# Delta Cost Project Documentation of IPEDS Database and Related Products

**Delta Cost Project**
**December, 2011**

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**Delta Cost Project IPEDS Database**

## 1. General Description

The Delta Cost Project IPEDS Database is a longitudinal database that includes institutional data on postsecondary finance, enrollment, staffing, completions and student aid for academic years 1986-87 through 2008-09.[1] The project relies entirely on data already in the public domain, which are subsequently translated into analytical formats to make them conducive to longitudinal analyses of trends in higher education revenues and spending.

The Delta database is comprised primarily of publicly available data reported to the federal government through its series of annual IPEDS (Integrated Postsecondary Education Data System) surveys; though it has some information from the Financial Institution Shared Assessment Program (FISAP) database beginning in 1994. The database includes information on more than 6,000 public, private not-for profit, and private for-profit institutions, and contains more than 500 variables—including original IPEDS variables, numerous derived variables, panel analysis variables, and several inflation indices. It is the sole public data set in the United States yielding reports of trends in finances for both public and private (for profit and not-for-profit) institutions. All data encompass revenues and spending for operating expenses only, as data on capital expenses are not readily available in existing public formats.

The federal government has collected detailed data on operating revenues and expenditures for more than thirty years; however, these data have historically not been organized to make them accessible either to researchers or to policy audiences. Changes over time in accounting definitions have made comparisons between public and private institutions difficult. Data are reported in broad institutional categories, and not contextualized by being translated into funding per student or graduate. Growing interest in higher education finances, and into ways that institutions might do more to promote cost effectiveness and productivity, has led to an increased interest in better ways to report on spending in ways that do not lead to undue data burdens on institutions or on government. The premise behind the development of the Delta data base was that improvements in the organization and presentation of existing data could shed considerable light on basic funding patterns in higher education, in ways that would not require additional data reporting.

## 2. Background and History

Though IPEDS has collected data since 1986,[2] definitional changes throughout the years, as well as some major changes in financial reporting standards mandated by accounting standards boards, often make comparisons over time difficult. To facilitate long-term trend analyses, the Delta Project on

[1] Throughout the remainder of this document, years will be identified by the spring of the academic year (e.g. the 2008-09 academic year is referred to as 2009).

[2] IPEDS was preceded by a prior generation of federal data collection, known as the Higher Education General Information Surveys (HEGIS). HEGIS was first implemented in 1965, in reporting categories quite similar to those that evolved into IPEDS.

Postsecondary Education Costs, Productivity and Accountability (i.e. "The Delta Cost Project") commissioned the development of a secondary database to mitigate many of the problems with conducting trend analyses with IPEDS. Adjustments have been made to harmonize and standardize the data as much as possible, to account for changes over time in accounting standards and IPEDS reporting formats. These adjustments ensure reasonable consistency in the patterns over time and allow broad comparisons between public and private institutions.

The Delta Cost Project commissioned Human Capital Research Corporation (HCRC) to construct the initial database, which included data from 1987-2005; HCRC provided subsequent annual updates for 2006, 2007, and 2008.[3] Staff at the Delta Cost Project assumed full responsibility for the database thereafter, and performed the 2009 update.[4] In addition, colleagues at the American Institutes for Research (AIR) developed and applied a general imputation procedure for each iteration of the database, and provided general analytical and technical assistance during the development period and following years.[5]

## 3. Data Sources

a. *IPEDS surveys*. The majority of the data in the Delta Database comes from the various IPEDS surveys. Variables determined to be of primary interest were selected from each of the nine different surveys: institutional characteristics, fall enrollment, finance, student financial aid, graduation rates, completions, 12-month enrollment, staffing, and salaries. Imputation flags and other variables that contain detailed information of little interest to most researchers are excluded.

   All original IPEDS variables have been renamed to provide consistent variable names across surveys and reporting formats. The mapping of the original IPEDS finance variables to the new naming conventions is detailed in the Delta Database Mapping File; other naming conventions and constructed variable formats are included in the Delta IPEDS Dictionary (and/or the code used to construct the data). Both files are available on the Delta website (www.deltacostproject.org\data\download).

   Establishing consistent variable names provides two significant advantages. First, they provide flexibility to make the variables consistent over time and across reporting formats. Although there were major changes in financial reporting standards and forms (Common Form, FASB, GASB, and Aligned Form) between 1987 and 2009, much of the data is either reported consistently over this period, or variables can be added/subtracted to create a consistent trend

[3] The initial database, documentation, and first two updates were completed by Brian Hummer, under the direction of Brian Zucker, President of HCRC; the 2008 update was completed by Eric Langston.
[4] Colleen Lenihan completed the 2009 update under the supervision of Donna Desrochers, Deputy Director, and general direction of Jane Wellman, Executive Director of the Delta Cost Project.
[5] Steve Hurlburt applied the imputation procedure (developed by AIR economist Dan Sherman), and also provided general analytical and technical assistance under the direction of Rita Kirshstein, Managing Director at AIR.

(see Section 4 below, for additional discussion about reporting changes, and harmonization of these changes over the period). A second benefit of a standard naming convention is that it makes it much easier to analyze data across institutions that report on different survey forms; analyses can be conducted with one pass at the data, using a single variable.

b. *FISAP data.* A limited number of derived variables are included from the Financial Institution Shared Assessment Program (FISAP) database. These variables contain information on the number of independent and dependent students who applied for financial aid at each institution, by broad income categories.[6] The FISAP data is available, upon request, from the U.S. Department of Education, Office of Postsecondary Education.[7] However, it is reported using an identification taxonomy that is slightly different from IPEDS and requires caution when merging this data onto the IPEDS institution file.

   FISAP data uses a six-digit OPEID while IPEDS instead uses a six-digit UnitID. An eight-digit OPEID is also available in the IPEDS header file (e.g. hd2009), but matching on this eight-digit OPEID may lead to incomplete or inaccurate results; matching instead on the first six-digits of the IPEDS OPEID often provides better results. Nevertheless, comparing enrollment counts provides additional assurance about whether the eight-digit FISAP OPEID may, in fact, correspond better to the IPEDS OPEID.[8]

c. *Inflation indices.* Much of the information contained in the Delta Database is financial data, reported in current-year dollars. But it is often preferable to show inflation-adjusted dollars

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[6] Prior to 2008, the FISAP data in the Delta Database only included data for the linchpin institutions in grouped institutions; beginning in 2008, the FISAP data was included for all institutions in the group that reported data.

