The American Community Survey Data Products Redesign Plan

Version 2.0

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Document Revision History

Version	Date	Description of change	Author
1.0	12/04/2015	Initial plan for data products redesign	Grace Clemons
2.0	07/29/2016	Update to include the latest development of research and data product redesign	Grace Clemons

1   Introduction

This document presents a plan for redesigning the American Community Survey (ACS) data products as part of the ongoing efforts by the Census Bureau to improve data accessibility for the public. These efforts align with the [Federal Digital Strategy](#) for open data, leveraging the latest technology and creating data products and information that are customer-focused.

In June of 2015, the Census Bureau convened an internal Data Products Redesign Team (DPRT), consisting of staff across the Census Bureau. The initial goal of the DPRT was to examine the current data products and dissemination methods and provide options for the redesign.

The first version of the ACS Data Products Redesign Plan was released in early 2016 and this document (Version 2.0) contains updates since the initial release. This is a living document, to be revised over time, as the Census Bureau seeks feedback from a wide-spectrum of customers and data users and refines its vision for overall data product design and dissemination strategies.

1.1   Need for redesign

Since its full implementation in 2005, the ACS data has been the leading source for social, economic, housing, and demographic characteristics about our nation and its communities. However, today's emerging technologies, and the new expectations they bring from data users, present both an opportunity and a challenge to the Census Bureau. To keep pace with the changing environment and allow the public easy access to the rich wealth of our data assets, the agency must rethink our data products and the way we disseminate them.

> "While our data are highly trusted and valued, our customers express frustration and aggravation with the difficulty of discovering and finding our Census Bureau content and making it useful for their needs."
>
> **U. S. Census Bureau Data Dissemination Roadmap, July 2013 (Internal Census Bureau Document).**

To address the dissemination challenges, the Census Bureau established a new and collaborative Center for Enterprise Dissemination Services and Consumer Innovation (CEDSCI). This center carries out the vision for the new dissemination strategies and leads the transformation for the major areas of operation. The Census Bureau's new vision is to foster and maintain an outwardly focused and cost-effective data dissemination environment. CEDSCI will establish a modernized technology platform that leverages existing innovations to provide a set of shared data dissemination services that enable consumers to do more with the massive amounts of valuable content we publish year round. To align

with that vision, the ACS data products must be reevaluated, modified, and/or redesigned to take advantage of the new capabilities and technical platform (e.g., web Application Programming Interface-API).

> "We can use modern tools and technologies to seize the digital opportunity and fundamentally change how the Federal Government serves both its internal and external customers—building a 21st century platform to better serve the American People."
>
> **Federal Digital Strategy, May 23, 2013**

One of the important components of the Federal Digital Strategy is that the products and services provided by the Federal Government should be customer-focused. The ACS program needs to increase its outreach efforts to better understand the customers' needs, and increase efforts to make content more broadly available and accessible through multiple channels. The Census Bureau must also make content more understandable to the casual users and present it in formats that are flexible and customizable for various audiences. The current ACS data products were developed with limited input from external data users. To ensure that future product enhancements and changes are customer-focused and meet our data users' needs, it is imperative that we engage them to reassess and redesign our products.

1.2   Short-term and long-term planning

The ACS data products are vast in volume (e.g., 4.7 billion estimates for the 5-year products published on the American FactFinder (AFF)), and diverse in types such as tabulated products, the Public Use Microdata Sample (PUMS) files, Summary Files, and unstructured content like reports and briefs. It is a major challenge to transform the ACS data products. Our strategy is to manage the innovative changes by making incremental changes over time as new functionality is released and we grow our understanding of user needs.

The short-term goal for the data product redesign is to focus on modifying existing tables or introducing limited sets of new tables to bridge gaps in ACS estimates, researching and evaluating current population thresholds and filtering methodologies, and expanding the ACS data available in the Census API. In the process of redesigning the data products to achieve these goals, the Census Bureau will seek feedback from the ACS Data Products Redesign Group (DPRG), which consists of a broad range of users external to the Census Bureau with varying interests and uses of ACS data. See Section 5 for more information. We will analyze and incorporate user comments from various sources in order to develop responsive solutions. Theses efforts are focused on enhancements and changes that can be accomplished by the end of the 2016 calendar year.

The long-term changes depend upon new technical capabilities, new dissemination channels and new initiatives from CEDSCI. They may affect the current suite of ACS data products and other elements

associated with the current products. The ACS program will continue to review its current line of data products and engage with end users to explore ways to take advantage of the CEDSCI innovations to enhance the products we provide.

The Census Bureau must balance users' needs with operational feasibility including technical, resource and schedule challenges. We understand that the ACS data users are diverse in many ways, and have different needs in their usage and applications of the data. The volume of suggestions and requirements from users is extremely high. Although it is not possible to fulfill every data user's requirements, we strive to make the ACS data current, relevant and easily accessible to the public.

1.3   Engagement with data users

The ACS data users are extremely important to the ACS program, and it is critical to understand their data needs since they represent the rapidly changing needs and demands of the country. We are deploying a structured effort to engage with our data users, including gathering and cataloging users' needs systematically, and communicating our findings and summaries of user requirements with both internal and external stakeholders.

The ACS program plans to engage end users of the ACS data including the DPRG. The objective of the DPRG is to provide proactive feedback on the current suite of products in terms of usage and gaps, assess the usefulness of new or redesigned prototype products, and provide feedback on changes in dissemination methods, including participation in testing of the new data tools and dissemination channels.

1.4   Major areas of focus

There are four major areas of focus for the redesign of the ACS data products. Table 1 below describes each of the focus areas.

