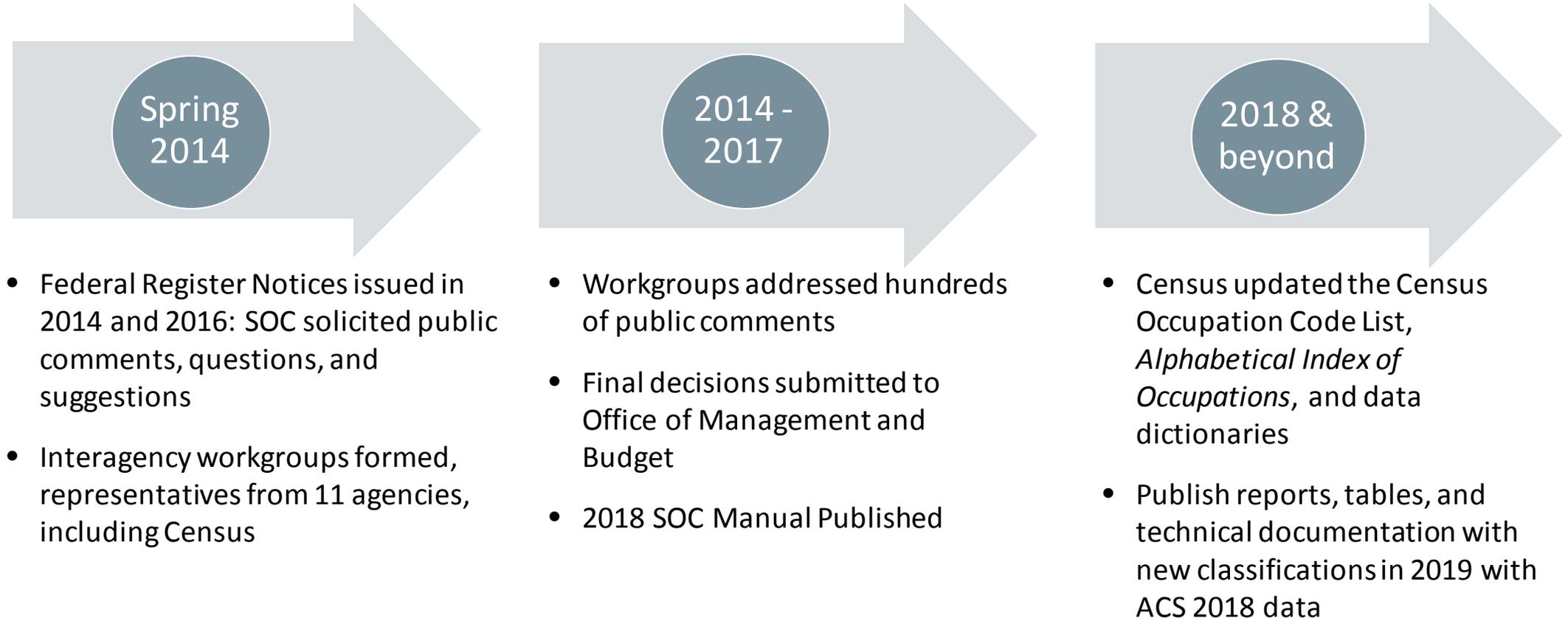


From a 6-Digit to a 4-Digit Code: How the Census Bureau Implements the Standard Occupation Classification (SOC) System

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2018 SOC and Census Revision Process



How and Why is the Census Occupation Code List Different from the SOC?

