Agility in Action 4.0, Revision 1
Responding and Adapting to Our Evolving Nation

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United States® Census Bureau

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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 data products created from the ACS are essential to administer many kinds of government programs and to distribute federal funds. 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 our stakeholders 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 program. The research conducted by the ACS is varied and developed to improve data quality, operational efficiency, and the content and related data collection materials.

REPORT REVISION

This report was revised on January 30, 2025, in accordance with Executive Order 14168.

RESEARCH IN 2023 AND 2024

The Census Bureau is continuing to produce high-quality data products with agility within the ACS program. Research and testing efforts in 2023 and 2024 build on the Census Bureau's commitment to innovation and transformation by employing alternative data sources, enhancing the content of the survey, and improving the experience of responding to the survey. This document addresses results of recent research and plans for future research.

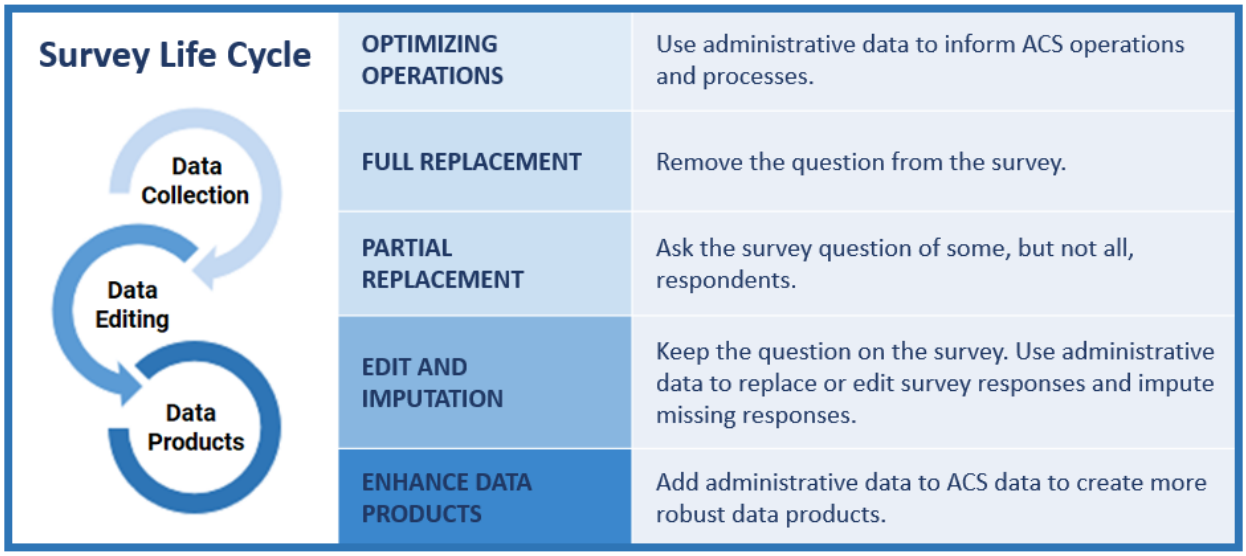
Employing Alternative Data Sources for Improved Data Quality

The Census Bureau's Strategic Plan identifies a continuous commitment to innovation as one of three transformational goals (U.S. Census Bureau, 2022a). The early steps in this process to evolve and change our focus from a survey-centric data provider to a data product-focused provider of information is discussed in more detail on the Census Bureau's transformation website and transformation initiative plan (U.S. Census Bureau, 2021a; Thieme, 2022). In alignment with this plan, the ACS program has prioritized research on the use of administrative data to meet customer needs and reduce the dependency on traditional methods of data collection. The expanded use of administrative data in the ACS is expected to reduce data collection costs, reduce respondent burden, and improve the quality of statistics produced.

Title 13 of the U.S. Code, Section 6 instructs the Census Bureau to maximize the use of already available data whenever possible in lieu of collecting data directly from respondents. Some data directly related to the topics covered by the ACS are available from other sources. These sources include other federal agencies, state and local governments, and commercial entities who maintain files for the purpose of administering programs and providing services to the public.

