

Agility in Action 4.1

Responding and Adapting to Our Evolving Nation

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INTRODUCTION

The American Community Survey (ACS) is the premier source for information about America's changing population, housing, and workforce. The ACS is designed to meet the needs of federal government agencies and is a rich source of local area information useful to a wide variety of data users, including state and local governments, universities, and private businesses. Information from the ACS generates data that help inform how trillions of dollars in federal funds are distributed each year to states, communities, tribal governments, and other recipients, supporting more than 300 known federal uses and countless nonfederal uses (Ross, 2023).¹ Businesses can also use ACS data for selecting a new location or for evaluating the target market or workforce characteristics. The ACS, along with other Census Bureau and third-party data, support evidence-based decision-making across federal, state, local, and tribal governments; the private sector; and virtually every local community in the nation. As such, it is critical to provide the country with timely and accurate data.

To produce high-quality data, the ACS program has evolved over time, reacting to the changing needs of our nation and its people, and proactively researching innovations for the survey. The evolution of the ACS is built on a strong research foundation that will continue to evolve and modernize how we design and implement the ACS. The research conducted by the ACS is varied and designed to improve data quality, operational efficiency, and the content and related data collection materials. This document summarizes the results of research plans that were outlined in [Agility in Action 4.0](#).

UPDATE ON RESEARCH RESULTS

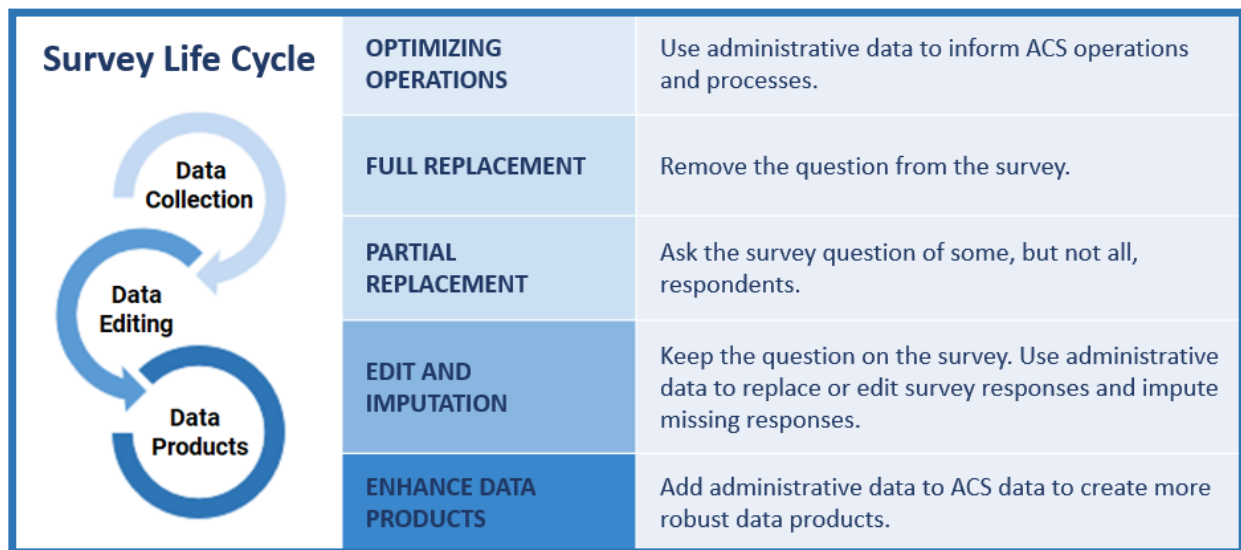
The Census Bureau is continuing to produce high-quality data products within the ACS program. Research and testing efforts in recent years built on the Census Bureau's commitment to innovation and transformation by employing alternative data sources, enhancing the content of the survey, and improving the respondent's experience of responding to the survey.

Employing Alternative Data Sources for Improved Data Quality

Administrative data can be used in various components of the survey lifecycle (as illustrated in Figure 1). Determining not only what data to use, but how to use it, is part of a purposeful research process the ACS undertakes.