- The Census Bureau has maintained its own code list since 1850
- The Census Occupation Code List is used to code all household surveys collected for or by the U.S. Census Bureau (American Community Survey, Current Population Survey, etc.)
- The Census Occupation Code List is an aggregate form of the SOC
 - Collectability
 - Confidentiality and statistical precision as required by Census Disclosure Review Board
- Every 4-digit Census code crosswalks to an 6-digit SOC code
 - The majority of Census codes crosswalk to a broad occupation group
 - Was a three digit code prior to 2000. Fourth digit added for greater flexibility to modify

Updating the Census Code List : Past and Present

Classification Year	Census (# of detailed occupations)	SOC (# of detailed occupations)
2000	504	821
2010	540	840
2018	570 <ul style="list-style-type: none">• 125 codes deleted• 155 new codes added	867



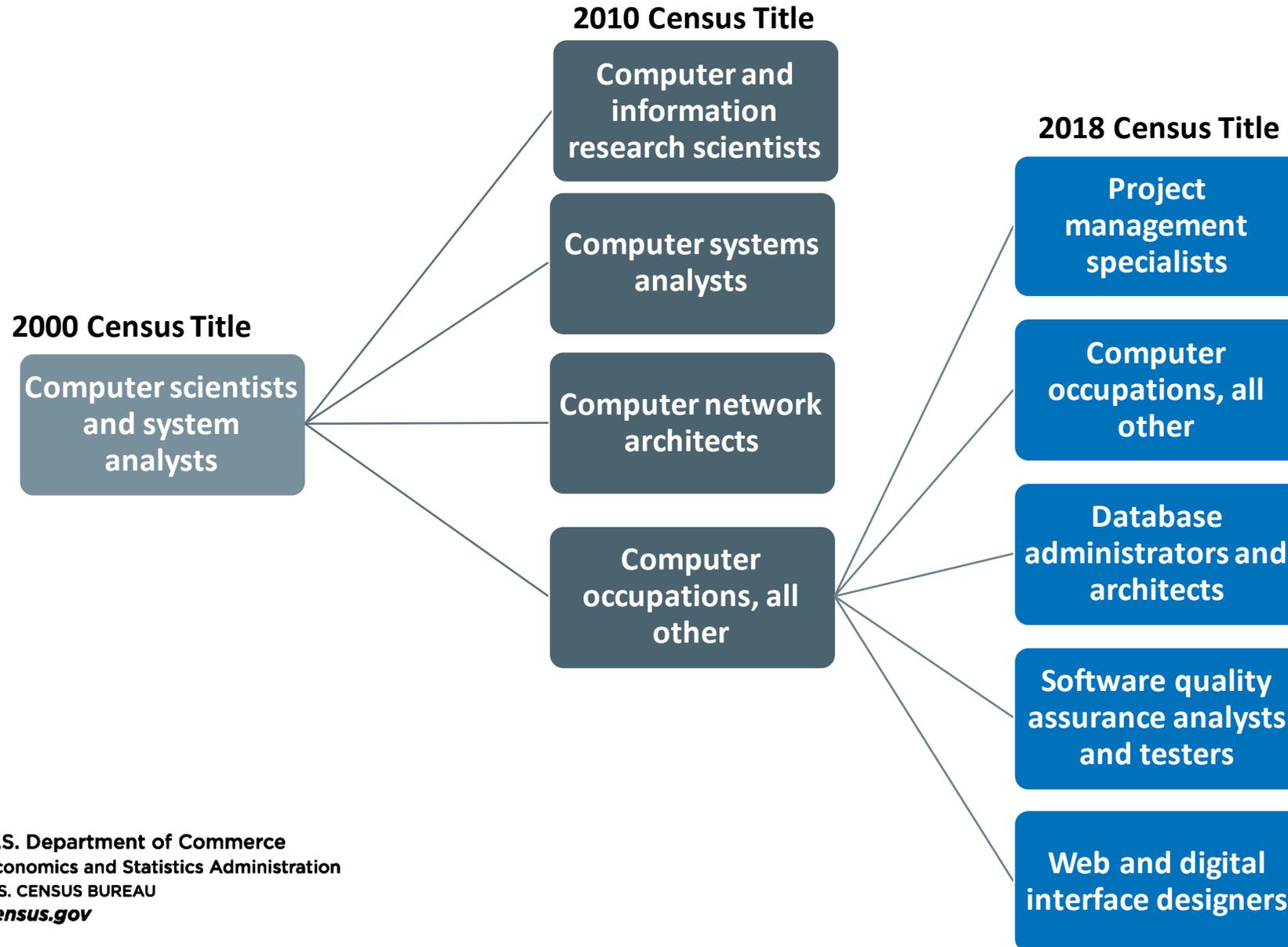
Use caution when comparing over time – some occupations codes disappeared, others emerged, and many were split into new categories.

