Implementing the 2018 Standard Occupational Classification System into Census Surveys

Lynda Laughlin, Julia Beckhusen, Ana Montalvo, and Rochelle Cooper
U.S. Census Bureau - Industry and Occupation Statistics Branch [1]

Abstract

Every eight to ten years, the federal statistical system updates the Standard Occupational Classification (SOC) system. The SOC is used by all federal statistical agencies, including the Census Bureau, to classify workers and jobs into occupational categories. Changes to the occupational classification system are needed to recognize the growth and decline of occupations as well to provide analysts and other data users more occupational detail. However, federal statistical agencies must balance the need for an up-to-date classification system against the ability to track occupational changes over time. First, this paper will describe how the Census Bureau is implementing the 2018 SOC into its household surveys. Second, we will assess how classification updates have shaped the Census occupation code list since 2000. Findings will illustrate how changes in the nature of jobs and the refinement of occupational categories made these revisions to the Census occupational code lists necessary.

Background

Researchers and policy makers have long used occupation as a means of understanding social and economic stratification. The Nation's first system for classifying occupations was the 1850 decennial census, which listed 320 occupations. As the U.S. economy grew more diverse, employing people in a variety of jobs, creating a standard, comparable system of classifying work became a critical and necessary task for the federal statistical system.

The Standard Occupational Classification (SOC) system was initially developed in the late 1960s and used by a limited number of federal agencies when it was first published in 1977. The SOC primarily classifies workers based on the type of work performed, rather than the education or training required. The SOC was revised for 1980, with subsequent revisions in 2000 and 2010 and is the standard used by all federal statistical agencies who publish occupational data for statistical purposes. In November 2017, the Office of Management and Budget (OMB) released the 2018 SOC. The 2018 SOC system contains 867 detailed occupations. Over the course of the next few years federal statistical agencies, including the Census Bureau, will incorporate the 2018 SOC codes and guidelines.

The Census Bureau has developed and maintained its own occupation code list since it started collecting data on occupations in the 1850 decennial census. The Census Bureau occupation code list has followed the structure of the SOC since 1980, but the Census Bureau aggregates smaller categories for confidentially and statistical precision. The 2018 Census occupation code list, based on the 2018 SOC, will be released in the fall of 2019 with the release of the 2018 American Community Survey. The

---

[1] This research is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The view expressed on statistical or methodological issues are those of the authors and not necessarily those of the U.S. Census Bureau.

updated 2018 Census occupation code list provides 570 specific occupational categories, including four military occupations, arranged in 23 major occupational groups.

Objectives

The goal of this paper is twofold. First, this paper will outline how the Census Bureau is implementing the 2018 SOC. The updated classification system resulted in a deletion of 125 Census occupation codes, the addition of 155 Census codes, with a net gain of 30 new Census occupation codes since the last update in 2010. This paper will also describe updates made to the *Alphabetical Indexes of Industries and Occupations*, the primary list of job titles that has been developed over time by the Census Bureau to code write-in responses to the most appropriate occupation code. Updating the Census occupation code list involves using a variety of methods guided by theories of work and occupations, with the goal of producing a classification system that is both descriptive and enumerative.

Second, this paper will illustrate how changes to the SOC and corresponding Census occupation code lists have evolved since the 2000 SOC, resulting in the expansion, combination, and disappearance of occupations. At the detailed occupation level, there are numerous differences between the 2018 Census occupational classification and the earlier classifications. With the introduction of the 2018 classification, dozens of new detailed occupations were introduced, the scope of many other occupations were redefined (although the titles did not always change), and some occupations were discontinued—all creating breaks in series comparability and opportunities to examine a changing economy.

Figures 1 and 2 provide a preview of some of the changes that were implemented into the 2018 Census code list and how the updated Census code list compares with past classification years. For example, the 2000 SOC occupation "Computer scientists and systems analysts" split into four new occupations. Then, the 2010 occupation "Computer occupations all other", was assigned a new code in 2018 and crosswalked, at least partially to four occupations, including two occupations new to the 2018 SOC, "Project management specialists" and "Web or digital interface designers".