[7] The FISAP data is not available on the Department of Education website; as of 2011, the FISAP contact was Mary Miller in the Office of Postsecondary Education (mary.miller@ed.gov, 202-502-7824).

[8] Note: Prior additions of FISAP data were conducted by HCRC but no code was supplied to the Delta Cost Project. In anticipation of performing this match in the future, Matt Reed of The Institute for College Access and Success (TICAS) provided the following explanation/advice on working with FISAP data: In cases where 8-digit OPEIDs appear in FSA or OPE data files (such as FISAP), matching to IPEDS using the 8-digit OPEIDs may lead to incomplete or inaccurate matches. Comparing undergraduate enrollment in the two files can confirm the accuracy of the match. Extracting the first 6-digits from the OPEID variable in IPEDS, and matching to the 6-digit OPEIDs in the FISAP file seems like the best way to match these files. In some cases the result is a one-to-one match between FISAP and IPEDS, though for others there are several IPEDS entries with the same 6-digit OPEID. These groupings of IPEDS entries with the same 6-digit OPEID often correspond to a single "school" or "system" but in some cases, what seems like one "system" or "school" will have several seemingly arbitrary groupings of IPEDS entries under different 6-digit OPEIDs. In other cases, a "system" or "school" may have a separate 6-digit OPEID for each IPEDS entry.

There are also cases where multiple campuses, each with a unique 6-digit OPEID, file a single FISAP under one campus's OPEID. For example, the three University of Michigan campuses (Ann Arbor, Dearborn, and Flint) have distinct 6-digit OPEIDs (002325, 002326, and 002327 respectively) but all file FISAP under 002325. So even matching on 6-digit OPEIDs instead of 8-digit OPEIDs does not entirely resolve the matching problem in this case. There are many cases where the 12-month undergraduate enrollment from FISAP exceeds the 12-month undergraduate enrollment for all IPEDS campuses with the same 6-digit OPEID. There are also many IPEDS entries with 6-digit OPEIDs that do not appear in the FISAP file.

when comparing financial data over time. Three inflation indices are included in the database: the Consumer Price Index (CPI-U) from the Bureau of Labor Statistics (BLS) (http://www.bls.gov/cpi/home.htm); the Higher Education Price Index (HEPI), initially developed by Ken Halstead and now maintained by the Commonwealth Fund (http://www.commonfund.org/CommonfundInstitute/HEPI/Pages/default.aspx); and the Higher Education Cost Adjustor (HECA), developed by the State Higher Education Executive Officers (SHEEO) organization (http://www.sheeo.org/finance/shef-home.htm).[9]

The database initially included the CPI-U on a calendar-year basis as reported by BLS, but beginning in 2009 this was replaced with a fiscal year CPI-U adjustment constructed by the Delta Cost Project.[10] HEPI and HECA indices are both calculated on a fiscal-year basis by their respective organizations. In addition to providing the indices, scalars are constructed with each annual update of the database that allow users to easily convert dollars into the most recent year (e.g. into 2009 dollars for the 1987-2009 database).[11]

All analyses by the Delta Cost Project use the CPI-U inflation adjustor rather than the specialized price indices. The HEPI adjusts prices based on a sample of data collected from colleges and universities, reflecting their patterns of spending (professional salaries and wages, equipment, utilities), in contrast to the composition of household expenditures contained in the CPI-U. The HEPI has been criticized because it is perceived as self-referential—for instance, justifying higher spending based on higher spending. The HECA was developed as an alternative, and it adjusts prices using two federal indices, the employment cost index (ECI) and the gross domestic product (GDP) implicit price deflator. The ECI is based on a survey of private sector professional workers, and the GDP deflator reflects general price inflation in the U.S. economy. Changes in HEPI and HECA have historically exceeded changes in the CPI-U.

### 4. Changes in Reporting Standards

One of the complications of performing trend analyses costs over a multi-year period comes from changes in financial accounting conventions that have affected the IPEDS expenditure and revenue categories. Since 1987, there have been four changes in IPEDS reporting formats. From 1987 to 1996, both public and private institutions reported financial information using the same form, now known as the "Common Form" (or "Old Form"), with public institutions continuing to use the Common Form through the early 2000s. In 1997, private institutions began reporting under the Financial Accounting Standards Board (FASB) reporting standards. Public institutions were also affected by changes in Governmental Accounting Standards Board (GASB) standards, which IPEDS phased in between 2002 and

[9] HECA is available, upon request, from SHEEO.

[10] The fiscal year CPI-U is constructed by the Delta Cost Project by taking the average of the monthly CPI-U index from July through June (e.g. the FY2009 index is the average of the monthly indices from July, 2008 through June, 2009).

[11] For example, the 2009 scalar is calculated as (index for year X)/(index for year 2009), and to convert into 2009: (data for year x)/(cpi_scalar_2009).

2004. Most public institutions were using GASB reporting standards in 2002, but some continued to use the Common Form through 2003; all institutions were required to report using GASB standards by 2004. Beginning in 2008, a new "Aligned Form" was phased in for both FASB- and GASB-reporting institutions that improved comparability in reporting, but maintains some differences; the Aligned Form became mandatory for all institutions in 2010.[12] The changes in accounting standards between all these different formats affect reporting of revenues, expenses/expenditures, and scholarships and fellowships.

The Delta database was designed to overcome, as best as possible, differences in reporting standards that occurred between 1987 and 2009. While the changes in revenue reporting can be adjusted to facilitate comparisons over time, some of the changes in the reporting of expenditures, particularly related to depreciation and interest on debt, oftentimes make it impossible to compare expenditures pre- and post-1997 for private institutions, and pre- and post- 2002 for public institutions.

a. *Changes in revenue reporting.* On the revenue side, the Common Form either grouped together, or left out altogether, many sources of revenue that are now reported in a disaggregated format on the FASB and GASB forms. The Common Form collected only current unrestricted, restricted and auxiliary funds. It did not include revenues related to endowments, loans, and plant and equipment—such as contributions to endowments, interest from student loans, and capital appropriations—which are all now collected under the FASB and GASB reporting standards. Tuition, fees and auxiliary revenues were reported as a gross amount on the Common Form, but are now reported separately on FASB and GASB with tuition discounts, including scholarships and fellowships, subtracted from the revenues. However, allowances to tuition, fees and auxiliary revenues (such as tuition discounts or scholarships) can be added back to the net amounts to allow comparison with the gross amounts reported on the Common Form. The new GASB format also divides revenues into operating, nonoperating and other revenues, and in several categories (such as state grants and contracts) adding these together will result in a comparable value as reported in FASB and under the Common Form. Finally, investment income is now reported separately under FASB and GASB, and additions to permanent endowments are reported whereas they were excluded on the Common Form. There were no significant changes to revenues reported on the new Aligned Form.

