

Case Study – The Standard Occupational Classification

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❖ Overview

In this case study, I examined the Standard Occupational Classification (SOC), which is a hierarchical classification system to organize all the jobs in the United States. The SOC is created by the Bureau of Labor Statistics (BLS) and used by Federal, State and local government agencies. Although the SOC is a well-structured organization system created by a government agency, we can see some biases reflecting the social, economic, organizational and cultural factors.

Relevant TDO Chapter:

Chapter 6. Categorization – Describing Resource Classes and Types

Chapter 7. Classification – Assigning Resources to Categories

Key Concepts:

Institutional Categories, Hierarchical Classification, Classification Based on Multiple Properties

Additional Deliverable

As examples to illustrate the classification based on multiple properties in the Standard Occupational Classification, I created flowcharts to classify jobs in two fields: “Finance and Accounting” and “Electrical and Electronics.” They will show us how jobs in a similar field are classified into different categories.

❖ What is being organized?

The SOC covers all jobs in the national economy, including occupations in the public, private, and military sectors. A single job is classified into a single category. The classification principle defines occupations as work performed for pay or profit, including work performed in family-operated enterprises by family members who are not directly compensated.¹ It excludes occupations unique to volunteers.

❖ Why is it being organized?

The SOC is designed as a common framework for categorizing and analyzing occupations. All Federal agencies conducting statistics about labor are required to use this system, and State and local government agencies are strongly encouraged to use it. By establishing common classification schema, it is possible to compare labor statistics from different data sources. This would benefit many people

¹ “Classification Principles and Coding Guidelines, 2010 SOC” U.S. Bureau of Labor Statistics (2010)
http://www.bls.gov/soc/soc_2010_class_prin_cod_guide.pdf

relying on such statistics, including job training providers, jobseekers, students, business and researchers who study the supply and demand of labor².

❖ How much is it being organized?

Created by the government agency, the SOC is a rigid organizing system with detailed definitions for each job. Jobs are classified based on a hierarchy with 23 major groups, 97 minor groups and 461 broad occupations. All jobs in this system are mutually exclusive – the definition of a job describes not only what is included in that job, but also specifies what is excluded.

❖ When is it being organized?

The SOC is revised every several years. In this case study, I used the 2010 SOC. The previous version is the 2000 SOC, and the next version will be the 2018 SOC. The revision process takes several years. For example, the revision process of the SOC 2018 started in early 2012.

❖ How or by whom is it being organized?

In the revision process, the Office of Management and Budget (OMB) charts the interagency SOC Policy Committee (SOCPC) chaired by BLS. Representatives from several different government agencies work together to share their expertise in different fields. Comments from the public are also gathered during the process.

❖ Other considerations

Since there are numerous types of jobs and they differ in every aspect, there is no obvious way to classify them. Here, I will explain some of the design decisions embedded in the SOC.

At first glance, the SOC seems to classify jobs based on the industrial field. For example, the major groups distinguish “Healthcare Practitioners and Technical Occupations,” “Farming, Fishing, and Forestry Occupations” and “Transportation and Material Moving Occupations,” which are obviously in different industrial sectors.

However, the SOC sometimes classifies jobs in similar fields into completely different groups. For example, “Electrical Engineers” are classified into the major group “17-0000 Architecture and Engineering Occupations,” while “Electricians” are classified into “47-0000 Construction and Extraction Occupations.” Also, “Accountants and Auditors” are included in “13-0000 Business and Financial Operations Occupations,” while “Bookkeeping, Accounting, and Auditing Clerks” are included in “43-0000 Office and Administrative Support Occupations.”

These examples show that the complexity and the influence of jobs are also an important factor in the SOC. The Classification Principle states “Occupations are classified based on work performed and, in some cases, on the skills, education, and/or training needed to perform the work at a competent

² “Revising the Standard Occupational Classification system for 2010” Theresa Cosca and Alissa Emmel, Monthly Labor Review (2010) pp. 32-41 <http://www.bls.gov/opub/mlr/2010/08/art3full.pdf>

level.”³ The Coding Guidelines specifies that “when workers in a single job could be coded in more than one occupation, they should be coded in the occupation that requires the highest level of skill.”⁴

In the above example, electrical engineers require higher skills than electricians and have greater influence by supervising activities related to electrical engineering. Similarly, accountants and auditors have greater authority than bookkeeping, accounting, and auditing clerks.

The SOC especially distinguishes management occupations from other jobs. The major group “11-0000 Management Occupations” includes jobs from various fields, such as “Computer and Information Systems Managers,” “Farmers, Ranchers, and Other Agricultural Managers,” “Education Administrators” and “Funeral Service Managers.” This shows that the classification system is significantly influenced by the organizational structure of industries.

