

An Overview of the Improved 2017 Economic Census

Kimberly Moore, William Samples

U.S. Department of Commerce
U.S. Census Bureau
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Introduction

The Economic Census is the U.S. Government's comprehensive five-year measure of American business and the economy. It is conducted by the U.S. Census Bureau, every five years, for reference years ending in '2' or '7'. Response is required by law. Title 13, United States Code (U.S.C.), Section 131, requires businesses and other organizations included in the survey to answer the questions and submit a response. Title 13, United States Code, Section 9, requires the Census Bureau to keep information confidential and allows for the use of responses only to produce statistics. The Census Bureau is not permitted to publicly release responses in a way that could identify a business, organization, or institution.

Data from the Economic Census are important for industries, communities, and businesses. The Economic Census provides the nation with the most comprehensive, detailed, and authoritative facts about the structure and functionality of the economy. Trade associations and chambers of commerce rely on information from the Economic Census for economic development and business decisions. Government agencies, policymakers, analysts and business organizations nationwide also rely on census information for planning and development of key economic reports, such as the Gross Domestic Product (GDP), National Income and Product Accounts (NIPAs), and Producer Price Index (PPI). Data from the Economic Census also provide critical support for the Census Bureau's other economic programs, including the critically important economic indicators.

The extensive and comprehensive data products include over 950 detailed industries across 18 industrial sectors classified using the North American Industry Classification System (NAICS). Geographic Area Series reports containing general statistics will be produced for nearly 21,000 geographic areas including the U.S. Territories. Additionally, over 7,900 goods and services products will be released for the first time on the new North American Product Classification System (NAPCS) basis.

Current Status of the 2017 Economic Census

Based on flat-line funding in FY 2017 and similar levels anticipated in FY 2018, key aspects of the 2017 Economic Census were re-planned. These changes affect the schedule of mailings, data collection, processing and the dissemination of final data products. They also result in a decreased sample size and reduced services for respondents. The Economic Census began in February 2018 with a letter mailed to selected small companies requesting industry classification information. This was delayed from the original mail date of October 2017. The revised due date for these cases is March 2018. Beginning on May 1, 2018 a second letter will request a comprehensive set of economic data elements from all multi-location companies and the remaining sampled smaller companies not included in the February mailing. This is delayed from the original mail date of January 2018. The revised due date for these cases is June 2018. The full cycle of data collection will now take place between February 2018 and February 2019, delayed from the original collection period of October 2017 through October 2018. Data product releases will be delayed up to 6 months compared to their 2012 Economic Census release dates.

An Efficient 2017 Economic Census

In order to maintain the cost and relevancy of the 2017 Economic Census, re-engineering and modernization were required, efficiencies and methodological improvements needed to be identified and implemented. All aspects of the survey life cycle were evaluated and considered for improvement. The Census Bureau targeted four areas in

conducting an efficient 2017 Economic Census. First, move to a 100 percent electronic collection. Second, reduce overall burden for respondents. Third, automate operations to increase productivity by leveraging enterprise solutions. And, lastly, improve the Economic Census data products to reflect our ever-changing economy. Even with the current shift in schedule, the Census Bureau is moving forward with these elements.

Move to a 100 Percent Electronic Collection

Starting with the 2017 Economic Census, stateside response will be entirely paperless. The Census Bureau tested various paperless collection strategies across industry sectors in multiple annual survey programs, including the Annual Wholesale Trade Survey (AWTS), the Annual Retail Trade Survey (ARTS), the Services Annual Survey (SAS), and the Annual Survey of Manufactures (ASM), and incorporated feedback and lessons learned into the approach for the 2017 Economic Census. The intended outcomes include providing businesses an easier and faster way to respond, reducing burden, and improving the overall coverage and data quality. A key driver in the decision to move toward an all electronic collection was the growth of electronic response since the 2002 Economic Census. In 2002, overall electronic response was 16 percent; in 2007 it was 29 percent; and in 2012 it was 53 percent. Additionally, more than 72 percent of all multi-location businesses reported electronically in 2012. The development of the 2017 Economic Census collection strategy included working with focus groups, cognitive testing of potential respondents, reviewing results from controlled experiments, and reviewing lessons learned from the 2012 Economic Census and other economic surveys. This included reviewing the overall effectiveness, quality, and cost of not only paper versus electronic collections, but also various contact methods including an advance letter, due date reminder, accelerated follow-ups, certified mailings, envelope types, and overall messaging. The Economic Census will mail information describing how to access the new electronic instrument in May 2018 to nearly 4 million businesses, including small, medium, and large companies representing all U.S. and U.S. territory locations and industries. Respondents will be asked to provide a range of operational and performance data for their companies. Due to recent weather implications and difficulties with connectivity, paper forms will also be used for all U.S. territories to alleviate any difficulties in reporting electronically.

Reduce Overall Burden for Respondents

As mentioned above, the move to a 100 percent Electronic Collection helps to reduce overall burden for respondents. Within the electronic instrument, there are over 800 different electronic reporting paths, each tailored to a specific industry to assist the respondents in receiving only those applicable questions for each location. Along with this, the Census Bureau has an Account Manager program for the 2017 Economic Census, where staff work with the largest companies prior to reporting. Over the past three economic censuses, the program has shown to improve the quality and timing of responses by providing individual assistance to a select group of the largest companies. This assistance allows larger companies to have a dedicated contact to ask questions, request extensions, and provide overall support when completing the Census. The Account Managers establish working relationships via direct outreach prior to mailout and remain in contact throughout the entire collection process. Overall, there are approximately 1,800 large companies, covering 891 thousand establishments, included in the program for the 2017 Economic Census, an increase of almost 10 percent compared to the 2012 Economic Census, with 200 account managers providing guidance for up to 15 companies each. A Customer Relationship Management (CRM) tool will be used to document all interactions and activities with each assigned company. Although no changes exist in this program compared to the 2012 Economic Census, the program had been expanded for some companies to the Census Bureau's economic annual survey programs for more consistent company contact in preparation for the 2017 Economic Census. Finally, as part of the 2017 Economic Census replan, a reduction in the sample size across all industries was made through efforts in reviewing and updating sampling methodology. A thorough review of all industries was conducted to ensure relevancy and efficiency of the sample. As a byproduct of the replan, this sample reduction reduces the overall response burden for the 2017 Economic Census.