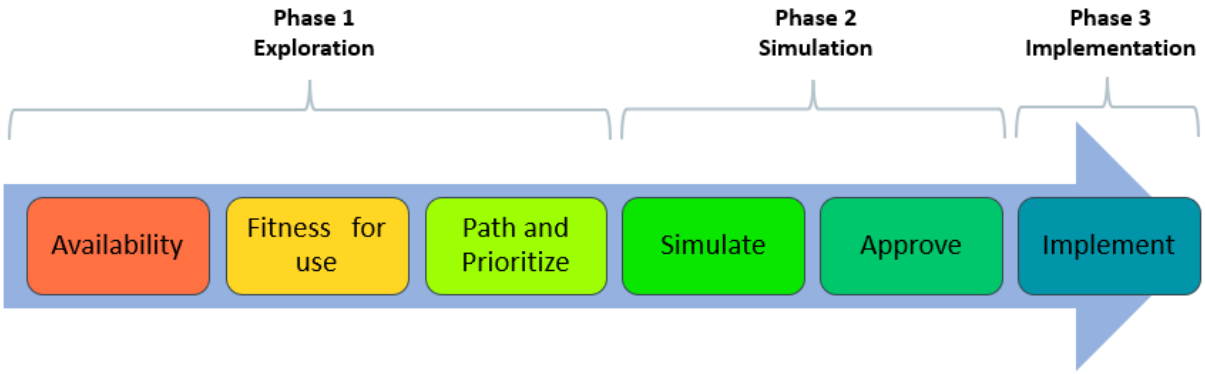
Administrative data can be used in various components of the survey lifecycle (as illustrated in Figure 1). Determining not only what data to use, but how to use it, is part of a purposeful research process the ACS undertakes.

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 engage with stakeholders about the research results and implementation plans for administrative data use.

Figure 2. Phases of Administrative Data 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 identifying available 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 is 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. 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.[1]

In 2023 and 2024, Census Bureau staff are moving forward with research and implementation activities around several administrative data projects. A brief description of those projects follows:

Field Workload Optimization

Rising costs of in-person interviewing requires continued efforts by the Census Bureau to implement cost-saving strategies while maintaining quality. Beginning in 2023, we are using administrative data to maximize the data collection efforts of the field staff by informing contact strategies, 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 for these cases, the initial contact attempt should be made in person (rather than by phone). A maximum of two attempts are allowed to determine the status of the unit and collect the required information. This strategy allows interviewers to identify vacant units more quickly and free up their time to complete interviews for housing units that are more likely to be occupied.

For housing units that are not likely to be vacant, the ACS uses administrative data along with historic response data to identify geographic areas or individual cases where interviewing can be stopped. The data are evaluated to minimize impact on nonresponse bias and data quality.

Acreage Replacement Implementation

Beginning in January 2024, the ACS is implementing an adaptive approach for collecting data on property lot size (acreage) that uses administrative data. We have analyzed the quality of the administrative data (primarily property tax data) and developed business rules on how to use the data. Respondents who answer the survey via the internet or in-person interviews will not be asked the acreage question if administrative data that meet the business rules are available. Respondents who answer the survey on paper will still be asked the acreage question because of operational complexity. At the end of data collection, we will use the best data to formulate the estimate, either from the respondent

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

or from administrative data. This approach will apply consistency in evaluating and using administrative data across all modes.

The Census Bureau will continue to evaluate alternative acreage 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 the Census Bureau's plan, see Dillon, 2019; Clark et al., 2018; U.S. Census Bureau, 2018b. Documentation of simulation results is forthcoming (Clark, forthcoming).

Data Quality Checks

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 potential for nonresponse bias to remain in the final estimates. This has encouraged the ACS to continue to use administrative data to better understand nonresponse bias, including for smaller geographic areas.

Administrative data are also beginning to be used for additional quality checks. Data from a prototype version of the Demographic Frame are being used to understand the household roster data that are collected by the ACS.[2] Administrative data are also being used to conduct quality checks by response mode. This will allow us to determine if certain interventions are needed in data collection.

Researching Changes to Nonresponse Weighting Adjustments

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

[2] 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).

This research will explore new techniques to mitigate the nonresponse bias present in the unadjusted data that will put the ACS in a better position to, at a minimum, address the general nonresponse bias issue. Specifically, we will develop a propensity model for response based on administrative data using one of several approaches, including machine learning, to produce inverse propensity weighting (potentially exploring this 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 inverse propensity weights alone (i.e., without calibration), we will examine 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, 2021b, 2022b, 2022c for more information about these comparison methods).

Research and Simulations on Other Topics

The ACS program will explore the use of administrative data in various ways for the following topics in the coming years:

- Allocation and imputation for sex, age, citizenship, race, and Hispanic origin.
- Full or partial removal of the agricultural sales question.
- Full or partial removal of housing characteristics questions.
- Evaluation of nonresponse bias in survey response data and other data quality checks.
- Modeled estimates for income.

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 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 will produce quality, useful information for the nation. This typically involves determining if the proposed addition has legal merit, testing the content in alignment with the Census Bureau's policy, soliciting public comment, and getting approval from OMB (in accordance with the Paperwork Reduction Act).

2022 Content Test

The Census Bureau conducts an ACS content test periodically to improve the content of the survey. Like previous tests, the 2022 ACS Content Test assessed the wording, format, and placement of select revised questions and proposed new questions in English and Spanish.

The 2022 Content Test included testing changes to the following topics:

- Household roster
- Condominium fees
- Home heating fuel
- Educational attainment
- Health insurance coverage
- Disability
- Journey to work
- Labor force question series
- Income and Supplemental Nutrition Assistance Program (SNAP)

Three new question topics were also tested:

- Solar panels
- Electric vehicles
- Sewage disposal

Cognitive testing was conducted on all topics to verify that proposed question wording would be understood by respondents. Based on cognitive testing results, the Census Bureau will update wording in 2024 for questions on three topics: condominium fees, home heating fuel, and journey to work.

The question that collects data on condominium fees will be updated to also collect data on homeowner association (HOA) fees. Data sources continue to show housing units that are part of HOAs outnumber housing units in condominiums. To provide more comprehensive and accurate costs of owning a home, the ACS needs to capture HOA fees for these homes. Adding these fees to the existing condominium fees question avoids adding a new question to the ACS and therefore minimizes respondent burden.

The change to the home heating fuel question would update wording of the natural gas and bottled gas categories. This will aid respondents in identifying the correct category more easily by using more commonly used terminology. In Puerto Rico, the question wording also changed to indicate respondents should only include fuel that heats their home.

The journey-to-work question would be updated to include ride-sharing services as a mode of transportation to work to account for new and growing travel trends. The current category “taxicab” would be updated to be “taxi or ride-sharing services.” This will reduce ambiguity in the current question about where respondents should report ride-sharing commutes and will allow the government to monitor changes in transportation patterns for planning purposes.

The remaining topics were included in a field test that took place in the fall of 2022. Analysis is underway to examine the data from the field test and make recommendations for OMB to consider for approval. The results of this test will be published in 2024 and will help determine which revised or new questions will be implemented in the ACS in 2025.

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 compliance request using their preferred method of response (online, paper, telephone or in person), have a positive experience using the online response platform, 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 170,000 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 plans to add an internet self-response option to the group quarters data collection operation. The Census Bureau believes there is value in offering a self-response option to people living in noninstitutional group quarters, which includes college or university student housing, group homes, military barracks, workers’ group living quarters and Job Corps centers, and emergency and transitional shelters.

Internet Data Collection Research

As the Census Bureau modernizes its data collection systems, the ACS is preparing to update the internet data collection instrument. Several research tasks are underway to better inform the ACS about specific aspects of the internet instrument:

a. 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).
b. Expert review of the ACS internet instrument and development of a prioritized list of research activities. This includes identifying changes that can be made without further research when existing research in the field supports it.
c. Conduct a field test of elements of online survey administration to determine which produces better data quality with lower respondent burden.

Updates to Letters and Materials

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 CAPI operation). CAPI interviewers also have materials available to them as a tool to address respondent concerns and provide information about the survey.

Research and updates to the five self-response mailings have been ongoing, but less attention has been paid to the CAPI materials. In 2019, the Census Bureau began a project to revise the CAPI materials. An initial assessment of the CAPI materials indicated that they were written, on average, at the 12th grade level.[3] According to the National Center for Education Statistics, 19 percent of American adults read at a literacy level classified as Level 1 or below. This literacy level includes adults who are functionally illiterate as well as adults who may be able to understand very basic vocabulary and the meaning of short texts to perform simple tasks.[4]

The current ACS CAPI letters are text dense, do not focus the reader on the main message of the letter, and make 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 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, Heimel, Schreiner, 2017). The messages in the revised letters were designed to address the specific concern or situation that the interviewer encountered. The goal of

[3] Reading levels were calculated using the Flesch-Kincaid Grade Level score.
[4] See the National Center for Education Statistics' Highlights of U.S. National PIAAC Results (ed.gov), retrieved on May 9, 2023.

these changes was to reduce the burden of reading the letters while boosting CAPI response rates. The resulting materials were written, on average, at the ninth-grade level. Materials are being implemented on a rolling basis as they are ready.

The Census Bureau is also planning tests to continue to enhance the initial five mailings that elicit self-response to the survey. These tests, planned for 2024 and 2025, include exploring the use of QR codes, modifying the timing of materials, and further applying plain language and respondent-centered design principles to the self-response mail materials.[5]

CONCLUSION

The American Community Survey is not only the foremost resource for information on America's ever-changing population, housing, and workforce, but also a critical component for the administration of various government programs and distribution of federal funds. The ACS facilitates evidence-based decision-making at all levels of governance and among the private sector and benefits all local communities throughout the United States.

To ensure the production of accurate and dependable data, the Census Bureau and the ACS program are continuously evolving 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.

As we look toward the future, the Census Bureau's approach is undergoing a significant transformation. Instead of solely providing survey-based information, we are moving toward a more product-focused approach, delivering quality information to our valued customers. With this new strategic plan in place, while continuing to improve all facets of the survey life cycle, the ACS program is also placing significant emphasis on researching and using administrative data. By shifting our focus in this direction, we can reduce data collection costs, ease respondent burdens, and ensure higher quality statistics for our audience. Overall, our objective is to provide more accurate, streamlined data, and improve our position as a trusted provider of vital information.

[5] A QR code (quick-response code) is a barcode printed in a square pattern of black and white squares that encodes data (often used to direct a user to a website).

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