What Constitutes a Census Code List Change?

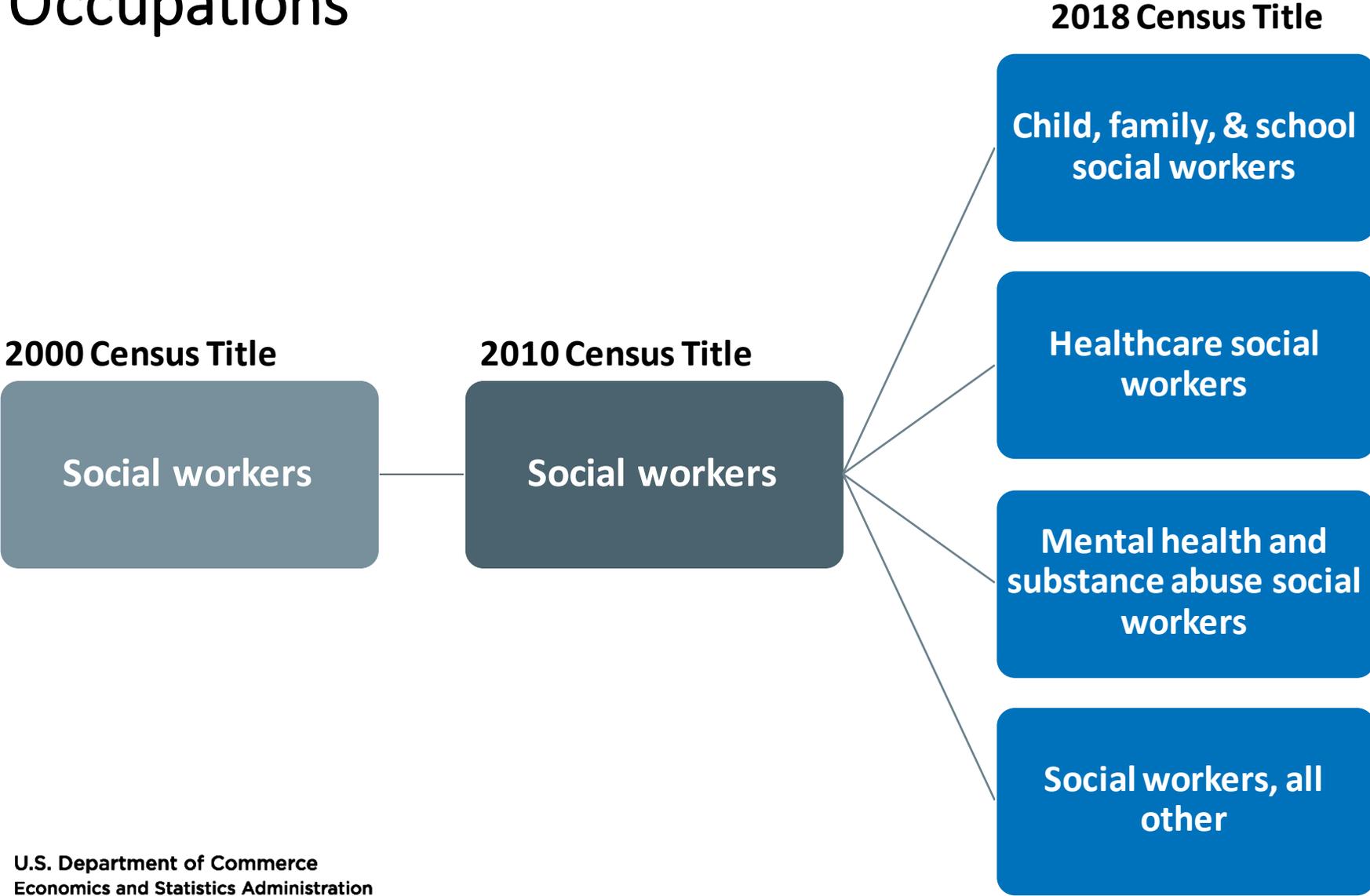
Updates to the SOC as well as modifications made by Census can result in a new occupation code, title change, or both