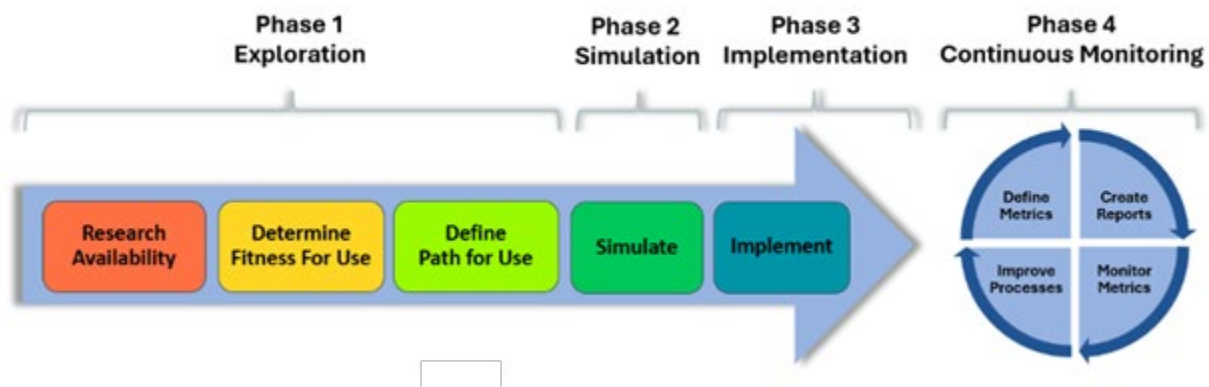
¹ It is important to note that the Census Bureau itself does not distribute any federal funds, nor determine the amount or allocation of federal funding for any program, nor does the Census Bureau determine how data are used by federal programs or in any particular funding formulas.

Figure 1. Administrative Data Use through the Survey Life Cycle



The ACS program evaluates administrative data sources and methods for use through a series of phases as illustrated in Figure 2. This approach carefully considers data impacts before making recommendations about the use of administrative data for a specific topic. At any time in this process, researchers can also recommend not to proceed. The ACS program remains committed to engaging with stakeholders by understanding their needs, publishing research results and implementation plans for administrative data use.

Figure 2. Phases of Administrative Data Research and Implementation



Every use of administrative data for the ACS goes through this process.

Phase 1, the exploration phase, focuses on identifying administrative data and determining options for using the data. It begins with researching the availability of administrative data and acquiring the data. This includes understanding basic information about the data (such as

source, reference year or month of the data, geography available, and how it can be linked to other data), setting up agreements for use of the data, and acquisition of the data.

Once data are available, the Census Bureau evaluates the fitness for use of the data, following a set of [guiding principles](#) for coverage, conceptual alignment, temporal alignment, disclosure risk, and acquisition reliability (U.S. Census Bureau, 2018a).

Staff then use the fitness-for-use statistics to determine the best potential uses of the data. For example, administrative data could be used to impute missing data or partially replace a question (see Figure 1 for the full set of options). The Census Bureau evaluates the proposal and then prioritizes the path(s) to simulate.

In Phase 2, the simulation phase, researchers investigate business rules for use of the administrative data and simulate the impact on ACS estimates under various scenarios. Subject matter experts review the resulting estimates and quality metrics. Results are published and available to the public.

Results are then presented to ACS program management for approval to implement in the ACS. ACS resources and funding to implement plans are confirmed, data agreements are verified, and legal reviews are conducted to confirm that there are no constraints on the proposed plan. In the case of full or partial question replacement, the Census Bureau seeks formal Office of Management and Budget (OMB) approval under the Paperwork Reduction Act of 1995 (PRA). This formal approval process includes public feedback via a Federal Register Notice.

For approved projects, in Phase 3, the implementation phase, staff update ACS data collection instruments, systems, and processes as needed to implement the changes.²

Finally, in Phase 4, staff monitor the use of administrative data by developing metrics, creating dashboards, and monitoring the outcomes. As needed, modifications are made to the implementation activities. Changes to how the administrative data are used, such as refining models or utilizing new sources of data, are evaluated through updated simulations before modifying implementation activities.