Table 1. Major areas of focus

Major area	Focus
Evaluation of Thresholds and Filtering (See Section 2)	• Identify current need for publication thresholds (based on population) and data reliability filtering • Conduct research and analyze results to identify potential options for thresholds and filtering

Major area	Focus
Redesign of Current Data Products (See Section 3)	Short-term (Through December 2016): • Review and address input from data users on gaps in the current data products • Identify options on modifying existing tables or creating new tables at varying geographic levels • Seek feedback from DPRG to refine data product redesign plan Long-term(2017-2021): • Continue to evaluate current data products and refine redesign plan to ensure that data products utilize innovations available through the new dissemination channels • Explore potential new or modified data products based on user needs and innovations in dissemination methods • Improve documentation for easy understanding and accessibility
Dissemination Methods Planning (See Section 4)	• Collaborate with CEDSCI on future dissemination channels including new data tools using ACS data
Data User Engagement (See Section 5)	• Increase engagement through the DPRG and other communication channels • Address stakeholder communication issues/concerns • Develop communication strategy

2   Population Thresholds and Data Reliability Filtering

2.1   Current need for thresholds and filtering

One distinguishing feature of the ACS data products is that each estimate and, if applicable, its associated sampling error is published side by side. The major design goal of the ACS has been to produce useful estimates of high reliability. Reliability concerns arise when estimates are subject to high sampling variability, which increases the uncertainty of the data. As sampling variability increases, the

reliability of the estimates decreases. Currently, the ACS program filters 1-year data that are determined to be not sufficiently reliable to release to the public.

For years, advanced data users have requested changes to the current 1-year data release rules regarding population publication thresholds and data reliability filtering. Data users believe the current rules are too restrictive and remove too many useful estimates. As the Census Bureau focuses on improving its data products and meeting data users' needs, it is our goal to balance the number of published estimates released with an acceptable level of reliability that meet the Census Bureau's Statistical Quality Standards. The internal Census Bureau DPRT has been examining the following areas to meet this goal.

- Population publication thresholds
- Data reliability filtering rules that remove specific data products with high levels of sampling variability
- ACS data product redesigns

As a result of user feedback and ongoing work of the DPRT, the ACS Program released a small set of products focused on increasing the availability of estimates using the 1-year data. We have developed a limited set of data products governed by an alternative population threshold for the 1-year data. In July 2016, the Census Bureau released these simplified tables for geographies at population of 20,000 or more. The release of these tables will almost double the number of geographies for which ACS 1-year data is available.

2.2   Summary of earlier work on thresholds and filtering

Historically, the ACS has provided measures of error for all estimates released. Data products released for 2005 and earlier included the 90 percent confidence intervals. Data products released since 2006 include the margin of error (MOE). However, not all users of survey estimates have sufficient statistical knowledge to understand the measures of reliability around the ACS survey estimates. In addition, they may not understand what affects the quality of estimates, that is, sample size, sampling error, and non-sampling error. The general user often refers to census data or survey estimates for information on which to base funding, policy, or business decisions. Data users often use the information provided at face value and do not consider the reliability of those estimates.

The current population threshold for release of ACS 1-year data products is 65,000 (Alexander 1999). A single year's sample in the ACS is not adequate to publish statistically reliable estimates for all geographic areas for which the Census 2000 long form estimates were published. The exact threshold was derived in the 1990s during early ACS implementation planning and testing, using then-current assumptions about sample size and response rates. The ACS has now been in full production for ten years and it is appropriate to revisit the assumptions and rules around the population thresholds based on current knowledge and experience.

About 90 percent of all detailed tables are tables of estimates (count tables) rather than medians or ratios. As a result, the data reliability filtering rules were optimized for testing these tables. In the early years of the ACS (2000 through 2004), count tables were removed from publication based on a data reliability filtering rule that required the table to be supported by a weighted count of at least 500 and an un-weighted average of two cases per cell (U.S. Census Bureau, 2006). This reliability rule attempted to both minimize the disclosure risk and reduce the number of published estimates with high levels of sampling error. This rule was revised in 2005 because it was found to be biased against geographic areas with a population size close to the threshold. It suppressed too many good estimates for small governmental units, while releasing too many tables of poor quality for large governmental units.

Starting with the 2005 ACS release, new data reliability filtering rules were applied to each eligible detailed table. These rules incorporated a measure of the reliability of each estimate in the table. Each estimate is subject to sampling variability that can be estimated by the coefficient of variation (CV). The CV is defined as the standard error (SE) of the estimate divided by the estimate itself. Higher CV values are associated with low reliability estimates.

The details of the current data reliability rules are as follows:

> If the median CV of all detailed lines in the table (those that are not the total line or a subtotal line) is greater than 0.61, then the whole table fails and is filtered out for a particular geographic area.

> One special case is the CV for count estimates of zero. The CV for this type of estimate is undefined since the value in the denominator is zero. For purposes of determining whether the count table should be released, these undefined CVs are assigned a value of 1.0.[1] This practice increases the chances that the table will fail the filtering tests and guarantees failure if at least half the cells have a count of zero. This treatment demonstrates the current Census Bureau position that counts of zero are unreliable or unstable estimates.

> The cutoff value is set to 0.61 because at that value the 90 percent margin of error is equal to the estimate itself. In other words, for estimates with CVs of 0.61 or higher, the estimate is not significantly different from zero at the 90 percent confidence level. We are not attempting an actual statistical test here. This is simply a means of identifying and giving a plausible statistical justification for a reasonable cutoff value.[2]

Fewer detailed tables and estimates are released under the current filtering rules than the rule used prior to 2005. The current rules more efficiently identify tables with the greatest data reliability problems.

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[1] In the published detailed tables, all zero estimates are assigned a predetermined MOE.
[2] Starsinic, M. (2009), *Assessment of Data Release Rules on the Reliability of Multiyear Estimates in the American Community Survey Data Products,* Survey Research Mehtods Section, 2009 Statistical Meeting Proceedings.

With the 1-year population threshold set at 65,000, the current rules filter about 37 percent of count tables annually. However, since the operation was designed to target "whole" tables, it cannot ensure that all estimates in tables that are released are reliable. At the same time, in some instances reliable estimates are "filtered out" when they are included in a table that contains a majority of questionable estimates, and the table is therefore filtered based on the current rules. Fortunately, very few reliable estimates suffer this fate. The current filtering rules fail about 48 percent of estimates, which include about 70 percent of cases with a CV of 0.61 or higher and about 90 percent of cases with undefined CVs, such as zero count estimates.

