

NCES: Forging New Partnerships A Vision for Education Statistics

Josh DeLaRosa

Director, Annual Reports and Information Staff

National Center for Education Statistics

Josue.delarosa@ed.gov

Relevant – High Quality – Useful to Customer

- For over 150 years, serving our education community has been NCES’s priority.
- As a data-driven organization, NCES has used a collection of tools to understand:
 - Customer needs
 - Effectiveness delivery of our services
- “Deepen and broaden engagement with current and potential data users to better understand their needs and how NCES can more efficiently meet those needs”

The Education Sciences Reform Act (of 2002). H.R. 3801, Section 151(b). Available: <https://www.govinfo.gov/content/pkg/BILLS-107hr3801enr/pdf/BILLS-107hr3801enr.pdf>National Academies of Sciences, Engineering, and Medicine. 2022.

Provasnik, S., Barnett, M., Snyder, T., Zhang, A., and Cui, J. (2022). Number of Elementary and Secondary Schools. A Retrospective Look at U.S. Education Statistics. (NCES 2022-080). U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved [March 1, 2023], from <https://nces.ed.gov/surveys/annualreports/topical-studies/retrospective/#/elem-sec-ed/num-of-elem-sec-schools/>.

National Academies of Sciences, Engineering, and Medicine. 2022. A Vision and Roadmap for Education Statistics. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26392>.

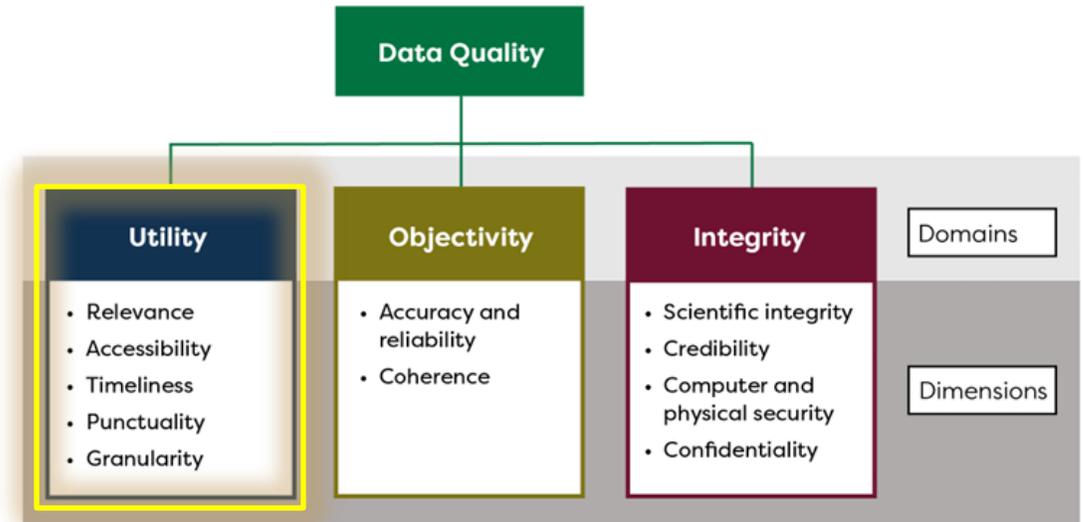
How Do Mandates Shape Our Approach to Responsiveness?

All statistical agencies (and parent agencies) are subject to mandates directing us to **ensure data products are relevant and useful.**

Consumer-centered approach in service delivery:

- Define who are our users?
- What data products are valuable to users?
- What is the policy impact of our different data products?
- When is the data useful?
- What level of granularity do our consumers need?
- What areas do our data products currently *not* speak to?