Automate Operations to Increase Productivity by Leveraging Enterprise Solutions

For the 2017 Economic Census, staff leveraged Census Bureau-wide systems for data collection and dissemination to increase productivity and reduce costs. Utilizing an enterprise solution for questionnaire metadata and electronic instrument development allowed for easier content input and sharing across different instruments. Additionally, the use of a common instrument accessed via a secure online portal allows for a common approach for businesses to report on the 2017 Economic Census. This portal allows respondent access to other surveys in which they are also respondents and overall tracking of those responses internally, and allows the Census Bureau a secure mechanism for vital communications with companies. Paradata from the electronic instrument and online portal can also be

reviewed internally to identify opportunities for future improvements. The resulting benefits include eliminating duplicate systems and processes, an increase in efficiency and productivity, reducing respondent burden, a better allocation of resources, and the ability to more easily combine economic statistics with other information disseminated by the Census Bureau. Leveraging an enterprise solution for thorough response-tracking will provide new data quality metrics to aid data collection monitoring and management and the development of new contact strategies featuring targeted communications and adaptive design techniques for industries or areas where response is lagging without incurring additional costs. Finally, moving the 2017 Economic Census data dissemination to an enterprise-level platform enables data users to do more with the massive amounts of valuable content the Census Bureau publishes year round. All Census Bureau data will be accessible through an intuitive and comprehensive search function on Census.gov.

Improve the Economic Census Data Products to Reflect Our Ever-Changing Economy

Census Bureau staff updated the 2017 Economic Census questionnaire content to more closely reflect today's economy. Before each Economic Census, the Census Bureau consults a variety of experts, both within and outside the federal government. The principal sources of advice to the agency are its public advisory committees and key federal data users. Specific industry associations and companies are consulted on particular points, such as the content on a particular questionnaire or set of questionnaires for specific industries. Cognitive testing of new content was conducted, testing the applicability and viability of the questions by industry, with findings and recommendations provided to subject matter experts. With improved content, the Census Bureau is reflecting the most up-to-date information about the changing economy, including some new industry specific content such as self-service technology, cloud computing, retail health clinics, and distance learning. The updated content will provide users with better information to make data-driven decisions.

The incorporation of the North American Product Classification System (NAPCS) product categories into the Economic Census will provide a detailed and comprehensive look at products (goods and services) economy-wide. NAPCS is a comprehensive, market- or demand-based, hierarchical classification system for products that are not industry-of-origin based but can be linked to the NAICS industry structure; consistent across the three North American countries; and promotes improvements in the identification and classification of service products across international classification systems. In prior Economic Censuses, product data was collected in selected industries only and was not formerly classified by NAPCS. Under NAPCS a comprehensive look at all products transacted in the economy will now be available. Various statistical methods were researched for developing estimates based on the NAPCS and are going to be used to support these first-ever product estimates, including the development of Hot Deck Imputation (HDI) methodology for missing product data. Parallel processing techniques that examine editing procedures, integrated automation, and machine learning techniques were also researched and will be utilized during the data review cycle of the 2017 Economic Census.

For recent past Economic Censuses, the check-in rate was used to measure, monitor, and manage data collection and response. However, the check-in rate, defined as the proportion of mailout that has returned a form, does not necessarily indicate receipt of usable data for final publications. For the 2017 Economic Census, the Census Bureau will calculate unit and item response metrics that provide more meaningful information about data quality, and meet OMB and Census Bureau Quality Standards (Office of Management and Budget Standards and Guidelines for Statistical Surveys, September, 2006; U.S. Census Bureau Statistical Quality Standards, 2010). These metrics are the unit response rate (URR), which is the ratio of the total unweighted number of "responding units" to the total number of reporting units eligible for data collection, and weighted item-level response rates, Quantity and Total Quantity Response Rates (QRR and TQRR), that measure the proportion of each estimate obtained directly or indirectly from the survey units. These quality response metrics can only be calculated after completion of all data collection and processing operations, and are not available for managing and monitoring data collection activities. Therefore, we also developed analogous proxy metrics that can be calculated in real time and used, along with the traditional check-in rate, for this purpose. In researching data from the 2012 Economic Census, these proxy response metrics appeared to more accurately reflect the final quality response rates than check-in alone. (Ward & Willimack, 2017).

Staff are also identifying more efficient methods for data editing and review to help alleviate any lag between data collection and data dissemination. Due to the 2017 Economic Census replan, the full 2017 Economic Census publication plan was also reviewed and modified to ensure resources will be placed on reviewing higher priority data to meet stakeholder needs and timing, to the extent possible.

Managing Changes

Many of the previously mentioned modifications and innovations were fostered by trade-offs among the triple constraints – time, resources, and scope – while maintaining quality of the 2017 Economic Census. Project management and project management tools and techniques were used throughout the planning of the 2017 Economic Census and continue to be leveraged in the ongoing implementation. In order to maintain the cost and relevancy of the 2017 Economic Census, all aspects of the survey life cycle were evaluated and considered for improvement as part of our normal planning cycle and then again when developing the replan. Formal lessons learned will be conducted after each phase of the 2017 Economic Census to review these changes and make recommendations for the 2022 Economic Census.

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