing profiles compare within and between sectors? Compared to national and sector-level norms? 2. Are institutions employing the "right" mix of staff to serve students?
Service delivery costs	<ol style="list-style-type: none"> 1. What does it cost an institution to provide a certain program or service? 2. How do costs vary by program, degree type, student characteristics? Why do costs for similar programs differ among institutions? What accounts for differences in costs? 3. How might revenues and expenditures change with respect to changes in inputs, costs, and appropriations? How might revenue change according to changes in student enrollment and retention?

Categories	Sample Questions
Return on investment and productivity	<ol style="list-style-type: none"> 1. Which institutions are maximizing student success given available resources? 2. What programs or interventions are most cost effective? 3. How should existing institutional resources be allocated to maximize student outcomes? How might resources be best organized to support institutions' strategic missions? 4. What is the institution's "return on investment" associated with how resources are currently allocated? 5. Which institutions are more/less productive? How do changes in education delivery mode, student characteristics, or other contextual variables impact institutional costs and productivity? 6. How might revenues and expenditures change with respect to changes in inputs, costs, and appropriations? How might revenue change according to changes in student enrollment and retention?
Policy and funding	<ol style="list-style-type: none"> 1. Funding adequacy. That is, at what level <i>should</i> institutions be funded to ensure institutional success in achieving desired outcomes? Related questions also reflected stakeholders' interests in better understanding funding equity among institutions and across sectors. 2. How is state funding influenced by federal and local finance?

Appendix D: Other Available Higher Education Finance Data Sources

Federal Data Sources

The federal government makes a number of other higher education finance data elements available in addition to the IPEDS metrics. In some cases, these sources cover the same metrics as in IPEDS but provide more in-depth information for at least some colleges and universities. A summary of each data source is below.

- **Title IV volume reports (Office of Federal Student Aid).** This includes detailed information about how much money colleges received each quarter from each type of federal grants, loans, and work-study. This is more detailed than IPEDS, which does not delineate by each type of aid. These reports, along with all other data from Federal Student Aid, present data using OPEIDs instead of IPEDS UnitIDs.
- **90/10 dataset (Office of Federal Student Aid).** This dataset tracks the total amount of funds that for-profit colleges receive from federal grant, loan, and work-study programs to determine whether a proprietary institution received less than 90% of total revenue from Title IV aid. This dataset normally does not include veterans' benefits, but a 2016 data release contained this revenue source for the first time.¹⁴
- **Financial responsibility scores (Office of Federal Student Aid).** These scores are designed to reflect the financial health of private nonprofit and for-profit colleges and are based on liquidity, gross margins, and the ability to borrow additional funds. Only the composite score is made public, but the federal government collects all underlying data.
- **Tax filing data (Internal Revenue Service and Securities and Exchange Commission).** Private nonprofit colleges and public universities' foundations must file Form 990 with the IRS each year, while publicly traded for-profit colleges must file Form 10-K with the SEC on an annual basis. These filings include detailed information on revenues, expenditures, and highly compensated employees. However, unlike the other sources, analysts must piece together datasets from each college's filing.
- **Research and development funds (National Science Foundation).** The NSF's annual Higher Education Research and Development (HERD) survey contains information on research revenues and expenditures. The research revenue dataset includes whether

¹⁴ U.S. Department of Education (2016, December 21). *New analysis finds many for-profits skirt federal funding limits*. Retrieved from <https://www.ed.gov/news/press-releases/new-analysis-finds-many-profits-skirt-federal-funding-limits>.

funding came from the federal government, private industry, institutional funds, or other sources.

Private-Sector Data Sources

Several private efforts regularly produce higher education finance data or metrics at the institutional or program level. Some of the key sources are summarized below.

NACUBO-Commonfund endowment survey. The National Association of College and University Business Officers and the Commonfund Institute conduct an annual survey of colleges' endowments, with 805 colleges in the United States participating in 2016.¹⁵ Some of the potential metrics that could be included in IPEDS include:

- Percentage change in the endowment's market value
- Investment rates of return (net of fees)
- Amount withdrawn from the endowment to support institutional activities (excluding management fees)
- Asset allocations across various classes (domestic/international equities, fixed-income funds, cash, or alternative investment strategies such as real estate or hedge funds)

NACUBO FARM. NACUBO's Financial Accounting and Reporting Manual (FARM) is a key reference used by institutional financial officials and IPEDS keyholders when completing the IPEDS finance survey.¹⁶ FARM's manual (not available to the general public) includes some revenue and expenditure categories that are not collected in IPEDS or where data availability is limited:

- Athletics expenditures
- Remediation spending
- Investment income
- Indirect cost recovery
- Tuition discount rates (which are also included in NACUBO's annual tuition discounting survey of private nonprofit colleges)

Credit ratings providers. Agencies such as Moody's, Standard & Poor's, and Fitch regularly rate colleges based on their current resources and predicted future ability to generate sufficient revenue to repay debts, and the resulting credit rating influences the interest rate colleges pay on future debt obligations. Colleges must request a credit rating, and not all do so. Many of the metrics that factor into credit ratings could be included in IPEDS, as they are based on financial statements. Below are some metrics from Moody's, which are used to rate both public and private nonprofit institutions.¹⁷

- Operating cash flow margin and debt service coverage (the ability of a college to repay

¹⁵ National Association of College and University Business Officers (2017, January 31). *College endowments average -1.9 percent return in FY16, but endowment spending continues to rise*. Retrieved from http://www.nacubo.org/Research/Research_News/College_Endowments_Average_19_Percent_Return_in_FY16_But_Endowment_Spending_Continues_to_Rise.html.

¹⁶ National Center for Education Statistics (n.d.). *FASB-reporting institutions*. Retrieved from <https://surveys.nces.ed.gov/ipeds/VisInstructions.aspx?survey=5&id=30087>.