Federal Committee on Statistical Methodology Framework for Data Quality



Statistical Policy Directive No. 1: Fundamental responsibilities of federal statistical agencies and recognized statistical units. 79 Federal Register 71609 (December 2, 2014)

Office of Management and Budget, Executive Office of the President, OMB Circular A-11, Preparation, Submission and Execution of the Budget (2016)

Office of Management and Budget, Executive Office of the President, OMB Memorandum M-23-22 Delivering a Digital-First Public Experience (2023)

Office of Management and Budget, Executive Office of the President, OMB Memorandum M-17-06 Delivering a Policies for Federal Agency Public Websites and Digital Services (2017)

Federal Committee on Statistical Methodology. 2020. A Framework for Data Quality. FCSM 20-04. Federal Committee on Statistical Methodology. September 2020.

From Bibliography to...

- Participating in the pilot offered the potential leverage organically produced information in a more efficient manner

The screenshot shows the IES NCES National Center for Education Statistics Bibliography Search Tool. The header includes the IES NCES logo and a search bar. The main content area is titled "BIBLIOGRAPHY SEARCH TOOL" and features a navigation menu with "Home" and "Help" links. On the left, there is a search filter panel with the following options:

- Search Word(s):** Title Abstract
- Data Source:** Select Data Source (optional) [dropdown]
- Author/Editor:** [text input]
- Reference Type:** Select Reference Type (optional) [dropdown]
- Journal:** [text input]
- Publication Year:** From [dropdown] To [dropdown]
- Buttons:** Search, Reset

The main content area contains a descriptive paragraph: "The Bibliography Search Tool allows you to search for individual citations from journal articles that have been published using data from 18 research programs conducted by NCES (click on the icons below for more information on each program). The bibliography is updated continually. The list of citations was derived from computer searches of online bibliographic databases (i.e., EBSCO, JSTOR, EconLit, Dissertation Abstracts), ERIC, as well as the NCES website."

Below the text is a grid of 18 program logos and their names:

- Annual Reports Program:** Annual Reports and Information Staff (Annual Reports)
- Baccalaureate and Beyond Longitudinal Study (B&B):** Baccalaureate and Beyond Longitudinal Study (B&B)
- Beginning Postsecondary Students (BPS):** Beginning Postsecondary Students (BPS)
- Beginning Teacher Longitudinal Study (BTLs):** Beginning Teacher Longitudinal Study (BTLs)
- Common Core of Data (CCD):** Common Core of Data (CCD)
- Civic Education Survey (CivEd):** Civic Education Survey (CivEd)
- Early Childhood Longitudinal Program (ECLS):** Early Childhood Longitudinal Program (ECLS)
- EDGE:** Education Demographic and Geographic Estimates (EDGE)
- ELS 2002:** Education Longitudinal Study of 2002 (ELS:2002)
- HS&B:** High School & Beyond (HS&B)
- HSLS:09:** High School Longitudinal Study of 2009 (HSLS)
- ICILS:** International Computer and Information Literacy Study (ICILS)
- IPEDS:** Integrated Postsecondary Education Data System (IPEDS)
- NAEP:** National Assessment of Educational Progress (NAEP)
- NEL S:88:** National Education Longitudinal Study of 1988 (NELS:88)
- NHES:** National Household Education Surveys Program (NHES)