2.3   Research and analysis plan on thresholds and filtering

To reevaluate the current filtering rules and thresholds, we developed four filtering options and a series of research questions. We are using the 1-year microdata with a 20,000 population threshold to produce the data counts for this research. The four filtering options under consideration in this analysis are:

A.   No filtering applied. This is the same as the 5-year data products where there is no filtering applied.
B.   The current filtering rules applied. This is the most restrictive of the options.
C.   Alternative Filtering Rules I. With this rule, a table is filtered out if the median CV of table's nonzero estimates is greater than 0.61. That means count estimates of zero are ignored when testing the tables. Past research found when compared with the current filtering rules, this option increases the number of published estimates by 39 percent, increases the number of zero estimates published by four times, and increases the number of estimates with CVs of 0.61 or higher by 70 percent.
D.   Alternative Filtering Rules II. This rule requires that a table is filtered out if 75 percent or more of the table's estimates have CVs greater than 0.61. This means over three-quarters of the estimates in a table must have very large CVs before it is withheld from publication.

The research questions that will be applied to all of the filtering options are:

A.   How do the reliability results of published estimates compare across filtering options?
B.   With filtering applied, how does the reliability of published estimates compare between areas of population 20,000 to 65,000 and areas of population of 65,000 or more? In general, we are interested in what happens to areas under 65,000 in population, with those between 20,000 and 25,000 being of the highest interest.
C.   Based on reliability results of published estimates for areas of population 20,000 to 65,000, are there particular products or estimates within tables that we should not consider further?

It is hard to separate the analysis of changes to population thresholds and data reliability filtering from the development of new data products since these rules can affect each product differently. Past

research has found thresholds and filtering have a negatively correlated relationship. If we decrease the thresholds currently used for 1-year production, there would be an increase in the proportion of estimates that would not be published due to reliability issues. This would be true using any of the filtering options researched in the past. Any new products for areas in the 20,000 to 65,000 population size range would likely have less detail and contain fewer cross tabulations than the current suite of products.

Analysis of filtering rates has been and should always be a major consideration when either modifying existing tables or creating new tables at varying geographic levels. To achieve this, we examine filtering rates for each proposed data product using each filtering option being considered in the research.

In the future, potential actions may be to publish a new set of 1-year ACS data products that are subject to alternative data release rules. This new set of products would include a user note to inform the public of differences from the regular ACS data products. An example of this approach is the 58 new tables that ACS released in July 2016. These greatly simplified tables (generally 15 cells or less) are being released for the ACS 1-year data at population thresholds of 20,000 and above. These new tables have been reviewed based on the research above and provide reliable estimates due to their simplicity.

3   Redesign of Current Data Products

3.1   Scope of redesign

The scope of redesigning the ACS data products covers the full suite of both structured and unstructured data products. These include tabulated products (e.g., detailed tables, data profiles), the Public Use Microdata Sample (PUMS) files, Summary Files, and unstructured content like reports and briefs. Although we may not focus on making major changes on PUMS files, continuous improvement and necessary changes will occur during each production cycle. The major factors influencing the redesign are feedback from the data users, the results of the population threshold and data reliability filtering research and analysis, and the new dissemination channels and platforms. The scope of the redesign will have both short-term and long-term aspects and will incorporate ongoing annual changes, improvements and consolidation to the current suite of products.

3.2   Source of data user input

As part of the redesign process, the Census Bureau will proactively seek data users' feedback. Data users' input will be reviewed, considered and incorporated into the new design. The following are sources of data user input that we plan to use.

- **ACS Data Products Redesign Group (DPRG):** The DPRG was established through a contract with the Population Reference Bureau (PRB) to provide feedback on proposals about redesigned data products and new dissemination channels. The DPRG is an informal group of external users that will provide proactive and reactive feedback to the Census Bureau.
- **User statistics/metrics:** Every year, the Census Bureau collects user statistics on access of ACS tables through AFF and FTP metrics (e.g., number of table downloads). These metrics will be useful in determining which tables are widely used by data users.
- **ACS Data Products Survey:** In the spring of 2015, the Census Bureau conducted an online survey to solicit feedback from ACS data users on their experiences accessing and using ACS data products, documentation, and the data tools. There were 667 responses to the survey and 824 comments from the open-ended questions. The user comments gathered from the survey will provide input to the redesign process as well as input to CEDSCI related to the overall dissemination vision of the Census Bureau.
- **Other channels of user feedback:** The ACS program has ongoing dialogues with the data user communities, through the ACS Data User Group, conferences, workshops and other outreach programs. We will continue to seek data user feedback through these venues. In addition, the call center and Customer Experience Management (CEM) System from the Census Bureau will provide data and insights on use and issues with data products.

3.3   Data products redesign short term goal and approach

One of our short-term goals is to bridge existing gaps in ACS estimates by providing additional data to end users while maintaining compliance with the Census Statistical Quality Standards and protecting respondent confidentiality. The approach to the data products redesign focuses on changes that can be implemented with minimal impact to current production processes and systems, and provide information for users who need simplified ACS estimates at varying levels of geography.

After evaluating the feedback received from DPRG, and considering the usage metrics, predicted usage, filtering rate, and input from subject matter areas, the internal DPRT created 58 1-year tables to be produced for geographies with population of 20,000 or more. The group examined 400 tables across the following four variations:

- "Super-collapsed" tables that contain 10 or fewer cells defined by subject matter experts
- A set of univariate tables using the sub-total lines where table cells sum up to the totals
- A set of tables using all lines in the first hierarchy under the universe total line
- A subset of published detailed tables with 15 cells or fewer

The Census Bureau released these tables for data year 2014 as supplemental products on July 21, 2016 and tables for data year 2015 will be released in the fall of 2016. These supplemental estimates are

available on AFF and the API, for the same geographic summary levels as those in the ACS 1-Year dataset. Appendix A. List of Tables for Supplemental Estimates Release shows the details.

