FEDERAL JOBS DATA UNLOCKED

The Uses, Processes and Critical Infrastructure that underpin the United States Economy





Federal Jobs Data Unlocked: The uses, processes, and critical infrastructure that underpins the US economy

Erica L. Groshen

Cornell University—ILR School

April 23, 2025

CAROW Webinar

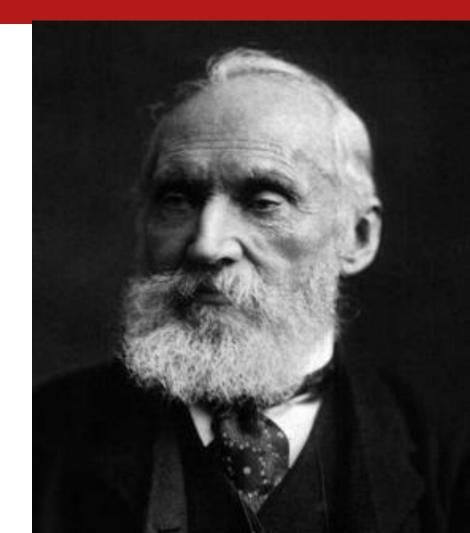


Why measurement?

"If you cannot measure it, you cannot manage it."*

William Thomson, Lord Kelvin (1824-1907)

To support evidence-based public and private decision-making.

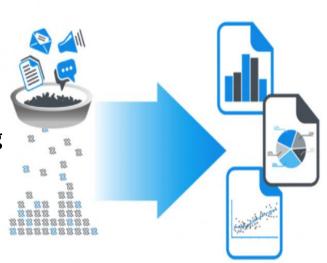




US Bureau of Labor Statistics

- Established 1884: industrial turmoil
 - Technological change
 - Trade
 - Immigration
 - Unionization
- Principal Federal agency responsible for measuring
 - Labor market activity
 - Working conditions
 - Price changes in the economy
- Collect, analyze, and disseminate essential economic information
- Support public and private decision making





Just the facts, for everyone



- Is the glass half full or half empty?
 - It is a 12 oz. glass with 6 oz. of liquid.

 Equal access to data for all users



Trust is mission critical for statistical agencies

- To use data products to guide their decisions, users must trust that the data are accurate and objective
- To supply data inputs, data subjects and data providers must trust that their data will
 - Serve an important need
 - Not be used to harm them
 - Be held securely





Data systems are infrastructure

- Support enterprise and democratic society
- Facilitate movement of goods, services, and people by informing decisions
- Need an upgrade
 - One-off solutions are not enough





BLS data sources

- Household surveys
 - Contracted out, mostly to Census Bureau
- Establishment surveys
 - Mostly fielded internally by regional offices and state partners
 - Many collection modes
 - Mostly voluntary
 - Response rates better than private surveys, but falling
- Growing use of administrative and non-survey data
 - UI employer records
 - Web scraping, 3rd party sources, corporate dumps, etc.



Current Population Survey

Household survey

- 60,000+ households
- Records labor market activity of household members during week containing the 12th of month
- First contact in person; rest usually by phone
- Reported by person answering phone
- 4 months in; 8 months out; 4 months in
- 69% response rate





CPS questions and classification strategy

- Questions
 - Based on activities, not self-classification
 - Delivered by trained professional field staff
 - Tested, validated, updated, and retested
 - Transparent
- Classification
 - Based on activity questions
 - Hierarchical, mutually exclusive

Employed → Not in Labor Force

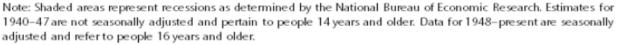




History of US unemployment rate

Figure 1. Unemployment rate and timing of changes to Current Population Survey measurement, 1940–2017





Source: 1940–47 figures are based on authors' calculations using U.S. Census Bureau data; 1948–2017 data are from the U.S. Bureau of Labor Statistics.



Establishment Surveys

Current Employment Statistics (CES)--"Payroll Survey"

- 147,000 businesses and agencies at 634,000+ worksites (covers 1/3 of non-farm jobs)
- Records <u>jobs</u>, hours and earnings in pay period containing 12th of month
- Contains industry and location
- Reported by employer using various modes
- 43% response rate

Job Openings and Labor Turnover Survey (JOLTS)

- Records job postings, separations, hires over the month
- 34% response rate





Quarterly Census of Employment and Wages (QCEW)

Administrative data

 Collected from quarterly reports filed by employers with state Unemployment Insurance offices

• Cover 95% of US jobs

 Records <u>number of jobs</u> and total quarterly earnings of all employees in the establishment

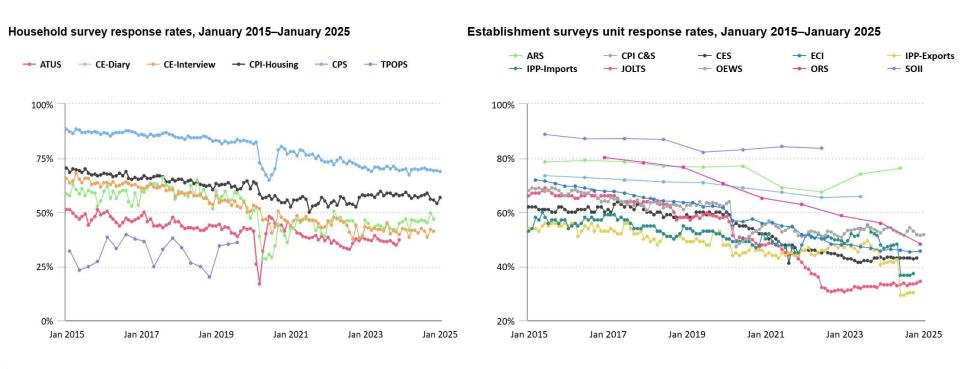
Contains industry and location



Future of Federal Employment Statistics



Survey response rates are declining, eroding quality and granularity of official statistics



Evolution of US official statistics

Stats 1.0 (1880s-mid 1900s): Convenience samples



Stats 2.0 (mid 1900s-early 2000s): Surveys dominate

• Administrative data, if available



Stats 3.0 (now): Threats to surveys

- Survey fatigue
- Security and privacy concerns
- > Low survey response rates that raise costs and erode reliability





Toward a 21st century data infrastructure

- Opportunity—Big Data explosion
 - Digitized operations; cheap powerful computers; internet connectivity; novel software (e.g., AI)
- Challenge—Undesigned inputs
 - Flawed, incomplete, inconsistent, siloed
- Stats 3.0 Solution: Blended data products
 - Combine multiple sources to overcome limitations
 - Promote quality and interoperability via data standards
- Report by Committee on National Statistics, National Academies of Sciences, Engineering and Medicine, Sept. 2022



NATIONAL Sciences Engineering Medicine

Toward a 21st Century National Data Infrastructure: Mobilizing Information for the Common Good

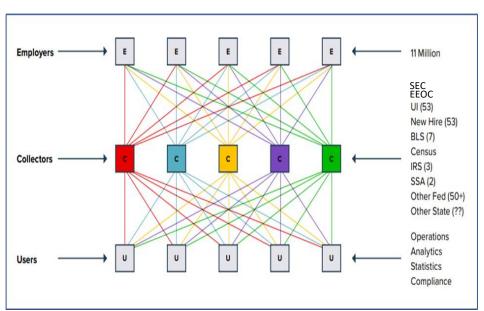


Why data standards?

- We're in the Information Age
 - ... "a time in which information has become a commodity that is quickly and widely disseminated and easily available especially through the use of computer technology." (Merriam Webster)
- Make administrative data more like surveys
 - Interoperable
 - Designed for measurement purposes
- Lower burden for respondents and collectors
 - All employers have similar records already



Current workforce administrative data system is a mess



Note: Current diagram omits the complex web of siloed data-sharing arrangements between collectors and other Federal and State agencies.

- Each line represents a flow of employer administrative data.
- The flow contents are similar, but not the same.
- Essentially, variations on UI worker and employer records.



Vision for a modern workforce data system

Current 21st Century **Employers** 11 Million **Employers** SEC EEOC UI (53) New Hire (53) BLS (7) Census **JED**X Standards-based IRS (3) **Architectures** SSA (2) Other Fed (50+) Other State (??) Operations **Analytics** Users Statistics Compliance

Note: Current diagram omits the complex web of siloed data-sharing arrangements between collectors and other Federal and State agencies.



Initiative for workforce data standards: Jobs and Employment Data Exchange

- U.S. Chamber of Commerce Foundation public-private, standards-based initiative
- Promotes sharing and using workforce data via
 - **Data standards:** data model and definitions
 - Technology standards: improve data sharing, management, and protection
 - Governance mechanism





JEDx resources: one-pager & website



To modernize, consolidate the statistical system

- Now: 13 principal stats agencies + >100 statistical units all under Cabinet members
- Modernization requires
 - Economies of scale and scope to improve efficiency and agility
 - Sharing data
 - Coordination and prioritization across agencies to improve interoperability
 - Ability move resources around
- Preserving trust requires ensuring the statistical system operates outside of policy and political influence on methodology
- Proposed by many previous administrations, maybe now is the time?
 - Administration is bold
 - Threats to trust are high
 - Need for modernization is getting critical



Thank you.

Erica L. Groshen
Cornell-ILR
erica.groshen@gmail.com



Comparing government and private data products

• Not "or".... "and"

Government	Private
 Transparent Access to comprehensive and sensitive data 	Proprietary methodsSpeedy productionQuick innovation
High survey response ratesObjective	 Access to transactional data Tailored to special needs
Long history	



Assessing non-survey data and risks

- Quality
 - Bias
 - Production-grade
- Access
 - Cost
 - Data stream can change
- Legal framework
 - Administrative enforcement data
 - Web scraping









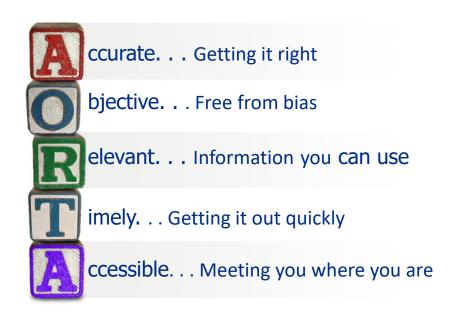
Study of AI can inform implementation of data standards

- Salient application/"use case" for standards
- Demonstrate how standards improve
 - Occupational supply and demand analysis
 - Program and policy evaluation
 - Research on Al
- Validate and prioritize fields for collection
- Test viability of collection in pilot projects





Building blocks of good data





FEDERAL DATA OVERVIEW

- ❖ Key data sets public and private
- ❖ Example uses in policymaking and program design



KEY DATA SETS

- Survey versus administrative data
- Individuals, households, firms, industries, geographies
- Frequency of data collection
- ❖ Public versus private

KEY DATA SETS: PUBLIC

DATA SETS	FOCUS	INFORMATION
Current Population Survey (CPS)	People & Households	Monthly national data collection: employment, unemployment, labor force participation, income, types of job (industry, occupation), union membership, worker characteristics, household characteristics. Special supplements some months.
Job Openings and Labor Turnover Survey (JOLTS)	Job changes	Monthly and annual estimates of job openings, both private & public sector except fed gov't (i.e., demand/shortages), hires (people added to payrolls), and separations (worker v employer initiated, other). Available at national and regional levels, and industry.
Quarterly Census of Employment and Wages (QCEW)	Geography & industry, employment & wages	Industry data reported by employers, including employment numbers and wages. Compiled from full unemployment insurance reporting, rather than survey estimates.
. ,	Jobs currently held	Monthly estimates at national and state level of employment, hours, and earnings, size of firm, by industry from smaller employer sample than QCEW (~120,000 businesses), but available faster. Benchmarked annually to QCEW.