There are times when the Census occupation code list must combine or aggregate SOC occupation titles due to sample size. Figure 2 illustrates such a situation. At the detailed occupation level, the 2002 and 2010 Census code lists classified various textile related occupations. However, internal analysis indicated the number of workers in these textile related occupations were declining and too small to show separately in published tables. Therefore, for the 2018, Census combined these occupations into a single occupation and assigned a new code.

Today, all federal statistical agencies are required to use the SOC to classify workers and jobs into occupational categories for the purpose of collecting, calculating, analyzing, or disseminating data. This paper will describe the process used by the Census Bureau to implement the 2018 SOC in its household surveys. Findings will also illustrate how classification updates overtime have moved "workers" from one occupation to another occupation either because of a classification change or a change in the workforce. Overall, the process and scope of changes described in this paper will be of interest to those who study occupational outcomes as well as those interested in how federal statistical surveys adapt and incorporate changes in response to social and economic changes in the American workforce.

Figure 1. Example of Occupations that Split Since 2000

2010 Census Title

Computer and information research scientists

Computer systems analysts

Computer network architects

2002 Census Title

Computer scientists and system analysts

Computer occupations, all other

2018 Census Title

Project management specialists

Computer occupations, all other

Database administrators and architects

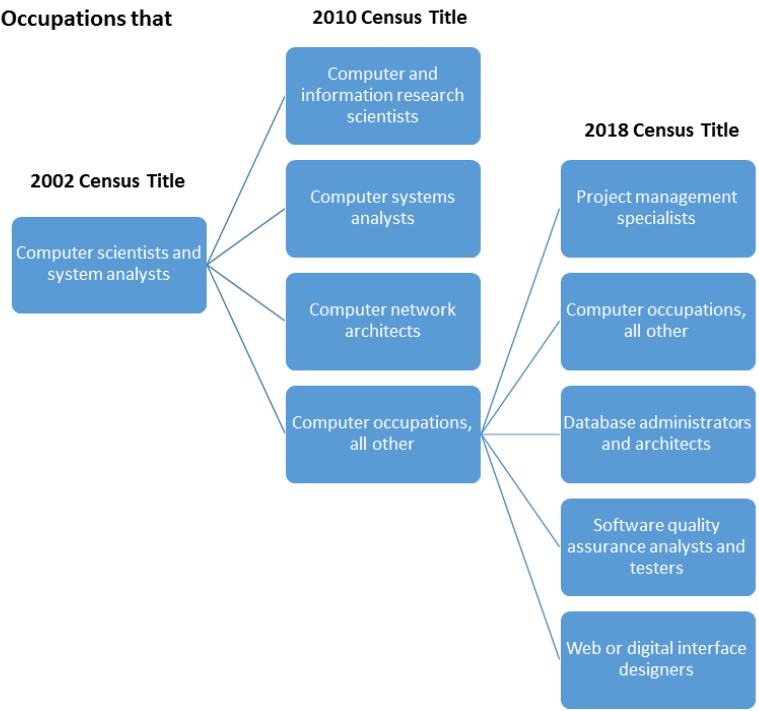Software quality assurance analysts and testers

Web or digital interface designers

Figure 2. Example of Occupations that Combined Since 2000

2002 Census Title   **2010 Census Title**

Textile bleaching and dyeing machine operators and tenders — Textile bleaching and dyeing machine operators and tenders

Textile cutting machine setters, operators, and tenders — Textile cutting machine setters, operators, and tenders

Textile knitting and weaving machines setters, operators, and tenders — Textile knitting and weaving machines setters, operators, and tenders

Textile winding, twisting, and drawing out machines setters, operators, and tenders — Textile winding, twisting, and drawing out machines setters, operators, and tenders

2018 Census Title

Textile machine setters, operators, and tenders