We also released 107 detailed tables with estimates and the associated eighty variance replicate estimates for 11 geographic summary levels for 2010-2014 5-year data on July 21, 2016 and plan to release the 2011-2015 5-year data in January 2017. Both releases will be on the FTP site with links available from AFF. They represent the efforts by the Census Bureau to mitigate the delay of the Microdata Analysis System (MAS), which is being designed to allow data users to create their own estimates and associated MOEs using the microdata

The Variance Replicate Estimate Tables make it possible for data users to compute variances using a methodology similar to the one utilized by the Census Bureau in ACS production. These variance replicate estimates are intended for advanced users to calculate Margins of Error (MOEs) for their own defined characteristics without using the approximation formulas. This includes forming their own aggregate estimates across geographies or within table as well as custom defined ratios, proportions, and percentages.

The available geographic summary levels for the Variance Replicate Estimate Tables are the following:

- Nation (010)
- State (040)
- Minor Civil Division (060)
- Metropolitan Statistical Area/Micropolitan Statistical Area (310)
- Congressional District (500)
- County (050)
- Place (160)
- Zip Code Tabulation Area (860)
- American Indian Alaska Native area (250)
- Tract (140)
- Black Groups (150)

Appendix B. List of Tables for Variance Replicate Estimates Release shows the details.

The internal DPRT will also continue to review the current 1-year and 5-year products to look for gaps in data products and low usage tables. This process has been ongoing for the past two years and will continue in the future in conjunction with the overall product redesign.

3.4   Data products redesign long-term goal and approach

The long-term goal is to align with the Census Bureau's new vision for data dissemination. We will continue to evaluate current data products in response to new tools and dissemination methods, and develop methods to explore new or modified data products. Thus, the plan will evolve over time as we learn, understand and adapt to the new CEDSCI environment.

While the short-term approach to data products redesign targets making smaller modifications to current data products and utilizing existing product specs, tabulation systems and dissemination channels, the long-term approach aims at transformation that leverages innovation, new technologies and capabilities, and dissemination platforms. Table 2 below outlines some initial ideas for long-term changes of data products.

Table 2. Long-term planning

Idea Description	Pros	Cons
• Create a set of basic univariate tables that are currently missing for base characteristics such as poverty	• This would allow data users to directly access important rates such as the poverty rate without adding up multiple individual estimates	• Increased size of ACS data products
• Create new profiles containing the top 5 or 10 characteristics for each geography, such as the top 5 ancestries in Denver, CO. Additional topics could be industry, occupation, race, country of birth, language spoken at home, etc.	• Leverage of CEDSCI's new capabilities to dynamically generate the new profiles • Allow more data available and accessible to data users.	• No concerns or risks
• Reevaluate and simplify multi-dimensional tables (e.g., means of transportation to work by sex. Do we need to break this down by sex?)	• Make tables more meaningful and easy to understand • Reduce filtering rate of the tables • Make more tables available	• Changes in table structure may make it difficult for end users to examine data over time.
• Expand Selected Population Profile to include additional sub-categories such as age groups, industry and occupation, employment status, language spoken at home, etc.	• Make popular products more accessible by our data users	• No concerns or risks

Other ideas about long-term redesign include creating a dashboard of ACS estimates, providing data trends, creation of infographics via visualization tools, creating the capability to compare between two or more different geographies, and better ways to display race-iterated tables. These ideas will be explored, as new dissemination capabilities are implemented and available for use by ACS. While data user needs will be a key input and driver of long-term data product changes, ACS will continue to balance user needs with operational feasibility when evaluating data product changes.

4   Dissemination Methods Planning

4.1   Background

In February of 2013, the Census Bureau leadership appointed a special task force of bureau professionals from across the agency to look into the future of survey and census content, data dissemination, and emerging technology. To manage this effort, the bureau formed the Center for Enterprise Dissemination Services and Consumer Innovation (CEDSCI) with representation from across multiple directorates.

The goals of CEDSCI are to foster and maintain a customer-focused, cost effective data dissemination environment that hosts a set of dissemination tools that meet the future dissemination capabilities.

4.2   Future dissemination capabilities

CEDSCI will be responsible for managing the multiyear, innovative effort to transform and expand the dissemination of Census content. It will establish the foundation for the transition by focusing first on a shared technology platform and harmonizing of our data sets, always keeping in mind the goal of making Census data readily accessible and usable for our diverse customers. The future of dissemination at the Census Bureau, composing many areas of transformation, will empower data users to find, to access and connect, and to use data in ways that better their lives and communities.

A standardized central metadata repository will enable the Census Bureau to deploy generalized dissemination capabilities and coordinate policies and procedures. A centralized dissemination system will remove redundancy throughout the Census Bureau and allow for an enterprise platform for disseminating all of its data products. This is not to say that all products will be disseminated through a single tool, but the Census Bureau will maintain all the data, metadata, and dissemination services in a single platform.

This platform will encourage agile development of tools. For example, if a customer needs to see data in a new way, such as a new visualization or a new map, the Census Bureau will be able to use the

consolidated standardized metadata and data repositories to build the new tools quickly. The mapping, charting or visualization services provided by CEDSCI will allow the bureau to quickly insert new data and leverage these functional services. We will not have to go through an entire development cycle to create a new mapping, or visualization tool.

For data users, there will be features in the new system that allow them to search for unstructured content, such as reports and research papers, next to structured data, such as tables and downloadable files. The new system will focus on the Census customer and create a personalized online experience. It will give data users the ability to save searches and data they find, and tailor their experience to their preferences. During the Alpha releases, we plan to integrate the CEDSCI search with Census.gov. Users can enter their search term right into Census.gov and receive results that include links to the many bureau topic pages, and links directly to data tables, or even to a single cell of data if appropriate.