- A change to the SOC (new occupation, title change, change to major occupation group, etc.)
- Expansion of broad occupation groups
 - Previously collapsed Census occupation has sufficient sample size to be expanded
 - Additional detail makes Census list more similar to the SOC list
- Combined detailed occupations
 - Declining sample size and challenges in collectability can lead to combining detailed occupations
- For 2018, 73 percent of the Census Code List did not change between 2010 and 2018
 - In comparison, 88 percent of the SOC experienced no substantive changes between 2010 and 2018

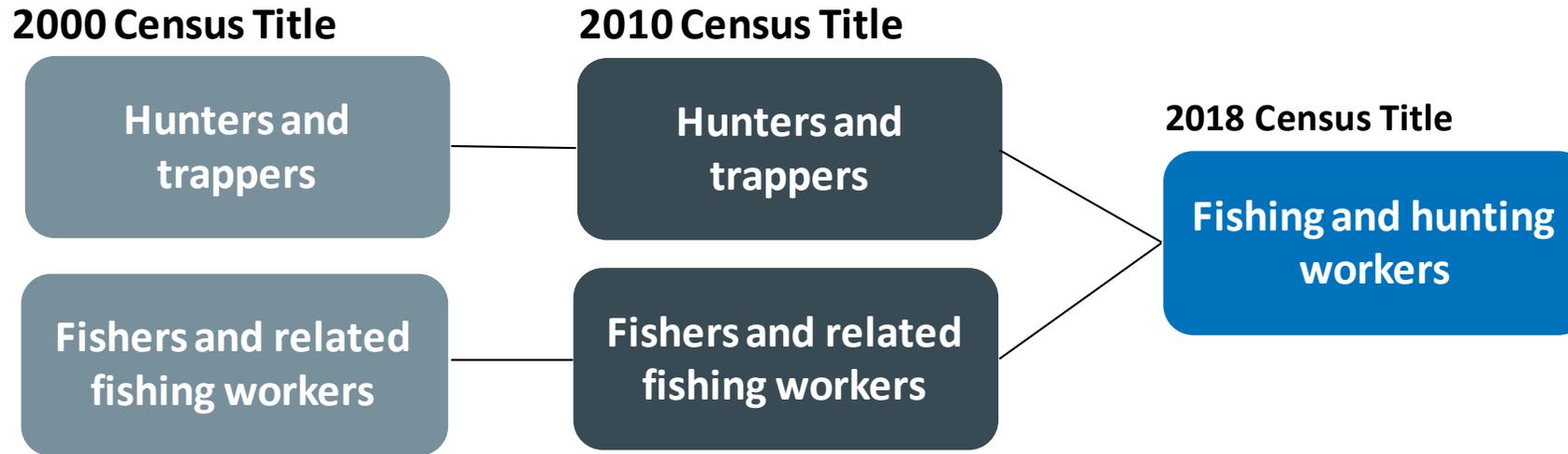
Newly Classified Occupations



Expanded Occupations



Combined Occupations



Snapshot of the 2018 Census Occupation Code List

US Census Bureau 2018 Occupation Code List		
<i>last updated: March 15, 2019</i>		
Occupation 2018 Description	2018 Census Code	2018 SOC Code
The 2018 census occupation classification list has 570 codes including 4 military codes.		
Management, Business, Science, and Arts Occupations:	0010-3550	11-0000 - 29-0000
<i>Management, Business, and Financial Occupations:</i>	<i>0010-0960</i>	<i>11-0000 - 13-0000</i>
Management Occupations:	0010-0440	11-0000
Chief executives	0010	11-1011
General and operations managers	0020	11-1021
Legislators	0030	11-1031
Advertising and promotions managers	0040	11-2011
Marketing managers	0051	11-2021
Sales managers	0052	11-2022
Public relations and fundraising managers	0060	11-2030
Administrative services managers	0101	11-3012
Facilities managers	0102	11-3013
Computer and information systems managers	0110	11-3021
Financial managers	0120	11-3031
Compensation and benefits managers	0135	11-3111
Human resources managers	0136	11-3121
Training and development managers	0137	11-3131

Yellow = New occupation, code, title
 Red = Change to Census code and/or SOC

Documentation and crosswalks available at in Fall 2019:

<https://www.census.gov/topics/employment/industry-occupation/guidance.html>



U.S. Department of Commerce
 Economics and Statistics Administration
 U.S. CENSUS BUREAU
 census.gov

Alphabetical Index of Occupations

- Lists over 30,000 occupation titles in alphabetical order
- Primary tool used by clerical coders to assign the best match to a 4-digit Census Occupation Code
- Includes all titles listed in the SOC Direct Match Title File (DMTF)
- Updated continuously based on staff review of write-in data and input from clerical coders at the National Processing Center (NPC)
- For the 2018 classification update, approximately 2,000 titles were modified (assigned to a new Census occupation code or added to the index)

From a Write-in to a Census Occupation Code: Example from American Community Survey

45 What kind of work was this person doing?
(For example: registered nurse, personnel manager, supervisor of order department, secretary, accountant)

Web designer

46 What were this person's most important activities or duties?
(For example: patient care, directing hiring policies, supervising order clerks, typing and filing, reconciling financial records)

Develop websites

- Additional variables used to code or edit responses:
- county
 - state
 - age
 - sex
 - education
 - class of worker
 - industry
 - active duty military

Alphabetical Index of Occupations	
Job title	2018 Census Occupation Code
Digital designer	1032
Graphic web designer	1032
Web content specialist	1032
Web designer	1032
Web specialist	1032

Assign best code:

- Autocoder
- Clerical coders

4-digit code and title assigned from 2018 Census Occupation Code List:

1032 Web and digital interface designers

2018 Census Occupation Code List based on:
2018 Standard Occupation Classification (SOC) System

→ 1032 Crosswalks to 15-1255 in SOC

What Do All These Changes Mean for Data Users?

- More detail in microdata
- More detail in published tables
- More detail in PUMS
- Greater difficulty in comparing occupation data across time

How Can Data Users Make Comparisons Over Time?

- Example: Project management specialists
- New occupation in 2018 SOC and 2018 Census code list
 - With “old” 2010 code list, were likely coded as:
 - Managers, all other
 - Business operations specialists
 - Computer occupations, all other
 - How can data users make comparisons across time?
 - Need to know the proportion of each “old” occupation that was actually project management specialists
 - These proportions, “conversion rates” are provided by Census with every new code list released

How Can Data Users Make Comparisons Over Time?

- Example: Nurse practitioners, new Census occupation in 2010
- A data user wants to compare Nurse practitioners between ACS 2009 and 2010
 - Find occupation table on data.census.gov and look for Nurse practitioners
 - In 2010, Nurse Practitioners are there along with other nursing occupations

Registered nurses
Nurse anesthetists
Nurse midwives
Nurse practitioners

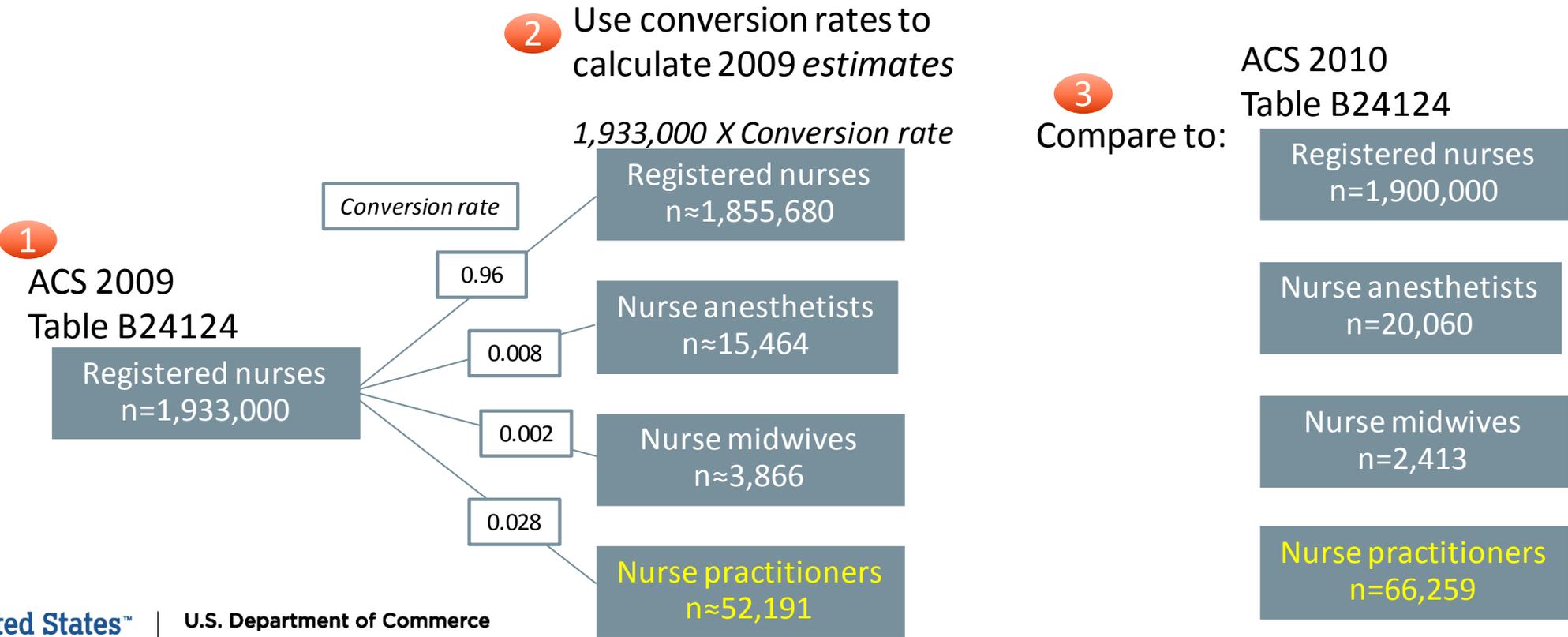
- In 2009, only see a line for Registered nurses

Podiatrists
Registered nurses
Audiologists

- Tables do not have a line for Nurse practitioners before 2010

How Can Data Users Make Comparisons Over Time?