<https://nces.ed.gov/bibliography/>

Actionable Insights

Select a Dataset to Explore Usage				Datasets: All, Year: All CLEAR FILTERS			
Name	Pub	Cit		10,975 Publications DOWNLOAD SPREADSHEET			
Program for International Student Assessment of Edu...	4,710	44,541		Publication	Pub	Cit	
National Assessment of Edu...	2,241	32,207		Youth risk behavior surveillance - United States, 2017	1	1,090	
Trends in International Mathematics and Science Study	2,164	23,426		Where is the land of opportunity? The geography of intergenerational mobility in the United States	806		
Early Childhood Longitudinal Study	1,128	20,237		Conceptualization, measurement, and improvement of classroom processes: Standardized observation can leverage capacity	591		
Education Longitudinal Study	845	16,328		The gender wage gap: Extent, trends, & explanations	588		
National Education Longitudinal Study	629	14,842		Comparing Regression Coefficients Between Same-sample Nested Models Using Logit and Probit: A New Method	572		
Filter by Year(s)				2,537 Journals			
Year	Pub	Cit		Authors	Pub Title	Pub	Cit
2008	116	4,836		260	Journal of Physics: Conference Series	398	582
2009	188	7,910		413	Frontiers in Psychology	147	433
2010	307	12,131		719	International Journal of Science Education	122	2,534
2011	349	11,777		779	Educational Evaluation and Policy Analysis	87	3,697
2012	510	13,492		1,134	School Effectiveness and School Improvement	85	1,437
2013	561	14,914		1,303	119 Countries DOWNLOAD SPREADSHEET		
2014	617	14,653		1,502	Country	Pub	Cit
Filter by Topic(s)				119 Countries DOWNLOAD SPREADSHEET			
Keyword	Pub	Cit		Auth..	USA	5,388	85,735
Teacher Evaluation	380	4,938		788	Indonesia	658	1,454
Distributed Leadership	283	2,943		621	United Kingdom	603	10,312
Community College	267	3,388		495	Deutschland	538	8,012
PISA Study	235	3,326		357	Australia	519	8,906
Charter School	201	1,828		326			

- Participating in the pilot offered the potential leverage organically produced information in a more efficient manner.
- Author information
 - Location
 - Affiliation
- Keywords
- Journal details
- Speed & Scalability:
 - Automation of ML
 - Potential to deploy ML on additional sources

Pilot Results

APIs and Workbooks

3) Drilling into the details for each dataset

Who are the main authors using each agency's datasets? Who are the main authors using each specific dataset? What are the publications associated with each author? What institutions are the centers of use for each agency dataset and in what geographic locations are the institutions located?

Who are the main authors using each agency's datasets?

```
[122.. sql=f"""
with a as (
select ds.id as ds_id, max(ds.alias) as dataset
, a.id as author_id, CONCAT(a.given_name, CASE WHEN a.given_name is NULL THEN '' ELSE ' ' END, a.family_name) as a
, count(distinct p.id) as num_of_publications
, rank() over(partition by ds.id order by count(distinct p.id) desc) as rank
from agency_run ar
join dyad d on d.run_id=ar.id
join publication p on p.id=d.publication_id
join publication_author pa on pa.publication_id=p.id
join author a on a.id=pa.author_id
join publication_topic pt on pt.publication_id=p.id
join topic t on t.id=pt.topic_id
join dataset_alias da on da.id= d.dataset_alias_id
join dataset_alias ds on ds.alias_id = da.parent_alias_id
where ar.agency='{AGENCY}' and ar.version='{VERSION}'
group by ds.id,a.id,a.given_name,a.family_name
)
select * from a
where rank<=5
order by dataset,num_of_publications desc
"""
```

- Machine readable by default is key to efficiency
- Dashboards provide quick insights for executives
- APIs support additional use cases, further exploration
- Jupyter Notebook provide additional access to the data

Data Linkage < > Policy Relevancy

Metrics Details	
CITATIONS	450
Citation Indexes	438
CrossRef	438
Scopus ↗	433
PubMed Central ↗	255
Policy Citations	12
Policy Citation	12
CAPTURES	891
Readers	891
Mendeley ↗	888
Mendeley ↗	2
Mendeley ↗	1
MENTIONS	134
News Mentions	132
News	132
Blog Mentions	2
Blog	2
SOCIAL MEDIA	15
Shares, Likes & Comments	15
Facebook	15

Medicare Program; FY 2024 Inpatient Psychiatric Facilities Prospective Payment System-Rate Update

A Proposed Rule by the Centers for Medicare & Medicaid Services on 04/10/2023

The screenshot shows a document page with a header 'PUBLISHED DOCUMENT' and a sub-header 'DOCUMENT DETAILS'. The document title is 'Medicare Program; FY 2024 Inpatient Psychiatric Facilities Prospective Payment System-Rate Update'. The document details include: Agency: Centers for Medicare & Medicaid Services (CMS), Department of Health and Human Services (HHS); Action: Proposed rule; Summary: This proposed rule would update the prospective payment rates, the outlier threshold, and the wage index for Medicare inpatient hospital services provided by Inpatient Psychiatric Facilities (IPF) which include psychiatric hospitals and...; Document Type: PDF; Publication Date: 04/10/2023; Agencies: Centers for Medicare & Medicaid Services; Dates: To be assured consideration, comments must be received at one of the addresses provided below, by June 5, 2023; Comments Close: 06/05/2023.

- The ability to link journal articles to external data sources is another application of efficiency leading to **insights**.

The commitment to providing information on the relationship between the data NCES data products and “policy documents” is valued.

What's Next

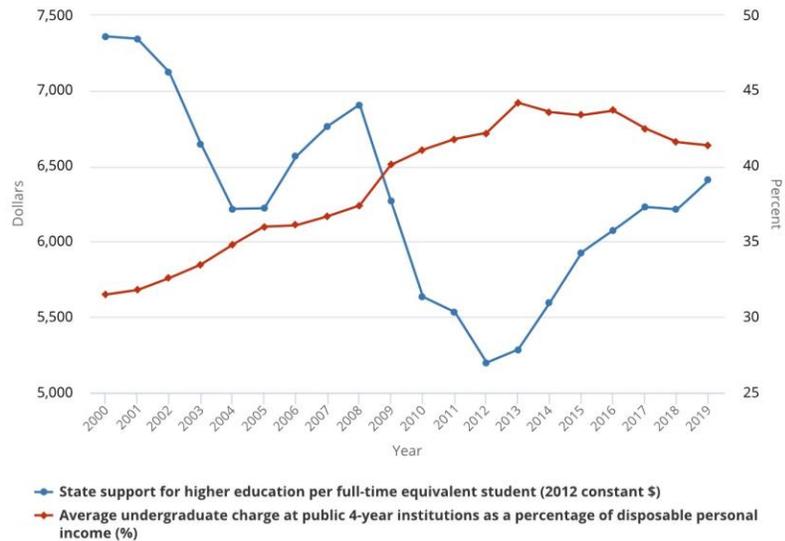
- Results of the ML are preliminary. Continue to expand search, train & test model
- Relevant – High Quality – Useful to Customer
 - Workshops with researchers within the education community to gather their feedback
 - Identify companion datasets to explore partnership opportunities
 - Incorporate data into operational decisions
- Explore results further
 - Policy documents
 - Interaction between datasets
 - Data products/ data tools
- Linkage to Integrated Postsecondary Education Data System
 - Sector
 - Minority Serving Institutions/HBCU
 - Degree of Urbanization
- Richer understanding of usage
 - How was the data accessed?
 - Context

Granular Relevance of Blended Data Products

National Center for Science and Engineering Statistics | NSB-2022-3

Figure HED-2

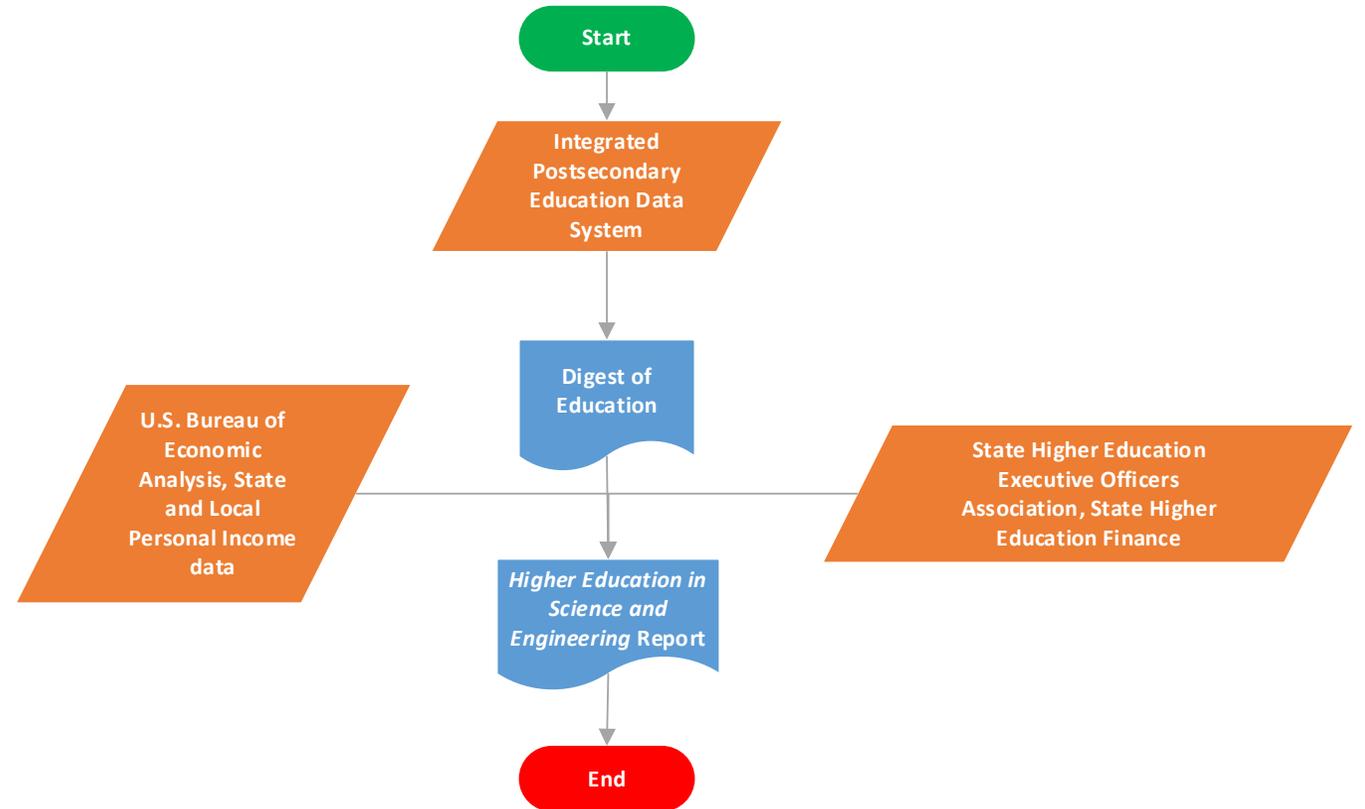
Average undergraduate charge at public 4-year institutions as a percentage of disposable personal income and state support for higher education per full-time equivalent student: 2000–19



Note(s):
Data come from the *Science and Engineering Indicators* State Indicators, Indicators S-25 and S-28. State support for higher education per full-time equivalent student is shown in constant 2012 dollars. See the State Indicators for more detail.

Source(s):
National Center for Education Statistics, *Digest of Education Statistics* (various years), data available as of June 2020; U.S. Bureau of Economic Analysis, State and Local Personal Income data (various years), data available as of December 2020; State Higher Education Executive Officers Association, State Higher Education Finance (various years), data available as of May 2020.

Science and Engineering Indicators



Complements Other Tools & Efforts

The Democratizing Data platform is part of the larger effort at NCES to understand users and uses:

- ✓ Bibliography Tool
- ✓ Customer satisfaction surveys
- ✓ Digital Object Identifiers (DOI)

Platform builds on these effort by improving speed and scalability

- Provides citations data in machine-readable format
- Efficient and systematic means of outputting data regarding academic citations of NCES data
- Supports exploration of granular data on uses and users



Thank You

Josue.delarosa@ed.gov