4.3   Progress and timeline of CEDSCI

In 2015, the CEDSCI team completed two Proofs of Concept to demonstrate the ideas of the new capabilities, and is now working on the release of the Alpha system. The plan is to roll the new dissemination system out over the next two years in a series of minor releases. The team will build the new system using an Agile methodology that will allow for frequent iterations and modifications when building the new system. The system will build upon each release with additional features, capabilities and expanding datasets and geographies, based on data user feedback and testing.

The first release will have basic search and navigation features, as well as a basic table viewer and a limited number of data sets that are currently available in the Census API. These first datasets will include limited selections from the American Community Survey datasets, 2010 Census Files, data from the latest Economic Census and annual Economic Surveys. With each release, there will be more functionality and data added. Additional features you can expect to see over the next two years include thematic mapping, data visualizations, custom table creation and advanced download capabilities.

The focus over the next two years will be to ensure all the current data disseminated through AFF and the Census Data API will be available first, and then the program will look to incorporate new surveys and datasets from other surveys.

A series of Alpha releases has been developed and shared with key stakeholders since December 2015. In September 2016, the Census Bureau is planning to release the Beta version of the new dissemination platform. At that point, the system will be open to the public, but development will continue. The Census Bureau is planning a quarterly update of the beta platform until it is fully released into production. CEDSCI plans to use ongoing feedback from the Beta system while it continues to develop and improve the dissemination process and the user experience. When the CEDSCI dissemination

platform is capable of supporting the data dissemination for the Census Bureau and is fully released to production, AFF will be retired.

4.4   New tools with ACS data

Under the leadership of CEDSCI, several data tools, such as the Microdata Analysis System (MAS) and the Census Business Builder (CBB), are in development phase.

The MAS is an online tool allowing external users to request statistical summaries generated directly from internal Census Bureau microdata. The current research and development of MAS utilizes the ACS 5-year microdata as input. Through MAS, the data users can aggregate ACS estimates, generate margin of error automatically, or create customized geographies. The major goal of the MAS is to allow flexibility for users to generate customized tables and geographies while protecting the confidentiality of respondents.   Current research and testing of MAS has shown that it is not feasible based on the initial development design. The Census Bureau is now revising it approach to MAS and is researching alternative methods to implement this capability for end users. Due to the delay in the current implementation of MAS, the Census Bureau is releasing the variance replicate estimates described in sections 2 and 3.

The CBB is an online tool providing data users with easy navigation to key demographic estimates from the ACS and economic data from the Economic census and other business surveys, in one application. Besides the easy-to-use menus, an interactive map allows selection of an area to explore business opportunities and research geographic areas for locating a business. In addition, it provides the ability for a user to dynamically generate, download, and print business reports with a simple click. The Small Business Edition, which guides users in their research into opening a new business or expanding their existing business, was released in September 2015, and the Regional Analyst Edition was released in February 2016. Since then, both editions have had multiple release updates. The latest update of both editions was released in July 2016, including MOEs for ACS estimates provided in their business reports. This application demonstrates the Census Bureau's ability to leverage its rich data assets and the available technologies such as combining data from different sources and extending the mapping capabilities.

The internal DPRT will continue to work closely with CEDSCI and other areas of the Census Bureau as new tools and dissemination options are implemented. We will explore options for new or enhanced data products that take advantage of new technologies and new dissemination channels to meet changing data user needs.

5   Data User Engagement

5.1   Overview

Section 1.3 outlines the importance of the data user engagement to the ACS redesign process and the need to establish the ACS DPRG. This section will provide the details about how the Census Bureau plans to engage its data users during the redesign process.

5.2   Establishment and management of DPRG

In September 2015, the Census Bureau awarded the PRB a contract to form and manage the informal (non-advisory) ACS Data Product Redesign Group. The Census Bureau expects this end-user group to represent a wide spectrum of users with varying interests and uses of ACS data. To accomplish this goal, an invitation to apply to the DPRG was sent by PRB to a broad range of users. Working with the Census Bureau, PRB selected the DPRG members with a diverse representation from the following groups: ACS Data Users Group (DUG), State Data Centers (SDCs), Census Information Centers (CICs), State and Local Governments, Federal Government, Businesses, Nonprofit Organizations.

Since the establishment of the DPRG, the Census Bureau has engaged and sought feedback from the group on the first version of the ACS Data Products Redesign Plan, the current suite of ACS data products in terms of usage and gaps, reactions on new and redesigned data products, and testing of the new CEDSCI system. The DPRG comments have led to many of the changes and updates to the Data Product Redesign Plan and contributed to the release of the new simplified ACS tables published on July 21, 2016.

5.3   Scope of engagement

The Census Bureau will implement the ACS data products redesign through short-term and long-term changes.

For the short term, the DPRG has provided or will continue to provide feedback on the following items:

- The overall ACS Data Products Redesign Plan, including research on thresholds & filtering, and options for new or revised data products.
- Participation and testing of CEDSCI early platform releases (Alpha and Beta versions).
- General overall feedback on the ACS data product line including gaps and unused products

For long term planning, the scope of the feedback requested from DPRG will be determined and based on the plan for new dissemination channels and other CEDSCI initiatives. The DPRG will likely to be asked to provide input in the following areas:

- New products created to leverage the unique capabilities of the new dissemination channels.
- Testing of new dissemination channels.
- New data tools using ACS data such as the MAS, CBB and other tools and applications.
- Ongoing changes to the ACS data product line, including changes in filtering and suppression rules.
- Other significant policy or methodological changes that have an impact on the availability or structure of ACS data products.

6   Next steps and milestones

6.1   Next steps

Since the DPRG kickoff meeting on December 4, 2015, the Census Bureau has solicited input from the DPRG on the overall data products redesign plan and general feedback on the current data product lines. The DPRG is also participating in testing of the Alpha releases of the new dissemination platform implemented by CEDSCI.