KEY DATA SETS: PRIVATE

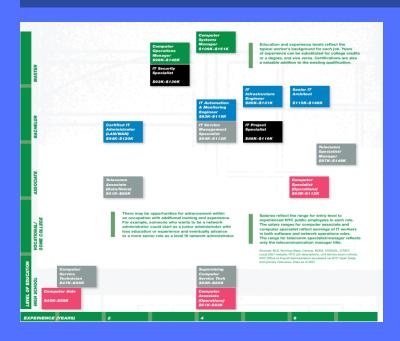
DATA SETS		
*	LinkedIn	
*	Lightcast	
*	ADP	
*	Indeed	

	BENEFITS & DRAWBACKS
*	Data source
*	Representativeness of sample
*	Neutrality
*	Comparable definitions

DATA IN POLICYMAKING

- ❖ The Federal Reserve uses federal data to determine interest rates and manage inflation/unemployment. For example, monthly jobs reports (CES, CPS) help the Fed assess labor market "slack."
- ❖ Tax credits and subsidies (like EITC or child tax credits) are adjusted using income distribution data from sources like the Census Bureau's Current Population Survey (CPS) and others.
- QCEW can reveal which counties or industries are hit hardest by layoffs or economic downturns to help guide government interventions.

COMBINING DATA: EXAMPLES IN PRACTICE



- DC 37 public sector union: the value of unions in career pathways
- NYC Department of Veterans' Services: comparing population's success
- NYC Public Schools: helping young people prepare

LMIS

- ❖ NYC Labor Market Information Service (LMIS) is an applied research center at the CUNY Graduate Center.
- ❖ We are the only NYC-based organization devoted to conducting mixed-methods labor market research and making the findings relevant and actionable for mission-driven organizations.



Summary

- Federal statistics were already at risk
- Collateral damage so far: <u>bit.ly/FedStatMonitoring</u>
- Federal statistics disadvantaged in approps process
- Federal statistics need you: many ways to contribute
- pierson@amstat.org

The Health of the Federal Statistical Agencies: "The Nation's Data at Risk"

Steve Pierson, Jonathan
Auerbach, Claire Bowen,
Connie Citro,
Nancy Potok,
Zach Seeskin

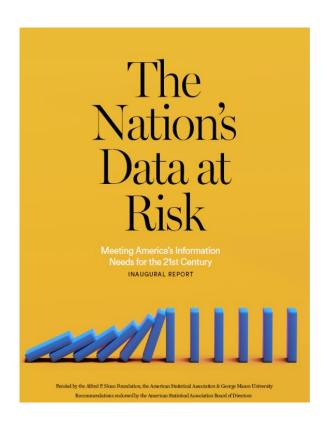
April 23, 2025



Funded by Alfred P.
Sloan Foundation,
Annie E. Casey
Foundation, and
California
Community
Foundation



- Assessing the health of the federal statistical agencies
 - Inaugural report ("baseline")
 - 2025
- Congressional challenges for federal statistical agency budgets
- Ways to contribute



Assesses capacity of 13 principal statistical agencies and chief statistician's office to serve the nation's data needs.

Assesses the support required to enable these statistical agencies to meet their missions in the 21st century.

Goal is annual report with active dissemination to increase visibility and motivate stakeholders to act

- 1. Is the agency able to consistently produce relevant, timely, credible, accurate, and objective statistics?
- 2. Is the agency trustworthy, accountable, and agile?
- 3. Does the agency have sufficient support in three key areas: professional autonomy; parent-agency support; budget and staffing
- 4. What are the challenges and threats the agency faces?
- 5. What is its record with innovation?
- 6. Is the agency responsive to user needs and transparent about its data products and decisions that affect users?

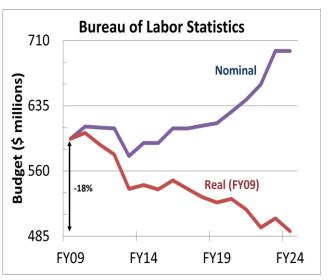
For inaugural report, questions boil down to

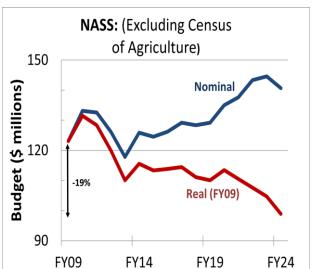
Is the agency able to produce relevant and timely statistics

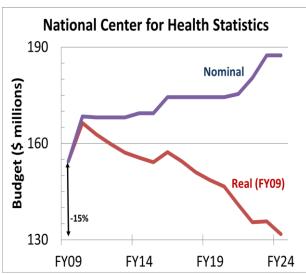
- Requires constant innovation to update existing products, create new products
- Requires support in three areas: professional autonomy, parent-agency support,
 budget and staffing

⇒Take into account headwinds (declining response rates, unfunded mandates, rising costs) and challenges of changing economy, society, data user needs, etc.

- Highly innovate culture but innovation capacity hamstrung
- Most, if not all, statistical agencies have a significant weakness in at least one of three critical supports:
 - Weak legislative protection for how agencies collect and analyze data and disseminate products—makes agencies vulnerable to political meddling as has happened in other countries; also weakens accountability
 - Lack of support from parent agency
 - Insufficient resources (budget and staffing levels often woefully so)



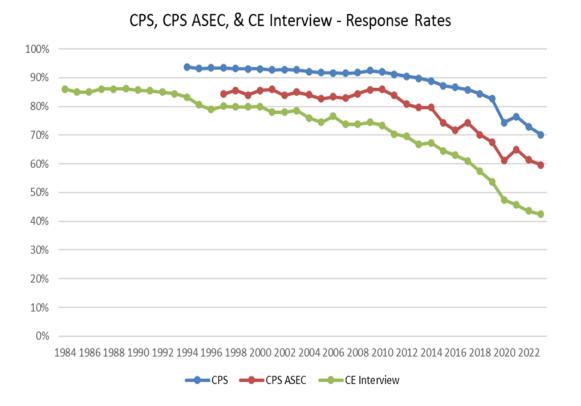




NASS: National Agricultural Statistics Service; GDP deflator used to adjust for inflation; total nondefense discretionary domestic budget increased by 16% in real terms over same period

- Ability to innovate/modernize impeded: necessary condition for relevant & timely products; agile, accountable, & trustworthy agency
- Long-running series for key economic and social indicators prone to become outdated in content and methods—e.g., Current Population Survey (CPS) unemployment rate, consumer spending...
 - Agencies lack resources for testing, improvement, concurrent series

- Environmental headwinds drive up survey costs, degrade quality, and make "blended data" solutions hard to achieve
 - Survey response rates declining here and abroad
 - Costly to strive to maintain response rates
 - Other data sources could help (e.g., administrative data, commercial data), but barriers (legal, regulatory, cost) often stand in the way
- Increasing threats to privacy and confidentiality; agencies pulling more data into limited access research centers, limiting equitable data access



- Current Population Survey
 produces monthly unemployment rate
- CPS Annual Social and Economic Supplement produces yearly poverty rate, median household income
- Consumer Expenditure Survey
 produces market basket weights for
 the CPI

- Chief statistician's office lacks sufficient resources to fully carry out its myriad responsibilities—only 8 statistical policy staff
- Office is remarkably productive given small size, but lacks capacity to
 - Conduct meaningful strategic planning
 - Expedite and coordinate needed innovation in cross-cutting topic areas—e.g., education, health, labor force, economic well-being
 - Handle full plate of standards and regulations on a timely basis

Agency*	Resources	Staffing applicable only to BJS, NCES & NCSES)	Professional Autonomy	Parent-Agency Suport
BEA	Mixed	_	Challenging	Good
BJS	Weak	Challenging	Mixed	Mixed
BLS	Challenging	_	Mixed	Good
BTS	Challenging	_	Weak	Challenging
Census	Mixed	_	Weak	Good
EIA	Challenging	_	Good	Strong
ERS	Challenging	_	Challenging	Good
NASS	Challenging	_	Challenging	Good
NCES	Challenging	Weak	Weak	Weak
NCHS	Challenging	_	Mixed	Mixed
NCSES	Mixed	Challenging	Mixed	Mixed
ORES		_	Challenging	
SOI	Challenging	_	Challenging	Mixed

2025-What are we witnessing so far

Shifted our project to more real-time monitoring:

bit.ly/FedStatMonitoring

Five situations we are watching most closely (anything that would undermine the continued availability and objectivity of govt stats):

- Cuts in Statistical Programs
- Delays, Reduced Detail, or Cancelations of Data Products
- Resources: Decreases in Budget or Staffing
- Undermining Leadership and Staff Security
- Accessing and Using Statistical Data for Nonstatistical Purposes