¹⁷ Kedem, K. (2011). *Rating methodology: U.S. not-for-profit private and public higher education*. New York, NY: Moody's Investors Service.

debt from cash flow or total income)

- Revenue diversity (how much money is coming from the largest source)
- Ratio of resources available in the intermediate term to debt
- Days of cash on hand

State Higher Education Finance reports. The State Higher Education Executive Officers association (SHEEO) publishes an annual report on state support for higher education, with data on various sources and uses of state and local higher education dollars primarily presented at the state level.¹⁸ Data are collected from state higher education offices on the following metrics of interest that are currently not present in IPEDS:

- Nontax support for higher education
- Tuition and fees used for debt service
- Research/agricultural/medical expenditures
- Financial aid for out-of-state students
- State funds used on non-credit/continuing education

NASSGAP survey. The National Association of State Student Grant and Aid Programs (NASSGAP) collects data each year on how much money states spend on student financial aid.¹⁹ The categories, which are more detailed than the IPEDS finance survey, include the following:

- Need-based, merit-based, or need-and-merit-based grants
- Loans
- Work-study
- Graduate and undergraduate aid

AAUP and CUPA-HR compensation surveys. There are two separate efforts to provide more detailed compensation data on higher education faculty and staff members, which have the potential to provide a more precise estimate of instructional and other expenditures. The American Association of University Professors (AAUP) conducts an annual survey of colleges to gather information on full-time faculty members' salaries and overall compensation packages by faculty rank, with a nascent effort developing to collect data on part-time faculty members' salaries. In the 2015-16 survey, 1,035 institutions participated.²⁰

The College and University Professional Association for Human Resources (CUPA-HR) runs five different salary surveys and one benefits survey for senior administrators, faculty, staff, and other higher education professionals, with details often available by discipline or job title. Some of these surveys have more than 1,000 participating institutions.²¹

¹⁸ State Higher Education Executive Officers. (2017). *State higher education finance FY 2016*. Boulder, CO: Author.

¹⁹ National Association of State Student Grant and Aid Programs. (2016). *46th annual survey report on state-sponsored student financial aid*. Washington, DC: Author.

²⁰ American Association of University Professors. (2017). *Visualizing change: The annual report on the economic status of the profession, 2016-17*. Retrieved from <https://www.aaup.org/report/visualizing-change-annual-report-economic-status-profession-2016-17>.

²¹ College and University Professional Association for Human Resources. (2017). *Salary surveys*. Retrieved from <http://www.cupahr.org/surveys/results.aspx>.

Potentially relevant questions for IPEDS data improvements are the following:

- Salary and benefits expenditures by discipline or program
- Proportion of health benefits paid for by the college versus the employee
- Adjunct/contingent faculty expenditures versus full-time faculty expenditures

Accrediting bodies. In order to determine whether a college or university is financially stable, accreditors require colleges to submit information that provides a comprehensive picture of the institution's financial situation. At the very least, this means that colleges must submit audited financial statements. Other accreditors require additional information beyond financial statements to be submitted. For example, the Southern Association of Colleges and Schools requires the following additional metrics to be submitted:²²

- Changes to net assets over the last 3-5 years
- Endowment spending rates over the last 3-5 years
- Short-term and long-term debt amounts over the last 3-5 years

CIC's Financial Indicators Tool (FIT). The Council of Independent Colleges (CIC), an association representing smaller private nonprofit colleges, adapted accounting firm KPMG's Composite Financial Index to develop the FIT as a metric of financial health. The FIT uses data from IPEDS and IRS Form 990s over a six-year period to develop four indicators:²³

- Primary reserve ratio: Available resources divided by total expenses
- Net operating revenues ratio: Change in net assets divided by unrestricted revenue (similar to operating margin)
- Viability ratio: Measure of available resources relative to debt
- Return on net assets ratio: Percentage change in net assets

The first two metrics are similar to the Department of Education's financial responsibility score, while the final two metrics are unique to the FIT and replace the Department of Education's equity ratio.

Mississippi Institutions of Higher Learning metrics. The umbrella agency for Mississippi's public university calculates 35 different financial ratios that are primarily based on audited financial statement data. These metrics are grouped under four key headings:²⁴

- Availability of financial resources (i.e., days of cash on hand, reserve ratios)
- Strategically using debt (i.e., viability ratio, debt burden ratio)
- Proper asset performance and management (i.e. return on net position ratio, age of facilities)
- Living within the institution's financial means (i.e., net operating revenues ratio, gross tuition contribution per student FTE)

²² Southern Association of Colleges and Schools Commission on Colleges. (2012). *Resource manual for the principles of accreditation: Foundations for quality enhancement*. Decatur, GA: Author.

²³ Council of Independent Colleges. (n.d.). *Financial indicators tool (FIT)*. Retrieved from <https://www.cic.edu/resources-research/benchmarking-services/FIT>.

²⁴ Mississippi Institutions of Higher Learning. (2016). *Financial ratios (Fiscal Year 2016)*. Jackson, MS: Author.

Delaware Cost Study and National Community College Benchmarking Project. These two studies collect program-level information on metrics such as teaching loads, per-credit course costs, and research and service obligations from participating institutions. The Delaware Cost Study covers four-year colleges and the National Community College Benchmarking Project covers two-year colleges; together, over 1,000 colleges have participated in one of the two projects at some point over the last two decades.^{25 26}

²⁵ National Community College Benchmarking Project. (2017). *Peer institutions*. Retrieved from <https://www.nccbp.org/peers>.

²⁶ University of Delaware. (2017). *Complete list of institutions that have participated in the Delaware Cost Study*. Retrieved from <http://ire.udel.edu/participant-list/>.