After evaluating the feedback from the DPRG and internal metrics and input, the internal DPRT developed a supplemental product consisting of 58 simplified tables using the ACS 1-year data (See Section 3.3 Data products redesign short term goal and approach). The new supplemental product was released on July 21, 2016. We will also conduct research and analysis of the thresholds and filtering methodology based on the supplemental products, and share the results of research with DPRG when available.

Based on the feedback from DPRG, ongoing internal evaluations, and decisions on CEDSCI functionality, ACS will continue to develop further implementation plans and milestones for some of the changes proposed in the Data Products Redesign Plan. Two incremental changes, including the releases of the supplemental products and the Variance Replicate Estimates Tables, have been implemented by July 2016, with more significant and innovative changes happening iteratively starting in 2017. The Census Bureau plans to provide ongoing, periodic updates to the Data Product Redesign Plan, and will release updates to this plan as significant changes are made.

6.2   Milestone schedule

Table 3. Milestone schedule

Milestone	Date
Finalize ACS data product redesign plan	November 2015 (completed)
Establish external ACS Data Product Redesign Group (DPRG)	November 2015 (completed)
Conduct DPRG kickoff meeting	December 2015 (completed)
DPRG feedback on overall ACS Data Products Redesign Plan	February 2016 (completed)
Release ACS 2014 supplemental tables	July 21, 2016(completed)
Release variance replicate estimates for selected ACS 2010-2014 5-year detailed tables and geographies	July 21, 2016 (completed)
Release ACS 2015 supplemental tables	October 2016
Short-term data product redesign planning and implementation	December 2016 (in progress)
Release variance replicate estimates for selected ACS 2011-2015 5-year detailed tables and geographies	January 2017
Release results of filtering rates by size areas for new short term table package using 2014 data	July 2016
Complete research on CEDSCI compatible filtering methodology and threshold restrictions and release results.	December 2020
Long-term data product redesign planning and implementation	December 2021

Appendix A. List of Tables for Supplemental Estimates Release

No.	Table ID	Table Title
1	K200001	UNWEIGHTED SAMPLE COUNT OF THE POPULATION
2	K200002	UNWEIGHTED SAMPLE HOUSING UNITS
3	K200101	POPULATION BY SEX
4	K200102	POPULATION UNDER 18 YEARS BY AGE
5	K200103	MEDIAN AGE BY SEX
6	K200104	POPULATION BY AGE
7	K200201	RACE
8	K200301	HISPANIC OR LATINO ORIGIN
9	K200501PR	CITIZENSHIP STATUS IN PUERTO RICO
10	K200501	CITIZENSHIP STATUS IN THE UNITED STATES
11	K200503	PLACE OF BIRTH IN THE UNITED STATES
12	K200503PR	PLACE OF BIRTH IN PUERTO RICO
13	K200701	GEOGRAPHICAL MOBILITY IN THE PAST YEAR IN THE UNITED STATES
14	K200701PR	GEOGRAPHICAL MOBILITY IN THE PAST YEAR IN PUERTO RICO
15	K200801	MEANS OF TRANSPORTATION TO WORK
16	K200802	TRAVEL TIME TO WORK
17	K200901	HOUSEHOLD TYPE
18	K201001	MARITAL STATUS FOR THE POPULATION 15 YEARS AND OVER
19	K201101	OWN CHILDREN UNDER 18 YEARS BY FAMILY TYPE
20	K201102	HOUSEHOLDS BY PRESENCE OF PEOPLE 60 YEARS AND OVER BY HOUSEHOLD TYPE
21	K201401	SCHOOL ENROLLMENT BY LEVEL OF SCHOOL FOR THE POPULATION 3 YEARS AND OVER
22	K201501	EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER
23	K201601	HOUSEHOLD LANGUAGE
24	K201701	POVERTY STATUS IN THE PAST 12 MONTHS BY AGE
25	K201702	RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS
26	K201703	POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES BY HOUSEHOLD TYPE
27	K201801	DISABILITY STATUS BY AGE
28	K201802	WORK EXPERIENCE BY DISABILITY STATUS
29	K201803	TYPES OF DISABILITIES
30	K201901	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
31	K201902	MEDIAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
32	K201903	FAMILY INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)

No.	Table ID	Table Title
33	K201904	MEDIAN FAMILY INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
34	K201905	MEDIAN NONFAMILY HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
35	K201906	MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS FOR THE POPULATION 15 YEARS AND OVER WITH INCOME
36	K202001	EARNINGS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS
37	K202101	VETERAN STATUS FOR THE CIVILIAN POPULATION 18 YEARS AND OVER BY AGE
38	K202102	SERVICE-CONNECTED DISABILITY-RATING STATUS FOR CIVILIAN VETERANS 18 YEARS AND OVER
39	K202201	RECEIPT OF FOOD STAMPS/SNAP IN THE PAST 12 MONTHS BY PRESENCE OF CHILDREN UNDER 18 YEARS FOR HOUSEHOLDS
40	K202301	EMPLOYMENT STATUS FOR THE POPULATION 16 YEARS AND OVER
41	K202302	SEX BY FULL-TIME WORK STATUS IN THE PAST 12 MONTHS FOR THE POPULATION 16 TO 64 YEARS
42	K202401	OCCUPATION FOR THE CIVILIAN EMPLOYED POPULATION 16 YEARS AND OVER
43	K202402	CLASS OF WORKER FOR THE CIVILIAN EMPLOYED POPULATION 16 YEARS AND OVER
44	K202403	INDUSTRY FOR THE CIVILIAN EMPLOYED POPULATION 16 YEARS AND OVER
45	K202501	OCCUPANCY STATUS
46	K202502	HOUSING TENURE
47	K202503	TOTAL POPULATION IN OCCUPIED HOUSING UNITS BY TENURE
48	K202504	UNITS IN STRUCTURE
49	K202505	YEAR STRUCTURE BUILT
50	K202506	YEAR HOUSEHOLDER MOVED INTO UNIT
51	K202507	GROSS RENT
52	K202508	MORTGAGE STATUS
53	K202509	HOUSING VALUE
54	K202601	GROUP QUARTERS POPULATION
55	K202701	AGE BY HEALTH INSURANCE COVERAGE STATUS
56	K202702	PRIVATE HEALTH INSURANCE STATUS
57	K202703	PUBLIC HEALTH INSURANCE STATUS
58	K202801	PRESENCE OF A COMPUTER AND TYPE OF INTERNET SUBSCRIPTION IN HOUSEHOLD