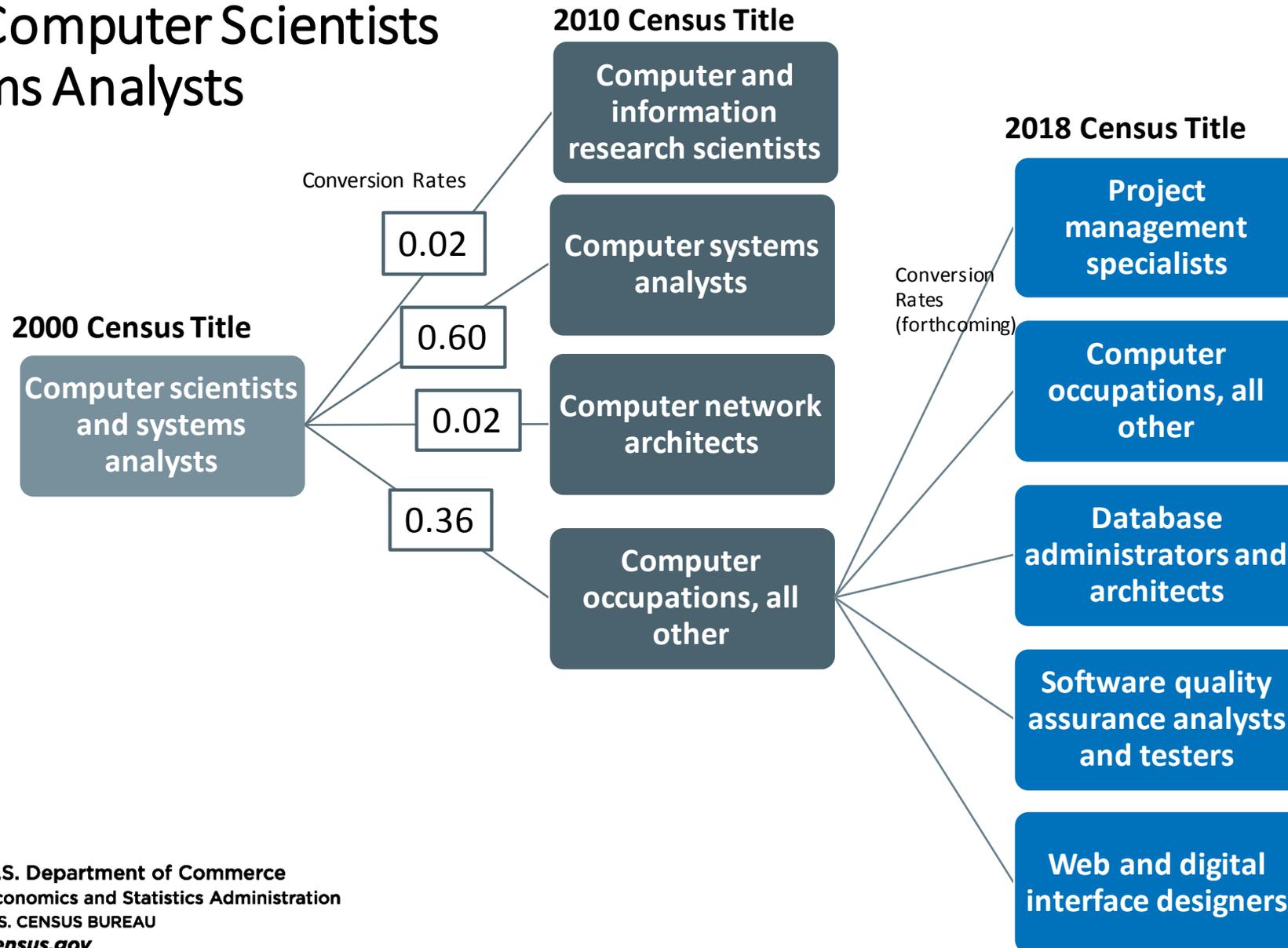
- Example: compare Nurse practitioners between 2009 and 2010



How Can Data Users Make Comparisons Over Time?

- How are the conversion rates created?
 - Data from 2014-2017 ACS was double coded using the “new” 2018 code list
 - Autocoder, Clerical coders
 - Example: a 2015 response for occupation, “Project manager” that was coded as 0430 Manager, all other from the 2010 list would likely be double coded as 0705 Project management specialist
 - Cross-tabulations of the old codes by the new codes in SAS to calculate the proportion of cases with each old code that was double coded into the new code
 - Total
 - By sex, educational attainment
 - Conversion rate = proportion of cases with old code double coded to the new code

Example: Computer Scientists and Systems Analysts



Takeaways and Forthcoming

- NEW 2018 Census Occupation Code List; based on NEW 2018 SOC
- Census Occupation Code list used to code household surveys collected by the Census
- More detailed occupation data in ACS 2018 released this Fall
 - 1-year, 5-year and PUMS
- New Occupation tables will no longer be directly comparable with previously released tables (even if the title remains the same)
- Documentation released this Fall
 - Technical paper
 - Occupation code list crosswalks between 2010 and 2018
 - Conversion rates
 - Separate set of conversion rates for PUMS

Contact Information

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<https://www.census.gov/topics/employment/industry-occupation.html>

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