In 2023 and 2024, Census Bureau staff conducted research and monitored implementation activities around several administrative data projects. A brief description of those projects follows.

² Data collection instruments include the paper questionnaire, internet questionnaire, and interviewer-administered computer-based questionnaires.

Field Workload Optimization

Rising costs of in-person interviewing require continued efforts by the Census Bureau to implement cost-saving strategies while maintaining quality. In 2023, we began using administrative data to maximize data collection efforts during nonresponse follow-up operations. Administrative data are used to inform contact strategies, such as when to decrease the number of visits or when to stop interviewing.

The ACS uses administrative data to predict when a housing unit is likely to be vacant. Interviewers are alerted that the initial contact attempt for these cases should be made in person (rather than by phone). A maximum of two attempts may be made to determine the status of the unit and collect the required information. This strategy results in less contact attempts for vacant units and allows interviewers to focus their time on completing interviews for housing units that are more likely to be occupied. See [Predicting Vacant Housing Units in the American Community Survey](#) for more information (Keller, 2024).

For housing units that are not likely to be vacant, the ACS uses administrative data along with historic response data to assess which household characteristics are already represented well in the data. Based on this analysis, households expected to have similar characteristics as those already represented in the data and are also unlikely to respond are removed from interviewing. The data are evaluated to minimize impact on nonresponse bias and data quality.

The Census Bureau monitors these activities every month, reviewing the distribution of case status and outcomes, geographic distributions, and conducting model validation. The purpose of the monitoring is to identify unexpected change from month to month that could indicate a change in the underlying data or in a procedural issue that needs to be addressed.

Acreage Replacement Implementation

Beginning in January 2024, the ACS implemented an adaptive approach for collecting data on property lot size (acreage). Respondents who answer the survey via the internet or in-person interviews will not be asked the acreage question if administrative data are available that meet pre-specified business rules. Respondents who answer the survey on paper are still asked the acreage question. At the end of data collection, we use the best data to formulate the estimate of property lot size, either from the respondent or from administrative data. This approach applies consistency in evaluating and using administrative data across all data collection modes. ACS data releases beginning in 2025 reflect this new data collection approach for property lot size data.

The Census Bureau will continue to evaluate alternative data resources to expand the use of the data for acreage, with the goal of eventually removing the question from the survey for everyone.

For research supporting this work, see Dillon, 2019; Clark et al., 2018; U.S. Census Bureau, 2018b. Documentation of simulation results can be found in [Acreage Administrative Records Data Research for the American Community Survey](#) (Clark, 2023).

Data Quality Checks

The U.S. Census Bureau did not release its standard 1-year estimates from the 2020 ACS because of the impacts of the COVID-19 pandemic on data collection. As a result, the ACS collected only two-thirds of the responses it usually collects in a survey year and the people who did respond to the survey had significantly different social, economic and housing characteristics from those who did not. This is called “nonresponse bias.” Nonresponse bias in survey estimates can decrease the accuracy of the estimates.

As part of the review of 2020 ACS data products, data quality checks were performed to understand nonresponse bias in the data that had been collected. Administrative data were again used to review the 2021 data products to determine if nonresponse bias continued to be an issue. This analysis allowed us to determine the degree to which nonrespondents differed from respondents, which offers insight into the potential for nonresponse bias to remain in the final estimates. The ACS program continues to use administrative data to evaluate survey estimates for nonresponse bias.

Administrative data are also being used for additional quality checks. Data from the Demographic Frame are being used to understand the household roster data that are collected by the ACS.³ This allows us to determine if interventions are needed in data collection.