Appendix B. List of Tables for Variance Replicate Estimates Release

No.	Table ID	Table Title
1	B01001	SEX BY AGE
2	B01003	TOTAL POPULATION
3	B02001	RACE
4	B02005	AMERICAN INDIAN AND ALASKA NATIVE ALONE FOR SELECTED TRIBAL GROUPINGS
5	B02006	ASIAN ALONE BY SELECTED GROUPS
6	B02007	NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE BY SELECTED GROUPS
7	B02008	WHITE ALONE OR IN COMBINATION WITH ONE OR MORE OTHER RACES
8	B02009	BLACK OR AFRICAN AMERICAN ALONE OR IN COMBINATION WITH ONE OR MORE OTHER RACES
9	B02010	AMERICAN INDIAN AND ALASKA NATIVE ALONE OR IN COMBINATION WITH ONE OR MORE OTHER RACES
10	B02011	ASIAN ALONE OR IN COMBINATION WITH ONE OR MORE OTHER RACES
11	B02012	NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE OR IN COMBINATION WITH ONE OR MORE OTHER RACES
12	B02013	SOME OTHER RACE ALONE OR IN COMBINATION WITH ONE OR MORE OTHER RACES
13	B03001	HISPANIC OR LATINO ORIGIN BY SPECIFIC ORIGIN
14	B03002	HISPANIC OR LATINO ORIGIN BY RACE
15	B03003	HISPANIC OR LATINO ORIGIN
16	B04006	PEOPLE REPORTING ANCESTRY
17	B05001	NATIVITY AND CITIZENSHIP STATUS IN THE UNITED STATES
18	B05002	PLACE OF BIRTH BY NATIVITY AND CITIZENSHIP STATUS
19	B05005	PERIOD OF ENTRY BY NATIVITY AND CITIZENSHIP STATUS IN THE UNITED STATES
20	B05005PR	PERIOD OF ENTRY BY NATIVITY AND CITIZENSHIP STATUS IN PUERTO RICO
21	B05006	PLACE OF BIRTH FOR THE FOREIGN-BORN POPULATION IN THE UNITED STATES
22	B05006PR	PLACE OF BIRTH FOR THE FOREIGN-BORN POPULATION IN PUERTO RICO
23	B06003	PLACE OF BIRTH BY SEX IN THE UNITED STATES
24	B06003PR	PLACE OF BIRTH BY SEX IN PUERTO RICO
25	B07003	GEOGRAPHICAL MOBILITY IN THE PAST YEAR BY SEX FOR CURRENT RESIDENCE IN THE UNITED STATES
26	B07003PR	GEOGRAPHICAL MOBILITY IN THE PAST YEAR BY SEX FOR CURRENT RESIDENCE IN PUERTO RICO
27	B08013	AGGREGATE TRAVEL TIME TO WORK (IN MINUTES) OF WORKERS BY SEX
28	B08301	MEANS OF TRANSPORTATION TO WORK
29	B08303	TRAVEL TIME TO WORK
30	B09019	HOUSEHOLD TYPE (INCLUDING LIVING ALONE) BY RELATIONSHIP
31	B10050	GRANDPARENTS LIVING WITH OWN GRANDCHILDREN UNDER 18 YEARS BY RESPONSIBILITY FOR OWN GRANDCHILDREN BY LENGTH OF TIME RESPONSIBLE FOR

No.	Table ID	Table Title
		OWN GRANDCHILDREN FOR THE POPULATION 30 YEARS AND OVER
32	B10056	SEX OF GRANDPARENTS LIVING WITH OWN GRANDCHILDREN UNDER 18 YEARS BY RESPONSIBILITY FOR OWN GRANDCHILDREN AND AGE OF GRANDPARENT
33	B10057	MARITAL STATUS BY GRANDPARENTS LIVING WITH OWN GRANDCHILDREN UNDER 18 YEARS BY RESPONSIBILITY FOR OWN GRANDCHILDREN AND AGE OF GRANDPARENT
34	B11001	HOUSEHOLD TYPE (INCLUDING LIVING ALONE)
35	B11002	HOUSEHOLD TYPE BY RELATIVES AND NONRELATIVES FOR POPULATION IN HOUSEHOLDS
36	B11003	FAMILY TYPE BY PRESENCE AND AGE OF OWN CHILDREN UNDER 18 YEARS
37	B11005	HOUSEHOLDS BY PRESENCE OF PEOPLE UNDER 18 YEARS BY HOUSEHOLD TYPE
38	B11007	HOUSEHOLDS BY PRESENCE OF PEOPLE 65 YEARS AND OVER, HOUSEHOLD SIZE AND HOUSEHOLD TYPE
39	B11010	NONFAMILY HOUSEHOLDS BY SEX OF HOUSEHOLDER BY LIVING ALONE BY AGE OF HOUSEHOLDER
40	B12001	SEX BY MARITAL STATUS FOR THE POPULATION 15 YEARS AND OVER
41	B13001	MARITAL STATUS BY AGE FOR WOMEN 15 TO 50 YEARS
42	B13002	WOMEN 15 TO 50 YEARS WHO HAD A BIRTH IN THE PAST 12 MONTHS BY MARITAL STATUS AND AGE
43	B14001	SCHOOL ENROLLMENT BY LEVEL OF SCHOOL FOR THE POPULATION 3 YEARS AND OVER
44	B15002	SEX BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 25 YEARS AND OVER
45	B16004	AGE BY LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER
46	B16008	CITIZENSHIP STATUS BY AGE BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER
47	B17001	POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE
48	B17006	POVERTY STATUS IN THE PAST 12 MONTHS OF RELATED CHILDREN UNDER 18 YEARS BY FAMILY TYPE BY AGE OF RELATED CHILDREN UNDER 18 YEARS
49	B17007	POVERTY STATUS IN THE PAST 12 MONTHS OF UNRELATED INDIVIDUALS 15 YEARS AND OVER BY SEX BY AGE
50	B17010	POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES BY FAMILY TYPE BY PRESENCE OF RELATED CHILDREN UNDER 18 YEARS BY AGE OF RELATED CHILDREN
51	B17021	POVERTY STATUS OF INDIVIDUALS IN THE PAST 12 MONTHS BY LIVING ARRANGEMENT
52	B18101	SEX BY AGE BY DISABILITY STATUS
53	B19001	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
54	B19025	AGGREGATE HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)