2025-What are we witnessing so far

Mostly Collateral Damage so far:

- People, contracts, leadership, advisory committees, data resources
 - 0-95% staff loss due to early retirement, early separations, RIFs, hiring freezes, and probationary firing
 - NCES especially devastated
 - Social Security Administration statistical agency, ORES, gutted
- Statistical units in SAMHSA and USDA likely gone
 - Future of their programs unclear
- Some contracts renewed but not managed by experienced SM experts

2025 - What are we witnessing so far

April 23: Uncertainty regarding

- RIFS, further departures
- Schedule Policy/Career
- Reorg
- Budgets
- What next?

Federal Statistical Agencies Challenged in Appropriations

Powerful, compelling message so what's the problem?

- Government statistics are a public good
 - Supported by all, championed by few; lack of awareness
- Appropriations process disadvantages statistical agencies
 - "Popularity" game; extremely competitive; modernization doesn't sell
- Political expediency is the default—no statistical perspective
- Little advocacy for federal statistical agencies

What you can do

- Raise awareness
- Educate on value/uses of data
- Contact your elected officials
- Contribute to understanding of statistics production/inter-connectness
- Talk about the opportunity

Summary

- Federal statistics were already at risk
- Collateral damage so far: <u>bit.ly/FedStatMonitoring</u>
- Federal statistics disadvantaged in approps process
- Federal statistics need you: many ways to contribute
- pierson@amstat.org

Finding and Preserving At-Risk Federal Data

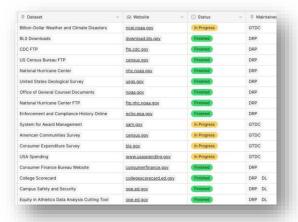
Wendy Kozlowski

Director, Research Data and Open Scholarship, Cornell University Library Coordinator, Cornell Data Services

data-help@cornell.edu

open-scholarship@cornell.edu

Need access to data that is no longer online?



Datalumos.org

ICPSR's crowd sourced repository of government data

Data Rescue Tracker from datarescueproject.org Check out the "Backups" list to see which datasets have been captured already



The End of Term Archive at IA web.archive.org

Federal government websites archived during government transitions



Need access to data that is no longer online? p2

Library Innovation Lab Full archive of data.gov



find lost*data

findlostdata.org
Search for data across various
sites/databases

UMN's Guide to Finding Government Information during the 2025 Administration Transition z.umn.edu/qovinfo25



Know of at-risk data?

- 1. Identify the type of data you're working with:
 - Datafile or publication (pdf, spreadsheet, image, etc)
 - Dataset or database (one that may require selection to subset, or API to access)
 - Website (static vs interactive)
 - Code
- 2. Check if it's already been preserved
- 3. Submit a request to preserve the data
 - Data Rescue Tracker Download Submission Form
 - Submit to the <u>End of Term Archive</u>
 - Request to save code through <u>Software Heritage</u>



https://www.datarescueproject.org/

Know of at-risk data? p2

4. If the data are not complex, very large, or restricted, make a local copy *including metadata* and documentation



6. Ask your local experts for help, resources, and guidance



About that local download... record provenance!

You need more than just the files!

- Full dataset titles and full filenames
- Source URL
- Dataset identifiers
- Licensing or restrictions (e.g. Public Domain vs CC0 vs CC-By)
- Agency/program/organization that produced the data
- · Date of download
- Date of last recorded change to dataset
- Any methodological information needed for how you accessed the files
- Any tools or apps that are needed to interact with the data
- Any issues that arose during download

Example 1: BLS Download

AutoSave Off ☐ ♡ ~ C ~ ▼ download.bls.gov - /pub/time.series/compressed/tape.format/ Formulas Data Review View Automate Home Insert Draw Page Layout [To Parent Directory] √ : | X ✓ fx ✓ | TCES0000000001 A1 4/4/2025 8:30 AM 23723359 bls.cena.date202503.gz 4/4/2025 8:30 AM 4509572 bls.cena0.date202503.gz Ε 4/4/2025 8:30 AM 4685048 bls.cenal.date202503.gz 4/4/2025 8:30 AM 4738134 bls.cena2.date202503.gz TCES00000 1939 M011939M032025 4809760 bls.cena3.date202503.gz 4/4/2025 8:30 AM 4/4/2025 8:30 AM 4981248 bls.cena4.date202503.gz 1939 01 MCES0000 302800 300940 302990 305020 299230 301000 304190 4/10/2025 8:31 AM 12522964 bls.cpi.date202503.gz 2/8/2021 9:56 AM 10493512 bls.cpi.seasadj.date202012.gz 1940 01 MCES0000 316030 317150 318250 317010 318790 319770 319420 2/8/2022 9:34 AM 10959488 bls.cpi.seasadj.date202112.gz 2/10/2023 11:00 AM 11445867 bls.cpi.seasadj.date202301.gz 1941 01 MCES0000 344810 348430 350920 354680 361820 366500 371370 2/9/2024 9:34 AM 11923535 bls.cpi.seasadj.date202401.gz 3/12/2025 8:31 AM 12471298 bls.cpi.seasadj.date202501.gz 1942 01 389350 393520 400290 MCES0000 383470 385120 397710 404720 4/10/2025 8:31 AM 4232097 bls.cpi0.date202503.gz 2/8/2021 9:56 AM 4280853 bls.cpi0.seasadj.date202012.gz 1943 01 421720 423930 425520 426470 427810 427000 MCES0000 425960 2/8/2022 9:34 AM 4475010 bls.cpi0.seasadj.date202112.gz 2/10/2023 11:00 AM 4678343 bls.cpi0.seasadj.date202301.gz MCES0000 1944 01 425380 422940 426540 420630 419850 419470 419040 2/9/2024 9:34 AM 4878107 bls.cpi0.seasadj.date202401.gz 3/12/2025 8:31 AM 4211513 bls.cpi0.seasadj.date202501.gz 1945 01 MCES0000 418950 418970 417980 414460 413040 411490 408740 4/10/2025 8:31 AM 2098039 bls.cpi1.date202503.gz 1946 01 2/8/2021 9:56 AM 3445559 bls.cpi1.seasadj.date202012.gz MCES0000 398290 392440 401950 409130 413490 417350 421530 2/8/2022 9:34 AM 3594866 bls.cpil.seasadj.date202112.gz 1947 01 2/10/2023 11:00 AM 3751687 bls.cpi1.seasadj.date202301.gz MCES0000 435350 435570 436070 434990 436380 438100 437430 2/9/2024 9:34 AM 3902838 bls.cpi1.seasadj.date202401.gz 1948 01 3/12/2025 8:31 AM 2092643 bls.cpil.seasadi.date202501.gz 11 MCES0000 446790 445330 446830 443790 447960 450340 451600 4/10/2025 8:31 AM 4125383 bls.cpi2.date202503.gz 1949 01 2/8/2021 9:56 AM 2765592 bls.cpi2.seasadj.date202012.gz 12 MCES0000 446680 444970 442400 442360 439840 437390 435310 2/8/2022 9:34 AM 2888640 bls.cpi2.seasadj.date202112.gz 1950 01 2/10/2023 11:00 AM 3015454 bls.cpi2.seasadj.date202301.gz 13 MCES0000 435260 432970 439540 443820 447180 450830 454540 2/9/2024 9:34 AM 3143452 bls.cpi2.seasadj.date202401.gz 1951 01 14 MCES0000 472880 475770 478730 478610 479520 480640 480610 3/12/2025 8:31 AM 4106725 bls.cpi2.seasadj.date202501.gz 4/10/2025 8:31 AM 2066938 bls.cpi3.date202503.gz 1952 01 482960 485220 485040 486200 15 MCES0000 486420 482820 481430 3/12/2025 8:31 AM 2060064 bls.cpi3.seasadj.date202501.gz 4/18/2025 10:03 AM 20232870 bls.eesm.date202503.gz 1953 01 4/18/2025 10:03 AM 3462915 bls.eesm0.date202503.gz 16 MCES0000 501440 503390 504730 504350 504900 505190 505360 1954 01 17 MCES0000 494690 493820 491570 491790 489650 488950 488350 1955 01 18 MCES0000 494960 496440 499620 502480 505120 507900 509870 1956 01 MCES0000 519750 521670 522940 523750 525060 525860 519550 1957 01 1CES0000 528870 530970 531560 532380 531500 530670 531230 11/22/1996 3:50 PM README 1958 01 12/4/2002 829 README-ModifiedFormatSpecifications(EESM-Tapes) 1CES0000 520760 515760 512990 510270 509140 509140 510390 5/4/2007 8:23 AM 2310 readme.cena.txt 1959 01 1CES0000 524780 526880 533210 535500 530140 536810 538040 5/16/2003 3:34 PM 32250 tapeformat.doc 1960 01

___. 1CES0000

542740

545130

544540

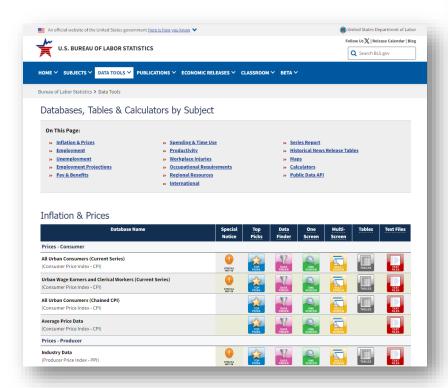
548130

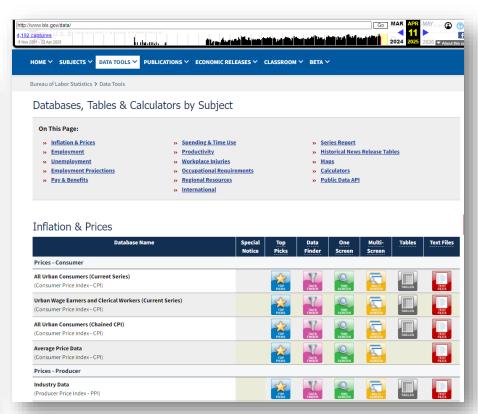
544750

543480

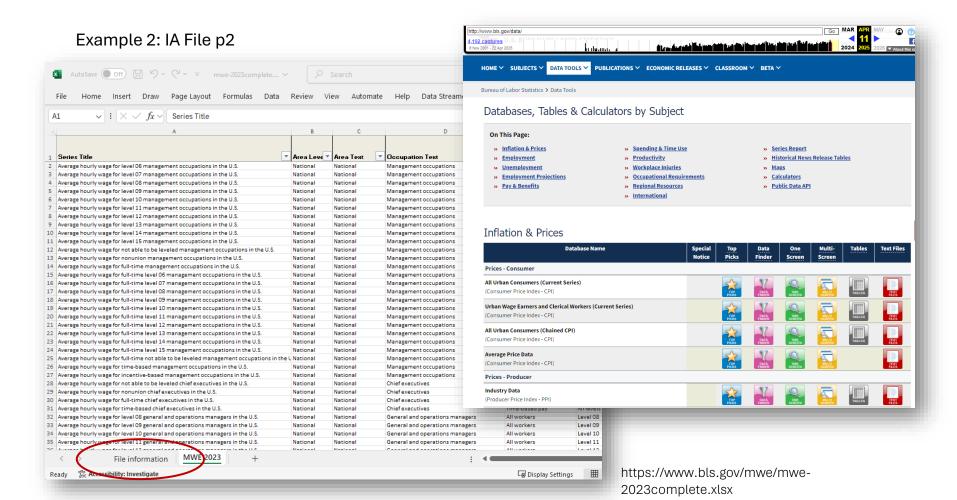
543060

Example 2: IA File





Internet Archive Version (as of 2025-04-11, most recent crawl)



Our systems are fragile. How can we do better?

- What can be done?
 - Infrastructure both user-facing and underlying architecture
 - How to track not just take-downs, but alterations?
- Who should do it?
 - How to create sustainable collaborations.
- How can/should it be funded?
- How can we advocate for improvements?
 - Tell stories of why the data are valuable. What alternate uses might the data have outside original intent?
 - Build in transparency and trust.