Researching Changes to Nonresponse Weighting Adjustments

Nonresponse bias is a natural part of sample surveys, and often statisticians can adjust for nonresponse bias by giving more weight to responses from underrepresented groups. The nonresponse rates for the ACS have been increasing throughout the past decade and increased at a higher rate in the past few years (U.S. Census Bureau, 2023). Administrative data for respondents compared with nonrespondents indicate the presence of a growing

³ For more information about the Frames Program and the Demographic Frame, see the [Census Bureau's Transformation Integration Phase One Plan](#) (Thieme, 2022) or the [Frame Program Update](#) provided to the Census Advisory Committee (Ratcliffe, 2021).

difference that may be beyond what the current nonresponse adjustments in the weighting can effectively mitigate (Rothbaum, et al., 2021).

This research is exploring new techniques to mitigate nonresponse bias in the data. Specifically, we are developing a propensity model for response, measuring the likelihood that any household is to respond to the ACS, based on administrative data using one of several approaches, including machine learning. The model would produce inverse propensity weighting methods, both with and without calibration. While simulations have shown that additional calibration adjustments to the inverse propensity weights have superior results compared with using the weights without calibration, we are examining whether this can be addressed in stages while using the existing ACS calibration steps in the meantime.

The inverse propensity weighting method will be compared with the current ACS cell-based nonresponse adjustment methodology as well as the entropy balanced weighting approach used for the 2020 ACS 1-year experimental estimates and for the 2020 component of the 2016-2020 ACS 5-year data (see U.S. Census Bureau, 2021, 2022, 2024 for more information about these comparison methods).⁴ Results of this research are forthcoming.

Research and Simulations on Other Topics

The ACS program continues to explore the use of administrative data for:

- Allocation and imputation for sex and age.
- Full or partial removal of the agricultural sales question and creation of a “farm indicator” variable.
- Full or partial removal of housing characteristics questions.

Enhancing Content

The ACS conducts periodic reviews of the survey questions to consider any deletions or additions of questions as well as changes to existing questions. The ACS solicits proposed changes to the survey from federal agencies that are then reviewed by OMB. All changes to the survey are subject to testing, including cognitive and field testing.

Adding a question to the ACS involves ensuring that the change is necessary and would produce quality, useful information for the nation. This typically involves determining if the proposed addition has legal merit, testing whether the content is in alignment with the Census Bureau’s

⁴ For more information see the [2020 ACS 1-year experimental estimates user note](#).

policy, soliciting public comment, and getting approval from OMB (in accordance with the Paperwork Reduction Act).

Content Revisions

From 2018 to 2022, the Census Bureau worked on several revisions to question content along with development of new questions following ACS policies for content changes.⁵ The Census Bureau works with federal agencies to identify potential changes to the survey and to test proposals to improve the content of the survey. Following testing, changes were made to the ACS in 2024 and 2025.

Changes to the following topics were made in the 2024 ACS:

- Home Heating Fuel
- Condominium and Homeowners Association Fees
- Transportation to Work
- Period of Military service

Additional changes were implemented in the 2025 ACS:

- Household roster
- Educational attainment
- Health insurance coverage
- Labor force question series

Three new question topics were added in the 2025 ACS:

- Solar panels
- Electric vehicles
- Sewer connectivity

Testing was also conducted on the Disability, Supplemental Nutrition Assistance Program (SNAP), and Income questions that did not result in changes. An overview of the content change process and policies along with evaluation reports for all of these topics can be found on the [ACS Content Changes website](#).

Improving the Respondent Experience

From its inception, the ACS has relied on the cooperation of people living in communities across the country to produce quality statistics. Bolstered by a mandatory response requirement, respondents have provided high-quality data to the survey. It is important to the ACS that respondents can fulfill this request using their preferred method of response (online, paper,

⁵ See [ACS Content Changes](#) for more information.

telephone or in person), have a positive experience using response tools, and are able to understand what is being asked of them.

Internet Data Collection for Group Quarters Residents

In addition to the sample of 3.5 million housing unit addresses each year, the ACS collects detailed socioeconomic data from a sample of about 160,000 residents living in group quarters facilities in the United States and Puerto Rico, where the survey is known as the Puerto Rico Community Survey (PRCS).

In 2024, the ACS added an internet self-response option to the group quarters data collection operation for respondents residing in noninstitutional group quarters. People living in noninstitutional group quarters, which includes college or university student housing, group homes, military barracks, religious group quarters, workers' group living quarters and Job Corps centers, and emergency and transitional shelters, are offered the option of responding online, using a paper questionnaire, or conducting an interview with a Census Bureau interviewer.

In 2024, about 15 percent of persons living in noninstitutional group quarters responded to the survey via the new internet response option, 60 percent responded via an interview with a Census Bureau Field Representative, and 25 percent responded using a paper questionnaire. Respondents in college housing were the most likely to respond online.⁶

Internet Data Collection Research

The Census Bureau sponsored an expert review of the ACS internet instrument by RTI International. This expert review involved an assessment of the 2022 ACS Internet Instrument, an evaluation of existing recommendations, and development of prioritized recommendations on methods for continuous monitoring, research, and improvements. The Census Bureau is utilizing the recommendations to develop next steps.

Additionally, staff are conducting ongoing analysis of ACS internet paradata to better understand how users are currently interacting with the system (including help screen access, time per screen, backing up, and other behaviors). Results from this research are forthcoming.

⁶ The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applies to this release (DRB approval number: CBDRB-FY25-ACSO003-B0024; 9/17/2025).

Updates to ACS Letters

The ACS mails up to five letters to respondents to elicit self-response to the survey. A sixth letter is sent to addresses subsampled for in-person and telephone nonresponse follow-up interviews (referred to as the Computer Assisted Personal Interviewing (CAPI) operation). CAPI interviewers also have materials available to them as a tool to address respondent concerns and provide information about the survey. Interviewers who collect data in group quarters (GQ) facilities also have letters and other materials explaining the ACS to facility managers and respondents.

Research and updates to the five self-response mailings have been ongoing, but less attention has been paid to the CAPI and GQ materials. In 2019, the Census Bureau began a project to revise the CAPI and GQ materials. The letters were text dense, did not focus the reader on the main message of the letter, and made it difficult to find the Internet User ID. The Census Bureau applied plain language and respondent-centered design principles to reduce the reading level of the materials, focus on a small number of topics in each letter, highlight actionable items, and reduce the amount of text to make the materials easier to understand for more people.

The materials were also revised to incorporate lessons learned from a separate research project about messaging and communication, called the Strategic Framework Messaging Project (Oliver, Heimerl, Schreiner, 2017). The messages in the revised letters were designed to address the specific concern or situation the interviewer encountered. The goal of these changes was to reduce the burden of reading the letters while boosting CAPI and GQ response rates. The resulting materials were written, on average, at the ninth-grade level. The updated materials were implemented on a rolling basis, beginning in October 2022.

Research on the ACS Self-Response Contact Strategy

One feature of the ACS contact strategy that has largely not been tested is the timing of the mailings. The 2024 ACS Mailout Timing Test evaluated minor adjustments to the timing of two mailings—the Due Date Letter and the CAPI Internet Letter. The timing for the Due Date Letter mailing was adjusted to allow for more returns to be received prior to selecting the CAPI sample. The timing of the CAPI Internet Letter was adjusted to allow more time for the letter to be received by households and responded to before an interviewer makes a contact attempt. For results of the 2024 Mailout Timing Test, see [2024 American Community Survey Mailout Timing Test](#) (Risley et al., 2025).

CONCLUSION

The ACS provides a detailed, annual portrait of communities across the nation. Communities use Census Bureau statistics for planning services such as schools, roads, hospitals, job training centers and health care for older adults. Businesses use Census Bureau statistics to help decide where to open stores, offices, shopping centers, manufacturing plants and more.

The ACS is not only the foremost resource for information on America's ever-changing population, housing, and workforce, but also facilitates evidence-based decision-making at all levels of governance, including helping to inform how trillions of dollars in federal fund are distributed.

To ensure the production of accurate and dependable data, the Census Bureau and the ACS program are continuously evolving and modernizing in response to the dynamic needs of the nation and its people, as well as proactively researching new methods for producing statistics. This evolution is founded on a robust research program with a focus on improving data quality, operational efficiency, content, and related data collection materials.

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