b. *Changes in expenditure reporting.* On the expenditure side, differences pre- and post-FASB/GASB have resulted in some reporting trends that are more difficult to reconcile over time. Though most spending categories remained intact, operation and maintenance of physical plant and equipment and depreciation were both affected by the change in accounting formats. Under the new FASB standards and on the new Aligned Form, operation and maintenance expenditures are allocated across functions (such as instruction, research, public service, academic support, etc.), but remain a distinct category on the Common Form and under GASB reporting. The result of this accounting is that private institutions reporting under FASB rules,

[12] Data collected in the fall/spring 2010-11 collection cycles, for academic year 2009-10.

and on the Aligned Form, will have higher expenditures across functions than those institutions reporting under GASB or the Common Form. However, operation and maintenance expenditures allocated to the functional categories under FASB and on the Aligned From can be backed out to facilitate comparisons with the GASB and Common Form reporting. In addition, interest on debt was excluded on the Common Form but is now reported in GASB and as a functional expenditure in FASB; it can also be excluded and/or backed out, however, to facilitate comparisons with the Common Form.

Depreciation-related expenditures are now included in FASB and GASB with plant and equipment depreciated over expected useful life. Under the Common Form, there was essentially no depreciation recorded for building purchases or construction, and purchases of equipment, vehicles and furniture were recorded as full expenditures in the year they were purchased with no accounting for future depreciation. So while FASB and GASB both calculate the depreciation of assets on debt similarly, it is impossible to crosswalk these expenditures with the Common Form. Scholarship and fellowship expenditure reporting also has changed with the shift in accounting formats. The Common Form presented scholarship and fellowship expenditures as a gross amount of awards granted, whereas the FASB reports net grant aid to students and the new GASB reports the net amount in a specific scholarship and fellowship expense category that excludes discounts and allowances.

The Delta Database mapping file details the adjustments made across accounting standards and forms to mitigate the effects of the changes; though in a few instances (depreciation, scholarships and fellowships, and endowments[13]) these differences cannot be overcome.

## 5. Institutional Groupings

The longitudinal nature of Delta Database presents issues related to parent/child reporting in IPEDS. IPEDS reporting guidelines allow some institutions ("parents") to report data for branch campuses or other affiliated institutions ("children"). Parent institutions may have one or more children, and the children may differ over time and/or by survey. Parent-child reporting often depends on the type of survey—children may report their own data on some surveys (e.g. enrollment or completions) but rely on the parent institution to report their combined data on other surveys (e.g. finance).[14] Reporting relationships can also change when affiliated institutions are opened or closed, so related parents and children may change over time and/or cease to exist.

[13] Grouping endowment income together with private gifts and investment returns provides improved comparability on these measures, as it captures some of the changes in where these funds were reported during different survey periods. See Section 8d for additional explanation.

[14] On the finance survey a child may also be a "partial child" where they report some of their own financial data (typically operating revenues and expenditures) while the parent reports other financial data (typically balance sheet data such as assets and liabilities).

Changes in Department of Education regulations have resulted in fewer parent-child reporting issues in recent years, but nonetheless, this remains an issue when trying to maintaining consistency in a longitudinal database. To maintain comparability over time, the Delta Database contains numerous "grouped" institutions—if an institution has *ever* reported as a parent/child with another institution(s) those institutions are grouped together for *all years* in the database, even if they no longer report as parents/children.[15]

There are more than 223 public and private, nonprofit "grouped" institutions in the 2009 database, and another 436 for-profit "groups"; they can be identified in several ways. First, the primary institutional identifier (unique) for the Delta Database is the variable "groupid," *not* "unitid" as in IPEDS. Grouped institutions have been randomly assigned a positive 4-digit groupid number, while the groupid for non-grouped institutions is the negative of their unitid (-1*unitid in IPEDS).[16] Second, there is a variable "isgrouped" which =1 when that record represents a group of institutions rather than a single institution. For grouped institutions, the variable "unitid_linchpin" contains the unitid institution whose identifying factors representing the group (i.e. the name, sector, Carnegie group, etc.). The linchpin institution is typically the "parent" institution as identified in IPEDS this may not always be the case.[17] Because of the nature of some parent/child relationships, it's possible that a group may include institutions from multiple Carnegie Categories. For example, a group designated at public research may include public master's, bachelor's, associate, or specialty institutions, or administrative offices if they report as parent/children. As a result, users should be aware of the composition of a group before drawing inferences from it.

For-profit institutions were "grouped" together for the first time in the 2009 database, with the expectation that this would improve the reliability of that data. However, volatility in that sector, with rapid opening and closing of institutions, makes it difficult to get a reliable sample. Even with these new grouped institutions, caution is required when working with the for-profit data.

**6. Panels**

To perform trend analyses that are not influenced by compositional changes in the number of institutions in operation in any given year, three panels of data—or "matched sets"—are constructed for each new dataset released annually. These panels include only degree-granting, public and private nonprofit institutions in the 50 states and D.C. that consistently reported data on three variables for

[15] Beginning in 2004, parent institutions began reporting "allocation factors" on surveys in which they reported combined data which can be used to parse out the parent/child data. See the section on the Delta IPEDS State Database for additional information.

[16] Public and private non-profit groups were generally assigned group IDs of less than 2400, while for-profits were assigned 2400+.

[17] In some cases the rationale used by HCRC in assigning the linchpin institution is unclear. Note that the variable "TCS_Name" contains the institution name displayed by our public web-based data tool (www.tcs-online.org), as it often better represents the group of institutions than the linchpin institutions selected.

*each* of the years in the selected time period: instructional expenditures (instruction01), full-time equivalent enrollment (fte_count), and total completions (totalcompletions).

The three panels include: a six-year panel (for analyses of the most-recent a five-year change), an 11-year panel (for analyses of the most recent 10-year change), and a full-year panel. For example, the current 1987-2009 database has a six-year panel ("matched _n_04_09_6") that captures data from 2004-2009, an 11-year panel that captures data from 1999-2009 ("matched _n_99_09_11") , and a full-year panel with 23 years of data from 1987-2009 ("matched _n_87_09_23"). With each annual update, the panels are advanced one year and reconstructed. In some cases, institutions that meet all the panel requirements may subsequently be removed from the panel if during later data reviews, an institution appears to have data reporting errors, inconsistencies, or other issues that interfere with presenting reasonable and consistent overall patterns and trends.[18]

The number of institutions in the three 2009 panels is shown below, disaggregated by the seven primary Carnegie/sector categories. The relatively small differences between the three samples are largely accounted for by the inclusion of more public associate's and private baccalaureate institutions in the latter years. Even the 23-year set collectively accounts for close to 90 percent of all postsecondary enrollments as reported in the National Center for Education Statistics "Digest of Education Statistics." It compares quite favorably to the sample of institutions used for the annual College Board "Trends" surveys, which included 2,993 institutions in 2010, including proprietary and specialty institutions that we exclude from this sample, and the National Association of College and University Business Officers (NACUBO) sample for tuition discounting (381 four-year, private nonprofit institutions) and endowments (850).

| | **2004-2009 6-year matched set (matched_n_04_09_6)** | **1999-2009 11-year matched set (matched_n_99_09_11)** | **1987-2009 23-year matched set (matched(n_87_09_23)** |
|---|---|---|---|
| Public Research | 152 | 152 | 151 |
| Public Master's | 230 | 229 | 228 |
| Public Bachelor's | 90 | 86 | 84 |
| Public Community College | 839 | 797 | 704 |
| Private Research | 100 | 99 | 97 |
| Private Master's | 315 | 313 | 306 |
| Private Bachelor's | 476 | 470 | 447 |
| *Total* | *2,202* | *2,146* | *2,017* |

## 7. Imputations

The Delta IPEDS Database includes imputations to address three different missing data issues. First, a general dataset imputation procedure is maintained on an on-going basis as part of each annual data update. Two other imputation procedures, the FASB imputation and the fringe benefit imputation,

[18] U.S. Military academies are also excluded because of their specialized missions and because students pay no tuition.

address issues that previously arose with the FASB data between 1997 and 2004, and are no longer active procedures.

a. *General imputations.* Limited imputation procedures have been employed for all variables, as needed, in the Delta dataset since its inception. An initial review of the data showed that some institutions did not have data for the FTE enrollment, completion and instructional expenditure variables that are used to place them into the matched sets. In some cases, these gaps covered a number of years for an institution—including those for which there were no data for any years, or institutions that either began or ended reporting during the period captured by the database. However, in other cases, a single variable and/or year of missing data excluded institutions, with otherwise fully reported data, from being included in our panel datasets.

   To develop a more robust dataset, we adopted a relatively conservative imputation approach: data was imputed for an institution any time that there was a one-year gap between two data values (e.g., we would fill in missing 1998 data for a series if there were data for 1997 and 1999). The approach we used was conservative because if the gap between values was two years or more, we did not fill in the gap. In addition, when there were missing data at the beginning or end of the series for an institution, we did not try to fill in these values.

   Most of the non-derived variables are included in the imputation procedure, whereas the derived variables are constructed after the imputation procedure is run. All imputed variables have an associated imputation flag variable (the flag variables, with the suffix "i", are listed at the end of the Delta Data Dictionary; this can also be used to identify the variables that are imputed). The imputation procedure is as follows:

   - For each of the ten Carnegie classification groups identified in the variable "carnegie_sector_2005" and the private for-profit two- and four-year institutions only identified in the variable "sector_revised," we estimated a separate regression for each of those twelve groups for each of the revenue, expenditure, enrollment and completion variables imputed in the dataset. If the data were missing for a year (but were available for both the year before and the year after), we computed a predicted value that was used to replace the missing value (and created a flag variable to indicate there was an imputation for that year).
   - The regression specification is as follows: the logarithm of each variable for a year is regressed on its value for the previous year and its value for the next year; the regression also includes dummy variables for each year.
   - If a year of data is missing, the predictions from the regression essentially created a weighted average of the two years of data around the missing point and then made an additional adjustment based on the overall trends for that Carnegie group for the year. If for example, expenditures in the sector went up in one year and then down to their

earlier level, the regression would account for this pattern rather than simply averaging the two years around the missing point.

The original imputation procedure was run for the entire database. For each annual update, however, the imputed values are only added for the penultimate data year; existing imputations are not replaced (e.g. in the 2009 annual update, only imputations for 2008 were added). The first and last data years (e.g. 1987 and 2009 in the most recent data file) never include any imputations because of the way the imputations are derived.

b. *FASB imputations.* A second imputation procedure was developed (beginning with the 1987-2007 dataset[19]) to improve the comparability between Common Form, FASB, and GASB expenditure data over the 1997-2004 period: expenditure data on operations/maintenance and interest were imputed for FASB-reporting institutions (primarily private, non-profit institutions) when institutionally reported data was unavailable. Expenditure data for GASB-reporting institutions (i.e. public institutions) were not affected, nor were any other non-expenditures variables for both FASB and GASB institutions.

In the current 1987-2009 database:

- FASB imputations are limited to the 1997-2003 period.
- FASB imputations for 2004+ that were included in previous datasets were removed with the 2009 data update; adjustments to the expenditure estimates now use IPEDS reported data only.
- Review of the data revealed that imputations for 2004+ were providing little additional benefit as the FASB expenditure reporting format stabilized over time and more institutions were reporting the component expenditure data.
- Removal of the FASB imputations did not significantly change overall spending estimates and tends, and thus the time and expense of constructing these imputations was no longer considered worthwhile.

*Background:* The FASB imputations were employed to improve comparability between different financial reporting standards and forms: namely the differences in expenditure reporting standards between the Common Form (1987-1997), the FASB form for private, non-profit institutions (1997+) and the GASB form for public institutions (2002+), as well as the changes made within the FASB reporting standards over the 1997-2009 period.[20]

[19] The 2006 public dataset, and the analyses drawn from it, were restricted to years where the FASB patch imputations were not necessary. Only reported O&M was backed out of the functional expenditure categories for FASB institutions.

[20] With the introduction of the new "Aligned Form" in 2008, public institutions were allowed to report expenditures in a format similar to FASB institutions; however, "FASB imputations" weren't necessary (nor was any historic data available) to make the data comparable to the other reporting formats.

Prior to 1997, all institutions reported information to IPEDS using the Common Form; operations and maintenance (O&M) was a separate functional expenditure category and data on interest expenditures were not reported. When the separate reporting formats were introduced in 1997, GASB institutions continued to report O&M as a separate expenditure category and also began reporting interest as an expenditure category. However, FASB institutions began following different standards which embedded interest and O&M expenses within the functional expenditure categories (i.e. instruction, research, etc.).

Between 1997 and 2001, FASB institutions did not report interest or O&M as stand-alone expenditure categories in IPEDS. Thus, among FASB institutions, expenditure data within the functional categories was significantly higher during this period than in the prior and subsequent years when the interest and O&M had not been included, or was reported but could be removed. Beginning in 2002, FASB institutions could separately report the interest and O&M components within each functional expenditure category; thus, these interest and O&M components could be "backed out" of the functional expense category totals and re-aggregated into stand-alone O&M and interest expense categories. However, some institutions did not report any interest and/or O&M data, or only reported partial data over the 2002-2008 period - meaning they may not have reported interest and/or O&M every year, or they may have reported data in some, but not all, of the functional expense categories.

*FASB imputation procedure:* The original procedure to make the data comparable across the entire reporting period included imputing interest and O&M data (separately) for *all* FASB institutions for 1997-2001; and then also imputing data for those institutions that did not report data (or reported partial data) for 2002+. However, in the 1987-2009 dataset we only included imputations through 2003; in 2004-2009 only reported data was used to back out interest and O&M. The estimated or reported values for interest and O&M were subtracted from the reported total values in the functional expenditure categories to create new estimates of spending in the functional expense categories, net of interest and O&M (i.e. instruction01= total instruction – [O&M attributed to instruction + interest attributed to instruction]). [21]

Specifically, the imputation procedure employed the following methodology: 1) the reported interest and O&M in each year from 2002-2008, and in each functional expense category, were calculated (separately) as a share of total expenditures; 2) for each institution, an institutional median share was calculated for interest and O&M (separately) for each expense category using the shares calculated in step 1; this institutional median was used in years when there was no reported share. 3) For those institutions with no reported data for a particular expense category over the 2002-2008 period, a "peer group median share" was constructed using the median share from a set of institutions with the same Carnegie designation and similar FTE and core expenditures (instruction, student services, academic support, and institutional support).

[21] In the 1987-2009 Delta dataset, the original expenditure data reported by institutions, with the interest and O&M still embedded, is available for 1997-2009 and denoted with the suffix "_fasb", i.e. instruction01_fasb.

The shares for interest and O&M (institutional shares, institutional median shares, or peer group median shares) were then applied to the total expenditures for all years, 1997-2003; imputed values were assigned where interest and O&M data were missing. The sum of the interest and O&M data for each functional category were then scaled to ensure they summed to the control totals for interest and O&M. Next, the O&M and interest data (both reported and imputed) were backed out of the functional expense category totals for all years, 1997-2009, to generate the new values for the functional expenditure categories (note: O&M was not backed out of auxiliaries, hospitals, independent, and other operations to maintain comparability with GASB reporting). Finally, for the 1997-2003 period the O&M totals were recalculated in each year as the sum of the actual and imputed O&M components that had been backed out from the functional expenditure categories.

c. *Benefits imputation.* A minor imputation procedure was also employed for a single variable in the database. The variable "fringe_benefit_play" estimates the benefit share of labor costs. But between 1997 and 2002, FASB-reporting institutions did not report total education and general expenditures on salaries and wages nor did they report total compensation. So, for those FASB institutions where a benefit share (total compensation/total salaries and wages) could not be calculated, a share was imputed. The imputations were derived using a transformation regression procedure in SAS, using splines and knots that allows for a curve in the interpolated years, rather than a straight linear imputation.

**8. Miscellaneous issues**

Over the years, there have been numerous changes and improvements to the database; variables have been added, deleted, renamed or reconstructed. Many of these changes resulted from increased familiarity with the data, or investigations of suspicious data patterns and trends. The changes that accompanied each database release were documented in an annual "data updates" memo. Some notable issues are highlighted below.

a. *Zero vs. missing.* When the Delta Database was initially constructed it became apparent that institutions did not reported "missing" and "zero" data consistently—either among institutions in a given year, or within the same institution over time. For example, some institutions may report zero dollars for research expenditures while others leave it blank (or "missing"); or an institution may report zero research expenditures in one year but leave it "missing" the next year. To provide consistency across institutions and years, all reported zeros for the finance data were turned to "missing." Non-finance variables—which are more likely to be summed than analyzed as a mean/median—have not been altered, so inconsistencies in zeros/missings may remain.

The translation of zeros to missing has two implications for finance data estimates. First, any means/medians calculated for finance variables are only "Among those reporting data…" since

zeros are excluded. And second, the mean/median of the aggregate or derived variables—such as E&R or E&G spending—doesn't necessarily equal the sum of the mean/median for each component.[22]

b. *Fall vs. 12-month FTE enrollment*. Most analyses by the Delta Project are presented "per full-time equivalent (FTE) student." The FTE basis for these analyses is the fall enrollment count. The 12-month FTE count is a more comprehensive measure of student enrollment—particularly at community colleges or other institutions that are less likely to serve students on a traditional semester calendar system. But the 12-month FTE is only available for 2004+, thus limiting the analyses that can be conducted using this variable.

   IPEDS does not provide and FTE variables in its standard data files. We downloaded the 12-month FTE directly from the IPEDS Data Center web tool; the 2009 fall enrollment was also drawn from here because of a change in the way first professional students are classified.[23] For 1987-2008 the fall enrollment FTE was calculated using the following formula provided by IPEDS:[24]

   *public 4-year and above:
   IF (sector = 1) FTE_count = SUM(Full time total, (.403543 * Part-time undergraduates), (.600000 * Part-time First Professional), (.361702 * Part-time Graduates))

   *private non-profit and for-profit 4-year and above:
   IF (sector = 2 or sector = 3) FTE_count = SUM(Full time total, (.392857 * Part-time undergraduates ),(.545454 * Part-time First Professional ), (.382059 * Part-time Graduates))

   *public 2-year or less than 2-year:
   IF (sector = 4 or sector = 7) FTE_count = SUM(Full time total, (.335737 * Part-time undergraduates))

   *private non-profit and for-profit, 2-year or less:
   IF (sector = 5 or sector = 6 or sector =8 or sector = 9) FTE_count = SUM(Full time total, (.397058 * Part-time undergraduates)

c. *"Net Pell" variables.* In 2009, new revenue variables were constructed that removed Pell Grant revenues from federal grants and contracts; these new variables are now used in the calculation

[22] If the component variables had all been calculated with zeros, summing the mean/median for the sub-categories would equal the total mean/median for the total category.
[23] The classification of students as graduate or first-professional student has changed in accordance with reporting changes for post-baccalaureate degrees and certificates. As a result, data for graduate and first professional are now shown combined to provide a consistent trend over time. For more information visit: http://nces.ed.gov/ipeds/factsheets/fct_ipeds_new_award_levels.asp
[24] The enrollment variables used in these calculations come from the IPEDS enrollment by race file. In the Delta IPEDS Database, the variables are labeled as follows: full-time total=total_full_time; part-time undergraduates=total_part_time_undergraduates; part-time graduates=total_part_time_graduates; part-time first professional=total_part_time_first_prof.

of the derived total revenue variables. These changes resulted from suspicion that Pell Grants were being double counted in public institutions (in all years), and for private institutions prior to 1997 (when they reported on the Common Form).[25] The original federal grant categories remain available in the database.

d. *"PIE" variables*. There have been notable changes over time in the way the revenue was reported from private gifts, grants, and contracts (private03), investment returns (investment01), endowment income (endowment03) and affiliated entities (affiliate01) that are unable to be reconciled across reporting formats. As a result, we recommend analyzing these four variables together, using the "PIE" variable (priv_invest_endow), rather than as separate revenue streams. As described in the Delta Dictionary, endowment income is no longer reported separately under FASB/GASB; GASB institutions now report this as part of private, gifts, grants, and contracts while FASB institutions report it as part of investment returns. GASB institutions also report revenues from affiliated entities (boosters, fund-raising, etc) as private gifts, grants and contracts while FASB institutions report them as a separate category. The most consistent way to assess changes over time and across reporting formats for these variables is to use the combined PIE variable.

e. *For-profit E&R.* With growing interest in the for-profit sector, the 2009 Delta Database initiated several improvements to the for-profit data. First, the "grouping" of the for-profit data (previously described in section 5) addresses parent/child reporting issues. Second, an exploratory measure of education and related (E&R) spending was derived for for-profit institution. Deriving E&R is more complicated in the for-profit sector because of the way for-profit expenditure data is reported. Rather than requiring for-profit institutions to report their education and general spending in the same eight expenditure categories as public and private, non-profit institutions, for-profit institutions report data aggregated into four categories.[26]

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[25] Institutions currently report *net* tuition and fees (less discounts and allowances) on the FASB, GASB, and Aligned forms; we then add in "applied aid to tuition and fees" (which includes institutional aid and/or Pell) to generate *gross* tuition and fees, which is comparable to the gross amounts reported previously on the Common Form. So, all gross tuition and fee amounts include Pell. Across reporting formats, Pell is also consistently reported as a Federal Grant, though FASB institutions have the option as reporting it as a pass-through directly to tuition. So, by including Pell as a Federal grant and in gross tuition (and Delta's subsequent construct of net tuition, where only institutional grant aid excluded) Pell was being double counted in all institutions except those FASB institutions, that reported it as a tuition pass-through in 1997+. To maintain comparability with those FASB institutions reporting Pell as tuition revenues, Pell remains as tuition revenue. Instead, "net Pell" variables remove Pell from federal grants in all public institutions, and all private institutions not reporting as a pass-through (note: if this calculation returned a negative federal grant amount, Pell was not subtracted).

[26] For-profit institutions report education and general spending in four categories: instruction, net scholarships and fellowships, combined spending on research and public service, and combined spending on student services, academic and institutional support. Operations and maintenance not reported separately and it is unclear whether it is included in the functional spending categories. Public and private, non-profit institutions report E&G spending in eight categories: instruction, research, public service, student services, academic support, institutional support, operations and maintenance (report for GASB institution and derived for FASB institutions), and net scholarships and fellowships.

Spending on student services is combined with spending on academic and institutional support, so needs to be estimated separately before E&R spending can be calculated.[27] In 1998 and 1999, for-profit institutions reported spending in the same eight E&G spending categories at not-for-profit institutions. A student services share of spending was estimated in those years, and then applied forward to estimate the student services share of costs, and ultimately E&R expenses.[28] Nevertheless, for-profit E&R estimates may still not provide equal comparisons with other institutions. Unlike public and private, not-for-profit institutions, for-profit institutions must pay taxes from which other institutions are exempt. Differences in capital/non-capital costs may also distort comparisons, with non-profits more likely to own and finance buildings in separate capital expenditure budgets, while for-profits are more likely to rent classroom space financed through operating budgets.

f. *Replicating Delta Analyses*. Tables in the Delta Cost Project's *Trends in College Spending, 1999-2009* can be easily replicated by drawing the same sample of institutions used in the Trends Reports. Financial data in tables sourced as "11-year matched set" include institutions that are: in the 11-year matched set, located in the U.S., and classified in one of the six major Carnegie/sector categories. The sample of institutions can be replicated using the following code:

```
if academicyear ge 1999 and carnegie_sector_2005 in (1,2,3,4,5,6) and ansi_code<=56 and
matched_n_99_09_11=1;
```

Tables that display total enrollments or degrees, sources as "unmatched set," generally include all institutions, and therefore are only restricted by academicyear >= 1999 and ansi_code<=56.

All Trend report analyses are institution focused, and analyses calculate the average institutional spending (or revenue) per FTE student across institutions. This shows the "average *institutional* spending per FTE student" in a particular sector, rather than the "average spending per FTE student" as would be calculated from an enrollment-weighted measure (see Section 10b for additional discussion).

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[27] E&R spending is calculated as follows: instruction + student services + (education share *(academic support, institutional support, and operations and maintenance), where education share= instruction + student services /(instruction + student services + research + public service).

[28] The student services share of spending was calculated as: student services/(student services + academic support + institutional support). If an institution had a calculated share in 1998/1999, that share was projected forward. A peer-group average share was also computed for separate sectors: for-profit research and master's, for-profit bachelor's, for-profit associate's, for-profit specialty, a general 4-year and 2-year for-profit used when Carnegie codes were not provided. The for-profit 2-year code was used as a proxy for the less-than 2-year institutions because the number of less than two-year institutions reporting student services was very small in 1998 and 1999. But only between 4 and 12 percent of less than 2-year schools report research and public service in a given year, so they are largely unaffected by this calculation (because all expenditures are assigned to E&R when there is no research or public service spending).

It may be difficult to exactly replicate tables from earlier trends reports using the most recent database because of changes made in each annual update. Since the matched set is reconstructed each year, it may differ slightly from those constructed in prior databases. The CPI index is also advanced each year, to inflation-adjust the data into dollars represented by the last year of data in the database (e.g. the 1987-2009 database had inflators to put the data into 2009 dollars). The early Trends reports used the Carnegie 2000 classification, switching to the Carnegie 2005 classification included many more community colleges, and some institutions switched classification categories. And finally, the construction of some derived variables has changes over time. As a result, we recommend re-running data for all years whenever a new version of the database is released, rather than just adding the new year of data onto existing analyses run off a prior version of the database.

**Products**

### 9. Delta Project IPEDS Database

The full Delta database is available, free of charge, on the Delta Cost Project website (www.deltacostproject.org/data/download). To keep track of usage, users are required to register before accessing the data. The data file are provided in four different formats (SAS, SPSS, Stata, and CSV); a documentation file is also available and includes: 1) the Delta Database Dictionary, describing the variables in the database; 2) the Delta IPEDS Mapping File, showing the IPEDS variables used to constructing the Delta revenue and expenditure variables; 3) an "Update" document, that describes changes made to the current year file relative to the prior year file, and 4) SAS code that creates enrollment adjusted "per_fte" variables, and inflation adjusted "per_fte_cpi" variables.

### 10. Trends Reports

The Delta Project has produced four major reports using the Delta IPEDS Database. The first report, *The Growing Imbalance*, was released in 2008 and looked at patterns and trends in spending, revenues, and enrollments over the entire 1987-2005 period. The *Trends in College Spending* report series began the following year, narrowing in on a consistent set of core set of metrics and focusing on a shorter time period. These reports generally covered a ten-year period, focusing on 10-year, 5-year, and 1-year changes.[29] The 2009 Trends report covered 1995 to 2006, the 2010 report covered 1998 to 2008, and the 2011 report 1999 to 2009.

a. *Content.* Trend report analyses present data for U.S. institutions organized into six major Carnegie/sector categories.[30] Financial data is shown for institutions included in the 11-year

[29] Changes in surveys or reporting formats sometimes can increase the likelihood of suspect data in those years, as institutions adjust to the new format. These changes were taken into consideration when deciding which years to highlight in the Trends reports.

[30] The Carnegie/sector categories include: public research, public master's, public community colleges, private research, private master's and private bachelor's. In the interest of data presentation, financial data on public

matched set; enrollment and degree data generally include all institutions (e.g. unmatched set). In each report, measures are provided across a set of five Delta metrics:

- Revenues per FTE student, by the primary sources of operating revenues;
- Spending by FTE student, by conventional spending categories and by grouped categories developed by the Delta project;
- Cost/price/subsidy per FTE student: the student tuition and subsidy shares of cost; changes in net tuition compared to spending per FTE student
- Outcomes - Spending per degree or certificate attained;
- Equity – Comparisons of student enrollment and spending per FTE student.

b. *Analysis.* The Delta Trends reports are presented with an institution focus, rather than a student focus—we display institutional averages within a sector rather than enrollment weighted average spending per student. By averaging institutional spending per FTE student across institutions, we avoid "subsidization" across institutions that can occur when looking at overall weighted sector averages. While the data are not "weighted," per se, enrollment is taken into consideration because all financial data is calculated "per FTE student" before being averaged. So for example, the average instruction costs among public research institutions is calculated as the average of "instruction per FTE" for institutions in the public research sector; it is not calculated as the sum of instruction divided by the sum of enrollment (e.g. enrollment weighted) for all public research institutions. For most sectors this distinction generates only small differences in results; the largest impacts are seen in the private research sector because there are larger disparities in financial resources among institutions in this sector.

Similarly, the share calculations in the analyses are averages of the shares calculated at the institutional level. For example, the student share of cost is the average of each institution's student share; it is not calculated as the average net tuition for the sector divided by the average education and related spending (E&R) in the sector. Again, we were interested in the average of individual institution shares, and for most sectors these calculation methods result in only small differences, except in the private research sector.

The state-level subsidy shares of costs tables are calculated from an alternative database constructed to better facilitate state cost estimates (described below in section 11). These are calculated similar to the national subsidy estimates.

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bachelor's institutions or other institutional groups that enroll relatively small numbers of students are not shown. Financial data on for-profit institutions are not shown because growth in this sector makes it difficult to generate a consistent sample over time; even after "grouping" institutions, data is often quite volatile because of the rapid opening/closing of affiliated institutions in this sector. Data on enrollments and degrees are shown for these sectors to capture overall trends.

**11. State Data Pages**

A set of 51 "State Data Pages" were created to present data on key Delta metrics for public research, master's bachelor's and community college sectors in each state (http://www.deltacostproject.org/data/state/). The data are limited to a five year period, showing data for the most recent year, and the five year change. A set of graphs showing the student and subsidy share of costs by state (for each of the four public Carnegie categories) were also constructed, and included in the Trends reports.

a. *Data.* State estimates were all constructed with an alternate database called the Delta Cost Project IPEDS State Database, 2004-2009. This database was constructed using IPEDS data and code similar to the master database code, but with more limited IPEDS and Delta derived variables.[31] The state database was constructed to address problems with parent/child reporting issues, particularly those that cross Carnegie categories. This database is not publicly available because we used allocation factors to apportion the finance data for institutions reporting as parents/children.

   In the main Delta IPEDS Database, a number of "grouped" institutions contain parents or children from different Carnegie categories. For example, the parent institution may be a public research institution, but its children, often branch campuses, may be public 4-year or two-year institutions. This issue is problematic in some states more than others (e.g. Pennsylvania, Connecticut, Ohio), depending on the structure each state's public higher education system.

   By focusing on a shorter six-year time period, some of these cross category problems are naturally resolved; many institutions no longer reported as parent or children during this period, and therefore remained separate observations. Institutions that continued to report their finance data in a parent/child relationship during this period were disaggregated using a set of allocation factors provided in IPEDS beginning in 2004.[32] With issues of cross-Carnegie data resolved, the state database can provide cleaner estimate of patterns and trends in state finance.

**12. Trends in College Spending Online (TCS Online)**

To improve public transparency about college and university spending, the Delta Project developed TCS Online (www.tcs-online.org), a searchable web-tool that provides easy public access to data on revenue

[31] This basic database is the same database used to identify the "naturally ungrouped" observations for the Trends in College Spending web tool, as described in Section 13, part B.

[32] Allocation factors are provided for each of the different surveys. Some institutions did not provide allocation factors and the Delta Cost Project developed factors based on staffing or FTE enrollment. Factors provided in 2006+ appear much more consistent and reliable than those provided in 2004 and 2005; as a result, the 2006 factors were applied back to 2004 and 2005 in most cases.

and spending patterns in higher education.[33] TCS allows users to put spending in context, by showing changes over time, and by allowing comparisons across different types of institutions. Data are organized into the major Delta cost metrics, and are adjusted to show average spending and revenues per FTE student. Reports are available at the U.S. and individual institution level, for the most recent six years of data, and can be download into excel or PDF files. Researchers who want additional variables or years of data can download the full Delta Database (which requires a statistical software package for analysis).

a. *TCS Reports.* Web users may generate the following reports (e.g. tables/graphs) at the U.S. level by Carnegie/sector classification, for individual institution snapshots, or multiple institution comparisons:
    - Revenues per FTE student, by the primary sources of operating revenues;
    - Spending by FTE student, by conventional spending categories and by grouped categories developed by the Delta project;
    - Cost/price/subsidy per FTE student: the average educational cost per student, and the student tuition share of costs;
    - Spending per degree or certificate attained;
    - Sticker prices compared to net tuition revenue and spending per FTE student;
    - And changes in enrollment against changes in spending per student.

    Data definitions, frequently asked questions, and a listing of grouped institutions are available on the TCS Help tab. For additional questions, TCS-Online includes a "Help" email box which is staffed by Delta Cost Project. XCalibur monitors the site for activity and troubles; activity reports are accessible by Delta administrative staff.

b. *Data.* The primary data source for TCS-Online in the Delta Cost Project IPEDS database, and currently includes data from 2004-2009. Only those institutions located in the United States, and in the seven major Carnegie/sector classifications[34] are included in TCS (two- and four-year public institutions, and four-year private non-profit institutions); specialty institutions and private, for-profit institutions are excluded. In addition, the U.S. tables include only those institutions that are members of the 11-year matched set[35]; this ensures the TCS data match that in the most recent *Trends in College Spending* report.[36]

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[33] TCS Online was constructed by XCalibur, Inc. in 2008-09. Jim Brown, president of XCalibur, was instrumental in designing the system, and Curt Reese, Director of Technology was the lead developer. The system was tested by a group of colleagues before being released in early 2010 with data spanning 2002-2006; the system was updated with 2007 and 2008 data and formally released in July of 2010 alongside the *Trends in College Spending, 1998-2008* report; the system was again updated in July/August 2009 with data for 2004-2009, in preparation of the September 2011 release of *Trends in College Spending 1999-2009*.

[34] The variable carnegie_sector_2005 contains the categorization.

[35] The U.S. tables are also generated using the original "grouped" institutions in the main database; the partial ungrouping of the data described for the individual institutions does not affect the U.S. tables.

[36] Data in TCS may differ from that presented in earlier Trends report for several reasons: 1) changes in the composition of the matched-set, which is updated annually; 2) changes in the reference year for the inflation

All institutions in the seven major Carnegie/sector categories are available for inclusion in institution-level reports; those institutions that are "grouped" parent/child institutions are listed in the "grouped institutions list" document on the website. However, in the most recent 2009 upload, effort was made to limit the number of grouped institutions in TCS Online. Many of the institutions in master database no longer report as parents/children in the 2004+ period captured by TCS. So in the 2004-2009 version of TCS, these "naturally ungrouped" institutions are shown ungrouped, even though they remain grouped in the main database (and for the U.S. table calculations in TCS). The natural ungrouping reduces the number of grouped institutions to 98, from more than 200 in prior versions of TCS.

The supplemental ungrouped data for 2004-2009 was developed separately from the master database. A new database with IPEDS data from 2004-2009 was constructed, using code similar to the master database code, but with more limited IPEDS and Delta derived variables.[37] The institutions that are grouped in the master database were identified; the IPEDS parent/child reporting flags were reviewed, and if they no longer reported as parent/children on *any* survey in the 2004-2009 period, they were flagged as "naturally ungrouped." Once the TCS file was drawn from the master database (e.g. years 2004-2009, carnegie_sector_2005 =1-7, and institutions in U.S. territories excluded), these new naturally ungrouped grouped institutions were appended onto the TCS file. A series of flags were used to indicate which institutions should be shown in the institution-level tables (always ungrouped, newly ungrouped, still grouped), and used in the U.S. reports (matched set).[38]

**Transition**

The Delta Cost Project was established in 2007 and originally envisioned as a 5-year effort to bring greater attention to college spending through better data, cost metrics, and communication. Effective January 1, 2012, the Delta Project will transition its work to two established organizations within the education community. The database portion of the work will become an ongoing facet of the IPEDS data collection and communication work of the National Center for Education Statistics (NCES). At the same time, the Delta Project will shift on-going responsibility for the public analysis and communication about the revenue and spending trends to a new project with the American Institutes for Research (AIR) to be known as the Delta Cost Project at AIR.

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adjustments, which is updated each year and pegged to the most recent year of data available; and 3) other possible adjustments to data variables.

[37] The variables included are largely limited to the main surveys/variables used in Trends, TCS, and the State pages. (e.g. the data on enrollment by age is excluded).

[38] The groups associated with "newly ungrouped" institutions must still remain the TCS database, because while ungrouped for the purposes of the institution tables, the original grouped institutions may still be a part of the matched set, and thus used the U.S. table calculations.

NCES will provide an annual update of the Delta database, including the longitudinal matched-set or panel of institutions produced from it, and will make those available to researchers and other analysts in the DataLab area of the Postsecondary, Adult, and Career Education (PACE) website. Both the raw variables, and the derived variables developed by the Delta Project, will be updated and maintained by NCES. To maintain visibility of the data-set, and to distinguish it from the IPEDS data set, it will be labeled the IPEDS Analytics: Delta Cost Database (http://www.nces.ed.gov).

AIR Managing Director Rita Kirshstein has been a partner to the Delta Project for several years, and she and the AIR team have the expertise to not only maintain, but also to enhance, the current communication work. They will produce an annual update of the previous Delta "Trends in Spending" report, using the Delta derived metrics to document patterns in revenues and spending across public and non-profit higher education. AIR will also maintain the Delta Project websites, including the TCS-online data system, where institutional-level data using the Delta metrics are available, as well as the state-level data for public institutions in all fifty states. AIR will also maintain the existing Delta Cost Project advisory structure, to ensure continuity in the data set, and to be a source of expertise as they pursue ways to expand and build upon the foundational work done by the initial Delta Cost Project.