No.	Table ID	Table Title
55	B19051	EARNINGS IN THE PAST 12 MONTHS FOR HOUSEHOLDS
56	B19055	SOCIAL SECURITY INCOME IN THE PAST 12 MONTHS FOR HOUSEHOLDS
57	B19056	SUPPLEMENTAL SECURITY INCOME (SSI) IN THE PAST 12 MONTHS FOR HOUSEHOLDS
58	B19057	PUBLIC ASSISTANCE INCOME IN THE PAST 12 MONTHS FOR HOUSEHOLDS
59	B19059	RETIREMENT INCOME IN THE PAST 12 MONTHS FOR HOUSEHOLDS
60	B19061	AGGREGATE EARNINGS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR HOUSEHOLDS
61	B19065	AGGREGATE SOCIAL SECURITY INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR HOUSEHOLDS
62	B19066	AGGREGATE SUPPLEMENTAL SECURITY INCOME (SSI) IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR HOUSEHOLDS
63	B19067	AGGREGATE PUBLIC ASSISTANCE INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR HOUSEHOLDS
64	B19069	AGGREGATE RETIREMENT INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR HOUSEHOLDS
65	B19101	FAMILY INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
66	B19127	AGGREGATE FAMILY INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
67	B19201	NONFAMILY HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
68	B19214	AGGREGATE NONFAMILY HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
69	B19313	AGGREGATE INCOME IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS)
70	B21001	SEX BY AGE BY VETERAN STATUS FOR THE CIVILIAN POPULATION 18 YEARS AND OVER
71	B22001	RECEIPT OF FOOD STAMPS/SNAP IN THE PAST 12 MONTHS BY PRESENCE OF PEOPLE 60 YEARS AND OVER FOR HOUSEHOLDS
72	B23001	SEX BY AGE BY EMPLOYMENT STATUS FOR THE POPULATION 16 YEARS AND OVER
73	B23008	AGE OF OWN CHILDREN UNDER 18 YEARS IN FAMILIES AND SUBFAMILIES BY LIVING ARRANGEMENTS BY EMPLOYMENT STATUS OF PARENTS
74	B24080	SEX BY CLASS OF WORKER FOR THE CIVILIAN EMPLOYED POPULATION 16 YEARS AND OVER
75	B25002	OCCUPANCY STATUS
76	B25003	TENURE
77	B25004	VACANCY STATUS
78	B25008	TOTAL POPULATION IN OCCUPIED HOUSING UNITS BY TENURE
79	B25014	TENURE BY OCCUPANTS PER ROOM
80	B25017	ROOMS
81	B25024	UNITS IN STRUCTURE

No.	Table ID	Table Title
82	B25034	YEAR STRUCTURE BUILT
83	B25038	TENURE BY YEAR HOUSEHOLDER MOVED INTO UNIT
84	B25040	HOUSE HEATING FUEL
85	B25041	BEDROOMS
86	B25043	TENURE BY TELEPHONE SERVICE AVAILABLE BY AGE OF HOUSEHOLDER
87	B25044	TENURE BY VEHICLES AVAILABLE
88	B25048	PLUMBING FACILITIES FOR OCCUPIED HOUSING UNITS
89	B25052	KITCHEN FACILITIES FOR OCCUPIED HOUSING UNITS
90	B25063	GROSS RENT
91	B25070	GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS
92	B25075	VALUE
93	B25087	MORTGAGE STATUS AND SELECTED MONTHLY OWNER COSTS
94	B25091	MORTGAGE STATUS BY SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS
95	B27001	HEALTH INSURANCE COVERAGE STATUS BY SEX BY AGE
96	B27002	PRIVATE HEALTH INSURANCE STATUS BY SEX BY AGE
97	B27003	PUBLIC HEALTH INSURANCE STATUS BY SEX BY AGE
98	B27011	HEALTH INSURANCE COVERAGE STATUS AND TYPE BY EMPLOYMENT STATUS BY AGE
99	C02003	DETAILED RACE
100	C24010	SEX BY OCCUPATION FOR THE CIVILIAN EMPLOYED POPULATION 16 YEARS AND OVER
101	C24030	SEX BY INDUSTRY FOR THE CIVILIAN EMPLOYED POPULATION 16 YEARS AND OVER
102	B27010	TYPES OF HEALTH INSURANCE COVERAGE BY AGE
103	B20001	SEX BY EARNINGS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS IN THE PAST 12 MONTHS
104	B20003	AGGREGATE EARNINGS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) BY SEX BY WORK EXPERIENCE FOR THE POPULATION 16 YEARS AND OVER WITH EARNINGS
105	B20005	SEX BY WORK EXPERIENCE IN THE PAST 12 MONTHS BY EARNINGS IN THE PAST 12 MONTHS (IN 2014 INFLATION-ADJUSTED DOLLARS) FOR THE POPULATION 16 YEARS AND OVER
106	C15010	FIELD OF BACHELOR'S DEGREE FOR FIRST MAJOR FOR THE POPULATION 25 YEARS AND OVER
107	B16001	LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER