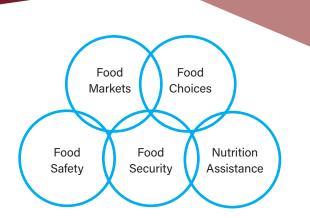


The ERS Consumer Food Data System

Supporting Tomorrow's Research, Today



The Economic Research Service (ERS) of the U.S. Department of Agriculture (USDA) established the Consumer Food Data System (CFDS) to support the USDA's strategic goal of providing all Americans access to a safe, nutritious, and secure food supply. CFDS resources enable intramural and extramural researchers to examine issues and questions related to food markets dynamics, food and nutrition programs, food security, food safety, and consumer food and nutrition choices and their health outcomes.

VISION

Build a comprehensive, integrated data system to deliver relevant, accurate, and credible evidence that informs the USDA, Congress, and the American public about the food sector—from farmgate to fork—and about key national issues such as obesity, diet quality, food insecurity, and nutrition assistance programs

STRATEGIC GOALS

- ACQUIRE existing administrative or survey data from Federal agencies and proprietary data from commercial sources.
- INVEST in continuous examination and documentation of data quality and improvement of data access.
- INTEGRATE or link data sources and create value-added data products to gain results that could not be obtained using either source alone.
- CONDUCT research on issues of interest to policy officials and program managers, improving effectiveness, efficiency, and accountability.

CFDS supports the 10-year Federal Data Strategy and its goal of leveraging data as a strategic asset to grow the economy, increase the effectiveness of the Federal Government, facilitate oversight, and promote transparency.

FOOD POLICY ISSUES . . .

- Federal expenditures for the Supplemental Nutrition Assistance Program (SNAP) were \$79 billion in fiscal 2020, reaching 40 million people per month.
- Overweight and obesity affect health care expenditures, life expectancy, national security, and the future health of obese children.
- Evolving food markets affect the share of the consumer food dollar that goes to farmers.

... DRIVE RESEARCH QUESTIONS

- Food and nutrition safety net. What do SNAP households purchase with SNAP benefits? How do food purchases of SNAP and non-SNAP low-income households differ? What role does SNAP play in reducing food insecurity and poverty?
- Diets, nutrition and obesity. What foods do consumers buy? What is the nutritional quality? How much do they pay? Where do they shop?
- Food environment and affordability. What is the effect of the food environment and ease of access on food choices and nutritional quality?
- Changing consumer preferences. How do consumers react to price changes, new information, and product attributes? And how do U.S. producers and markets respond?
- Agricultural sector adaptations. How will the agricultural sector evolve with changing food choices and what are the natural resource implications?

CFDS DATA ARE ACCESSIBLE

Data and statistics from the CFDS are available to users through reports, data tools, maps, and micro-level data sets. State-of-the-art interactive tools enable users to tailor data and maps to suit their needs. Confidential data are accessible for approved projects in a secure data environment.

FOOD ACCESS RESEARCH ATLAS

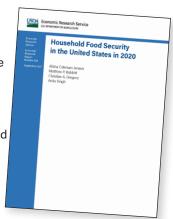
This tool presents a spatial overview of food access indicators at the censustract level. Users can create their own maps, compare food access measures over time, view indicators for selected subpopulations, and download censustract-level data.



FOOD SECURITY IN THE UNITED STATES

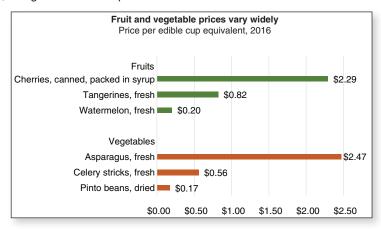
USDA, ERS and USDA, Food and Nutrition Service (FNS) partner to support an annual Food Security Supplement to the Census Bureau's Current Population Survey.

USDA, ERS and USDA, FNS prepare an annual report of food security statistics and make the underlying data available for researchers. In 2020, 10.5 percent of U.S. households were food insecure at some time during the year, which was unchanged from 2019



FRUIT AND VEGETABLE PRICES

This data visualization provides an interactive chart of the most and least expensive fruits and vegetables. From the 157 items in the visualization, the highest and lowest prices are shown below, along with a median price.



Other data products in the CFDS include:

• Food Price Outlook • Farm-to-Retail Price Spreads • Food Availability and Food Loss

CFDS HELPS BUILD AN **EVIDENCE-BASED** PORTFOLIO

Reports by USDA, ERS and extramural researchers use the CFDS data and statistics to provide information and analyses on food markets, food choices and nutrution, food safety, food security, and USDA's food and nutrition assistance programs.

FOOD CHOICES —

WHAT FOODS DO SNAP HOUSEHOLDS PURCHASE AND WHY?

USDA, ERS and USDA, Food and Nutrition Service sponsored the National Household Food Acquisition and Purchase Survey (FoodAPS), an innovative survey that collected nationally representative data in 2012-13.

To better understand the drivers and consequences of food choices, FoodAPS data were linked to SNAP administrative records, USDA nutrient data, and geographic information related to the local food environment. A strategic benefit of the CFDS is that it facilitates linking datasets across disparate sources.

USDA, ERS found that, on average, weekly food spending per adult-male equivalent was \$47 for SNAP households, \$61 for eligible households not participating in SNAP, and \$67 for all U.S. households.



FOOD MARKETS-

HOW IS THE U.S. FOOD DOLLAR DISTRIBUTED ACROSS THE SUPPLY CHAIN?

Congress mandates that USDA determine costs of marketing agricultural products. The USDA, ERS food dollar series shows how an average dollar spent on domestically

produced food is split in various perspectives.

Marketing Bill

This perspective shows that in 2020 the farm share of a typical food dollar was 16.0 cents.

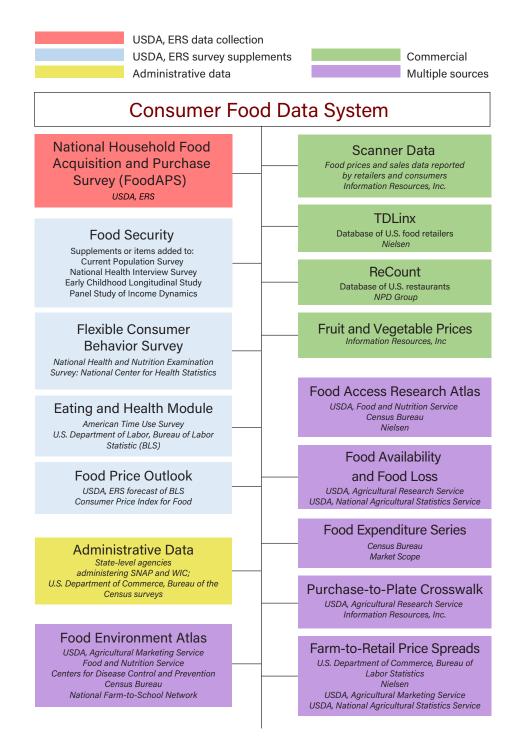
Industry Group

This perspective shows the value added by industries in the supply chain. For example, food retailers added 14.2 cents toward a food dollar.



DATA SOURCES OF THE CONSUMER FOOD DATA SYSTEM (CFDS)

The CFDS is composed of data, statistics, and value-added data products that USDA, ERS integrates from government, commercial, and academic sources, including State agencies that administer USDA's Supplemental Nutrition Assistance Program (SNAP) and USDA's Special Supplemental Nutrition Assistance Program for Women, Infants, and Children (WIC). Data and sources include:



Note: CFDS data sources have different levels of accessibility, depending in part on whether the source consists of aggregate statistics or confidential micro-level data. Confidential data are accessible only for qualified researchers with approved projects. Contact mark.denbaly@usda.gov for details.

RESULTS FROM THE CFDS **INFORM** PUBLIC AND PRIVATE DECISIONS

Selected USDA, ERS publications generated by the CFDS:

Food Choices

- Marchesi, Keenan and Patrick McLaughlin. COVID-19 Working Paper: The Impact of COVID-19 Pandemic on Food-Away-From-Home Spending. AP-100, U.S. Department of Agriculture, Economic Research Service, March 2022.
- Stewart, Hayden, Fred Kuchler, Diansheng Dong, and Jerry Cessna. Examining the Decline in U.S. Per Capita Consumption of Fluid Cow's Milk, 2003-18, ERR-300, U.S. Department of Agriculture, Economic Research Service. October 2021.

Food Markets

- Zeballos, Eliana, Wilson Sinclair, and Timothy Park. *Understanding the Components of U.S. Food Expenditures During Recessionary and Non-Recessionary Periods*, ERR-301, U.S. Department of Agriculture, Economic Research Service, November 2021.
- Dong, Diansheng and Hayden Stewart. Food Taxes and Their Impact on Food Spending, ERR-292, U.S. Department of Agriculture, Economic Research Service, September 2021.
- Page, Elina T., Gianna Short, Stacy Sneeringer, and Maria Bowman. *The Market for Chicken Raised without Antibiotics*, 2012-17, EIB-224, U.S. Department of Agriculture, Economic Research Service, September 2021.

Food Safety

- Ahn, Jae-Wan and M. Taylor Rhodes. *Examining Pathogen-Based Import Refusals: Trends and Analysis from* 2002 to 2019, EIB-232, U.S. Department of Agriculture, Economic Research Service, December 2021.
- Hoffman, Sandra, and Jae-Wan Ahn. *Updating Economic Burden of Foodborne Diseases Estimates for Inflation and Income Growth*, ERR-297, U.S. Department of Agriculture, Economic Research Service, November 2021.

Food Security

- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian A. Gregory, and Anita Singh. *Household Food Security in the United States in 2020*, ERR-298, U.S. Department of Agriculture, Economic Research Service, September 2021.
- Rabbitt, Matthew P., and Michael D. Smith. *Food Insecurity Among Working-Age Veterans*, ERR-829, U.S. Department of Agriculture, Economic Research Service, May 2021.
- Gregory, Christian A., Lisa Mancino, Alisha Coleman-Jensen. Food Security and Food Purchase Quality Among Low-Income Households: Findings From the National Household Food Acquisition and Purchase Survey (FoodAPS), ERR-269, U.S. Department of Agriculture, Economic Research Service, August 2019.

USDA Nutrition Assistance Programs

- Toossi, Saied. COVID-19 Working Paper: Filing the Pandemic Meal Gap: Disruptions to Child Nutrition Programs and Expansion of Free Meal Sites in the Early Months of the Pandemic, AP-093, U.S. Department of Agriculture, Economic Research Service, October 2021.
- Jones, Jordan W. COVID-19 Working Paper: Supplemental Nutrition Assistance Program and Pandemic Electronic Benefit Transfer Redemptions during the Coronavirus Pandemic, AP-089, U.S. Department of Agriculture, Economic Research Service, March 2021.
- McLaughlin, Patrick W., Michelle Saksena, Tina L. Saitone, Meilin Ma, Richard Volpe, Qi Wu, and Richard J. Sexton. Cost Containment and Participant Access in USDA's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC): Evidence from the Greater Los Angeles, CA, Area, ERR-283, U.S. Department of Agriculture, Economic Research Service, February 2021

Use of commercial and trade names does not imply approval or constitute endorsement by USDA.

To ensure the quality of its research reports and satisfy governmentwide standards, ERS requires that all research reports with substantively new material be reviewed by qualified technical research peers. This technical peer review process, coordinated by ERS' Peer Review Coordinating Council, allows experts who possess the technical background, perspective, and expertise to provide an objective and meaningful assessment of the output's substantive content and clarity of communication during the publication's review.

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at How to File a Program Discrimination Complaint and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Other publications on food markets, food choices and nutrution, food safety, food security, and USDA's food and nutrition assistance programs are available at:

www.ers.usda.gov



United States Department of Agriculture

ERS Food and Nutrition Research and Data An Overview for Nutrition Researchers

Joanne F. Guthrie
Food Economics Division, Economic Research
Service, USDA

Presented at Nutrition 2022

American Society for Nutrition Online Conference

The findings and conclusions in this presentation are those of the author and should not be construed to represent any official USDA or U.S. Government determination or policy.



The ERS Consumer Food Data System

Supporting Tomorrow's Research, Today









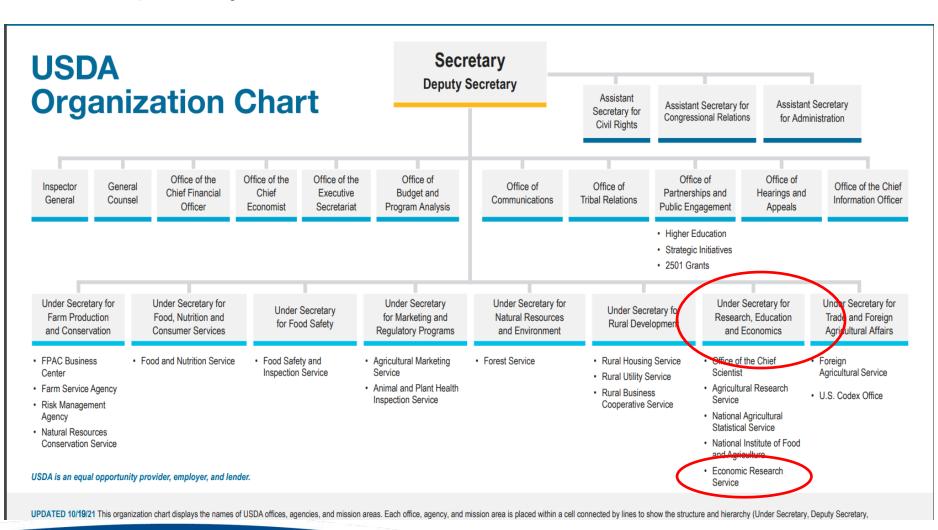






USDA's Economic Research Service's (ERS)

United States Department of Agriculture

















ERS Mission

- Informs and enhances public and private decision making on economic and policy issues related to agriculture, **food**, the environment, and rural development.
- Develops the necessary data and information infrastructure to examine evolving policy questions.
- Conducts research internally and in collaboration with external researchers to address policy questions.
- Shares data, as appropriate, to support external research.
- A Federal statistical agency.









Food Economics Policy Questions

Food Supply

— What foods are available in the American food supply, how has this changed over time? How much food loss occurs?

Food Security

— How prevalent is food insecurity in America? What factors are associated with food insecurity? What is food security's impact on the well-being of children, adults, families and communities?

Food Consumption and Purchasing

— How do consumers respond to nutrition information, price changes, product changes? What foods do households buy, where, and at what price?

Food Environment and Access

 Which consumers lack access? Does ease of access matter for nutritional quality of purchases?

Food and Nutrition Safety Net

 How do USDA food assistance programs influence food security, diet quality and well being?

Impact of Shocks

 How do shocks such as the COVID-19 pandemic affect consumer behavior and well being?





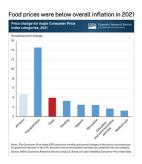




ERS Findings Are Disseminated in Peer-Reviewed Journal Articles As Well As Reports, Articles and Data Products on the ERS website

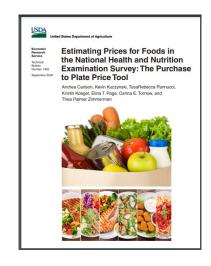


Journal articles



Data Products

www.ers.usda.gov



ERS Reports



Covid Working Paper Series



Magazine











DEPARTMENT OF AGRICULTURE The ERS Consumer Food Data System Supporting Tomorrow's Research, Today Nutrition Food Assistance

ERS Data Investments

- The ERS Consumer Food Data System (CFDS) is composed of data, statistics, and value-added data products that USDA, ERS integrates from government, commercial, and academic sources.
- Data and statistics from the CFDS are available to users through reports, data tools, maps, and micro-level data sets. State-of-the-art interactive tools enable users to tailor data and maps to suit their needs. Confidential data are accessible for approved projects in a secure data environment.
- ERS is partnering with Robert Wood Johnson Foundation to support food and health research using the CFDS. Request for proposals closed May 16, 2022.









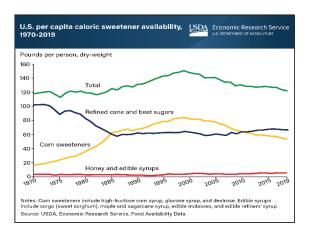
This Presentation Will

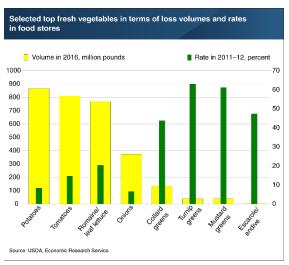
- Present ERS data that can be used to address food and nutrition research questions.
- Give examples of ERS research using those data.
- Discuss how external researchers can make use of ERS data or information products derived from ERS data.



Food Supply

ERS Food Availability (Per Capita) Data System





- Per capita availability data series dating from 1909 allows assessment of long-term trends
- Loss-adjusted data inform estimates of food loss
- Population level, no ability to identify subgroup differences
- Data sets downloadable at ERS website:

www.ers.usda.gov/data-products/food-availability-per-capita-data-system/

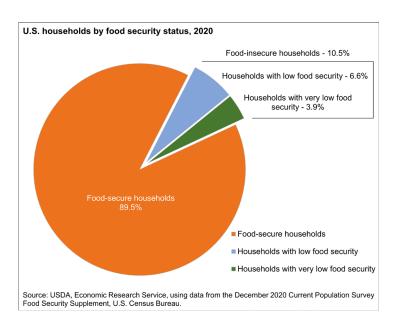






Food Security

Federal Statistics based on data collected annually as part of the Current Population Survey



ERS conducts research to improve food security measurement and publishes guides to food security measurement that can be used by other researchers.

ERS has also added food security questions to many surveys that can be used by nutrition researchers. *Selected examples*:

- National Household Food Acquisition and Purchase Survey (FoodAPS)
- National Health and Nutrition Examination Survey (NHANES)
- National Health Interview Survey (NHIS)
- Medical Expenditure Panel Survey (MEPS)
- Early Childhood Longitudinal Surveys

For more information visit

https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/



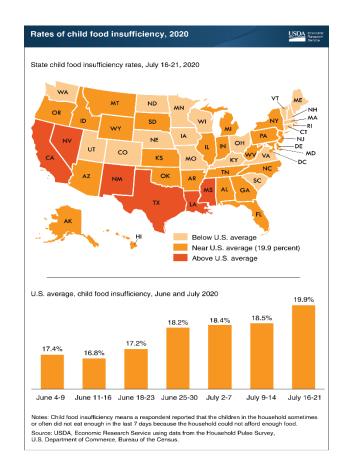






Household Pulse Survey Tracking the Impacts of COVID

- Conducted by the U.S. Bureau of the Census in partnership with other Federal statistical agencies, including ERS.
- Data collection begun in April, 2020.
- ERS-supported questions address:
 - Food insufficiency prior to pandemic (March 13)
 - Current food sufficiency (last 7 days)
 - Confidence about food sufficiency in coming 4 weeks
 - Reasons for not having enough food or food one wants
 - Receipt of free food or free meals
 - Where free food was obtained
 - Food spending



www.census.gov/programs-surveys/household-pulse-survey.html





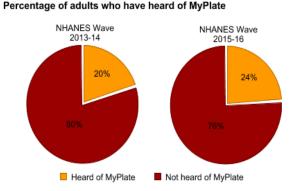




Food Consumption Determinants ERS' Flexible Consumer Behavior Survey (FCBS)

Supplement to NHANES dietary and health measures that includes:

- Economic information (e.g., income, assets, food expenditures)
- Participation in food assistance programs (e.g., SNAP, WIC)
- A changing "flexible" component on nutrition knowledge, attitudes, beliefs, and behaviors of consumers, such as use of restaurant menu labels and awareness of MyPlate
- Publicly available on NCHS's website, along with other NHANES data



Source: USDA, Economic Research Service, using data from the Centers for Disease Control and Prevention, National Center for Health Statistics, National Health and Nutrition Examination Survey (NHANES), Flexible Consumer Behavior Survey (FCBS), Waves 2013-14 and 2015-16.

> www.ers.usda.gov/topics/food-choices-health/foodconsumption-demand/flexible-consumer-behavior-survey/

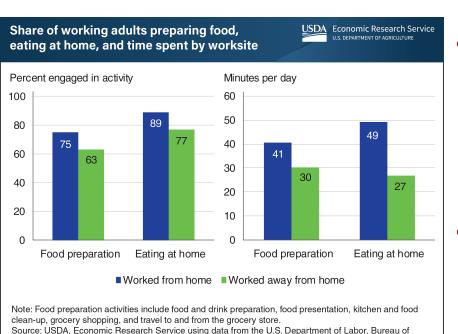








Eating and Health Module, American Time Use Survey



- Time spent in eating and drinking activities, grocery shopping, and meal preparation
- Self-reported height, weight, and general health status

www.ers.usda.gov/data-products/eating-and-health-module-atus/

Labor Statistics' 2017-18 Leave and Flexibilities Job Module of the American Time Use Survey.

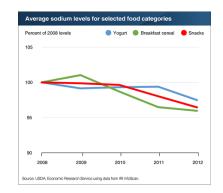


Food Purchasing – IRI Proprietary Data

Retail Store Examine changes in store sales,

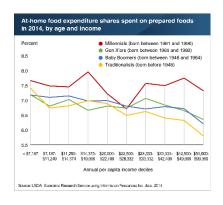
product selections





Household Panel Examine consumer purchasing behavior





Purchased for USDA use – limited work with external collaborators on projects of USDA policy interest

www.ers.usda.gov/topics/food-markets-prices/food-prices-expenditures-and-establishments/using-proprietary-data/





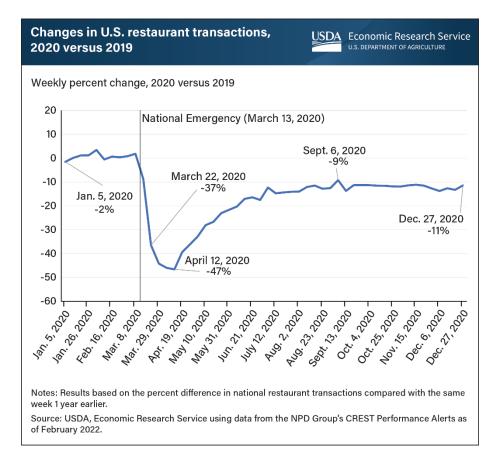




COVID Raises New Questions on Food Purchasing

New Investments in Commercial Data to Address These Questions

- IRI Weekly Retail and Monthly Household COVID-19 Response Data
- NPD Consumer Reported Eating Share Trends (CREST) data provide national information on food-awayfrom-home transactions and spending.



www.ers.usda.gov/topics/food-markets-prices/food-prices-expenditures-and-establishments/using-proprietary-data/





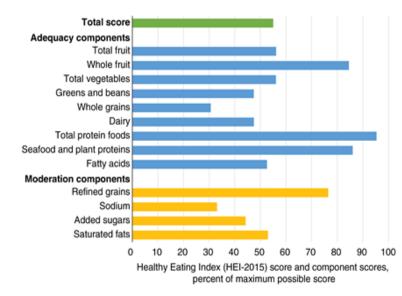




The Purchase to Plate Suite Adding Value to Proprietary Data by Linking to USDA Nutrient Data

- ERS collaboration with USDA's Agricultural Research Service and Center for Nutrition Policy and Promotion.
- Purchase to Plate Crosswalk links purchased products in commercial datasets to USDA food codes to generate estimates of nutrients and USDA food pattern components.
- Purchase to Plate Price Tool and Purchase to Plate Ingredient Tool (PPPT/PPIT) calculate the prices for foods reported consumed by NHANES participants, and the purchase weights for ingredients to make those foods.
- With University of California, Davis, funding extramural research to use these products. Request for proposals closed May 2, 2022.

Retail food sales in the United States do not align with Federal dietary recommendations



Note: The Healthy Eating Index (HEI-2015) measures conformance to the recommendations in the 2015–2020 Dietary Guidelines for Americans.

Source: USDA, Economic Research Service estimates using 2013 IRI InfoScan data and four USDA nutrition databases: the Food and Nutrient Database for Dietary Studies, the Food Pattern Equivalent Database, the Food Pattern Ingredient Database, and the National Nutrient Database for Standard Reference.











FoodAPS

National Household Food Acquisition and Purchase Survey

- Jointly sponsored by USDA's ERS and Food and Nutrition Service (FNS)
- Nationally representative of US households with four target populations:
 - SNAP households
 - Non-SNAP households with income:
 - < 100% of the federal poverty guideline
 - ≥ 100% and < 185% of the federal poverty guideline
 - ≥ 185% of the federal poverty guideline
- Comprehensive data on household food purchases and acquisitions.
 - Reported by all household members over a seven-day period.
 - Fielded from April 2012 to January 2013.
- For more information on the survey's background, how to access public-and restricted-use data, and FAQs please visit: www.ers.usda.gov/foodaps.







FoodAPS-1 constructs, measurement, and collection protocols

Households

- Income
- Food security
- Diet and nutrition knowledge
- Food assistance program participation

Individuals

- Demographics
- Eating occasions
- School attendance
- Dietary restrictions

Events

- Place
- Total paid
- Payment type

Items

- Descriptions
- Quantities
- Expenditures
- Prices











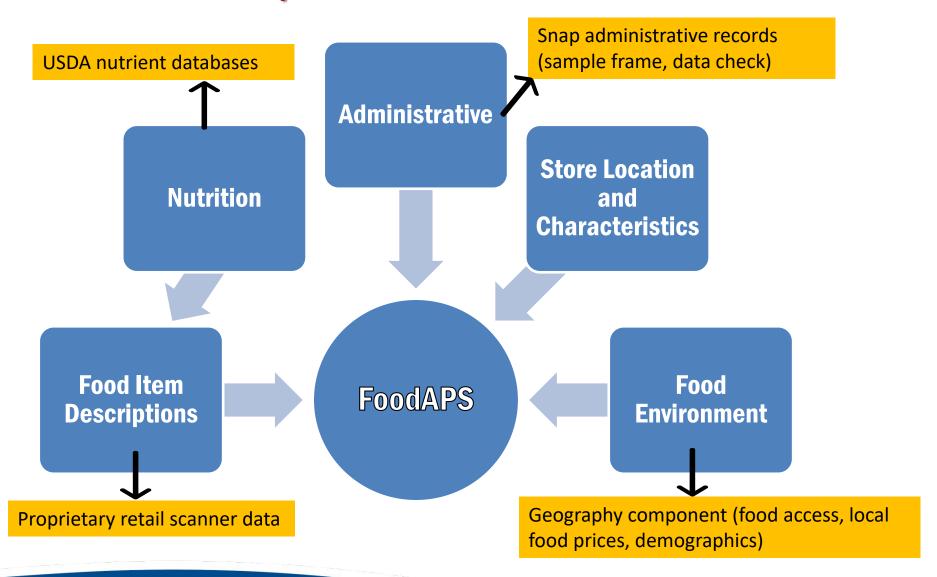








Integrating extant data to reduce respondent burden and enhance data analysis



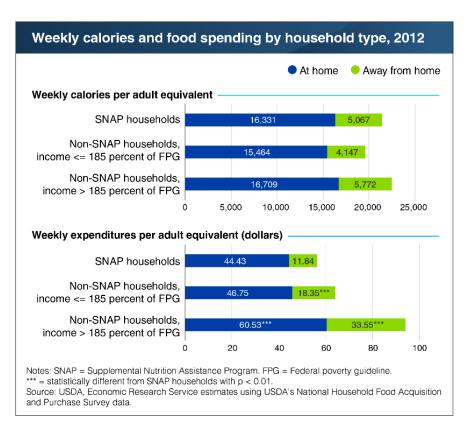


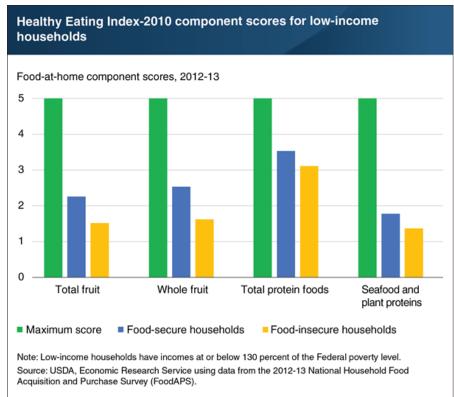






FoodAPS Findings—Selected Examples





For more FoodAPS research reports go to: https://www.ers.usda.gov/data-products/foodaps-national-household-food-acquisition-and-purchase-survey/research-projects-and-publications/









FoodAPS-2

Capture higher quality data and reduce backend processing time:

- Native smartphone application (FoodLogger)
- Leverage built-in technologies (e.g., camera and GPS tracking)
- Extant database linkage
- Survey methodological enhancements (e.g., **tailored communications** and collection strategies, **incentives**)

Same survey concepts as FoodAPS-1 plus new for FoodAPS-2:

- 12-month data collection period
- Expanded target population to cover Alaska and Hawaii
- WIC as a sampling domain leading to larger WIC sample
- **Better identification** of SNAP, WIC, and school meal program participants
- Improved or new survey concepts

Action steps:

- Usability tests to assess user experience and satisfaction with the FoodLogger (2021)
- **Field Test** (OMB Control No. 0536-0077): to evaluate new survey design features and finalize data collection protocols for the Full Survey (2022)













Food Environment and Access ERS Data Investments & Products

- Food retailer locations & characteristics:
 - TDLinx national list of stores including supermarkets, supercenters, superettes, convenience stores, other stores/outlets (purchased proprietary data)
 - Store Tracking and Redemption System (STARS)—retailers that accept SNAP and/or WIC benefits (obtained from the Food & Nutrition Service (FNS)
- Restaurant locations & characteristics (multiple sources)
- Combine these with other data (e.g. population & food assistance program data) to produce food access & food environment indicators
- Products:
 - ERS Food Access Research Atlas
 - ERS Food Environment Atlas







Change in low-income and low-access (LILA)

Food Access Research Atlas

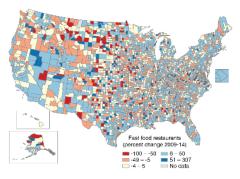
- Estimates proximity to stores for the overall population & for subgroups of interest (lowincome people, households without vehicles, SNAP participants, etc).
 - Aggregates to census-tract level.
 - Includes 4 measures of Low Access (LA) census tracts.
 - Overlays LA with Low Income (LI) tracts.
- Users can download census tract data.

www.ers.usda.gov/data-products/food-access-research-atlas/









Food Environment Atlas

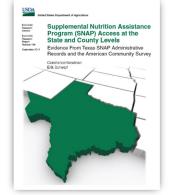
- - Over 200 indicators of a community's ability to access healthy food and its success in doing so.
 - County-level for most indicators.
 - Includes indicators of store & restaurant availability, food assistance use, food prices and taxes, local foods initiatives, health & physical activity.
 - Many indicators come from already published external data sources.
 - Allows users to download data.

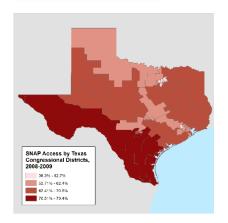
www.ers.usda.gov/data-products/food-environment-atlas/











Administrative Data on USDA Food Assistance Programs

- Administrative data on USDA food assistance programs can provide information on program participation and reach at the State and local level.
- Value can be augmented via linkage with other data.
- Example: SNAP administrative data linked with US Census Bureau American Community Survey data to examine sub-state differences in program access.
- Currently have data sharing agreements for Census data and SNAP data for 12 states and similar agreements for WIC data for 7 states.
- ERS may work with outside researchers on projects of interest to USDA on a project-by-project basis.

hwww.ers.usda.gov/topics/food-nutrition-assistance/food-assistance-data-collaborative-research-programs/snap-and-wic-administrative-data/#overview







Thank You!

For more information, visit:

www.ers.usda.gov

Questions or feedback?

Contact me at

joanne.guthrie@usda.gov