The SOC not only includes arbitrary design decisions, but also contains political, social and cultural biases. We can observe them through the inequality in granularity and what is excluded from certain jobs in the definitions. The clearest example is computer occupations. Instead of being classified as “17-0000 Architecture and Engineering Occupations” > “17-2000 Engineers” > “17-2070 Electrical and Electronics Engineers,” they consist the major group “15-0000 Computer and Mathematical Occupations.”

The followings are other examples:

- 17-3020 Engineering Technicians, Except Drafters
- 25-2011 Preschool Teachers, Except Special Education
- 43-4160 Human Resources Assistants, Except Payroll and Timekeeping
- 47-5020 Earth Drillers, Except Oil and Gas
- 53-6060 Transportation Attendants, Except Flight Attendants

We can think of some factors influencing the classification. First, the size of the sectors would be a significant factor. For instance, computer related jobs are probably distinguished because of the enormous scale of the industry in today’s society. Another possible factor is the license required for the jobs. In the above examples, special education teachers might have been excluded from ordinary teachers because they need different license. Finally, there might be an influence of cultural categorizations. We regard flight attendant as a unique job, and this is reflected in our vocabulary. This can be one of the reasons why the SOC distinguishes flight attendants from other transportation attendants.

These examples illustrate that even a well-organized institutional classification system like the SOC contains some biases. Perhaps, there is no organizing system which is perfectly neutral and unbiased.

³ “Classification Principles and Coding Guidelines, 2010 SOC”

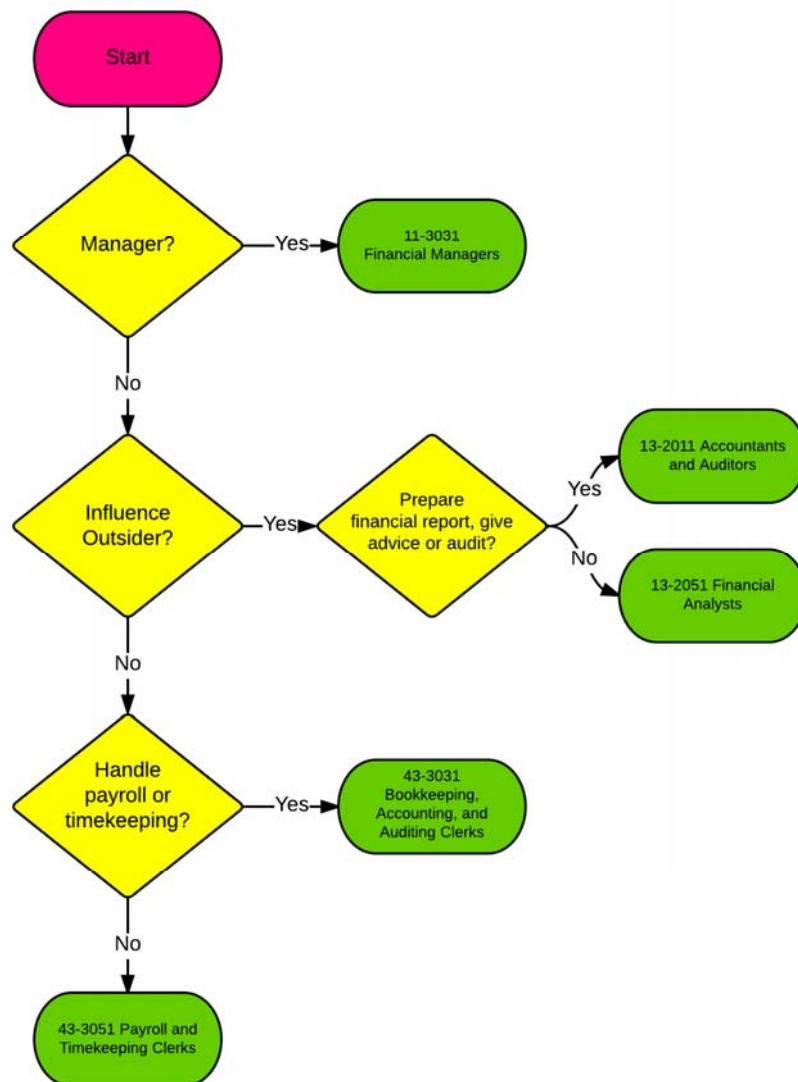
⁴ Ibid.

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Finance and Accounting – Flow Chart



Finance and Accounting – Definitions of the Jobs

11-3031 Financial Managers

Plan, direct, or coordinate accounting, investing, banking, insurance, securities, and other financial activities of a branch, office, or department of an establishment.

13-2011 Accountants and Auditors

Examine, analyze, and interpret accounting records to prepare financial statements, give advice, or audit and evaluate statements prepared by others. Install or advise on systems of recording costs or other financial and budgetary data.

13-2051 Financial Analysts

Conduct quantitative analyses of information affecting investment programs of public or private institutions.

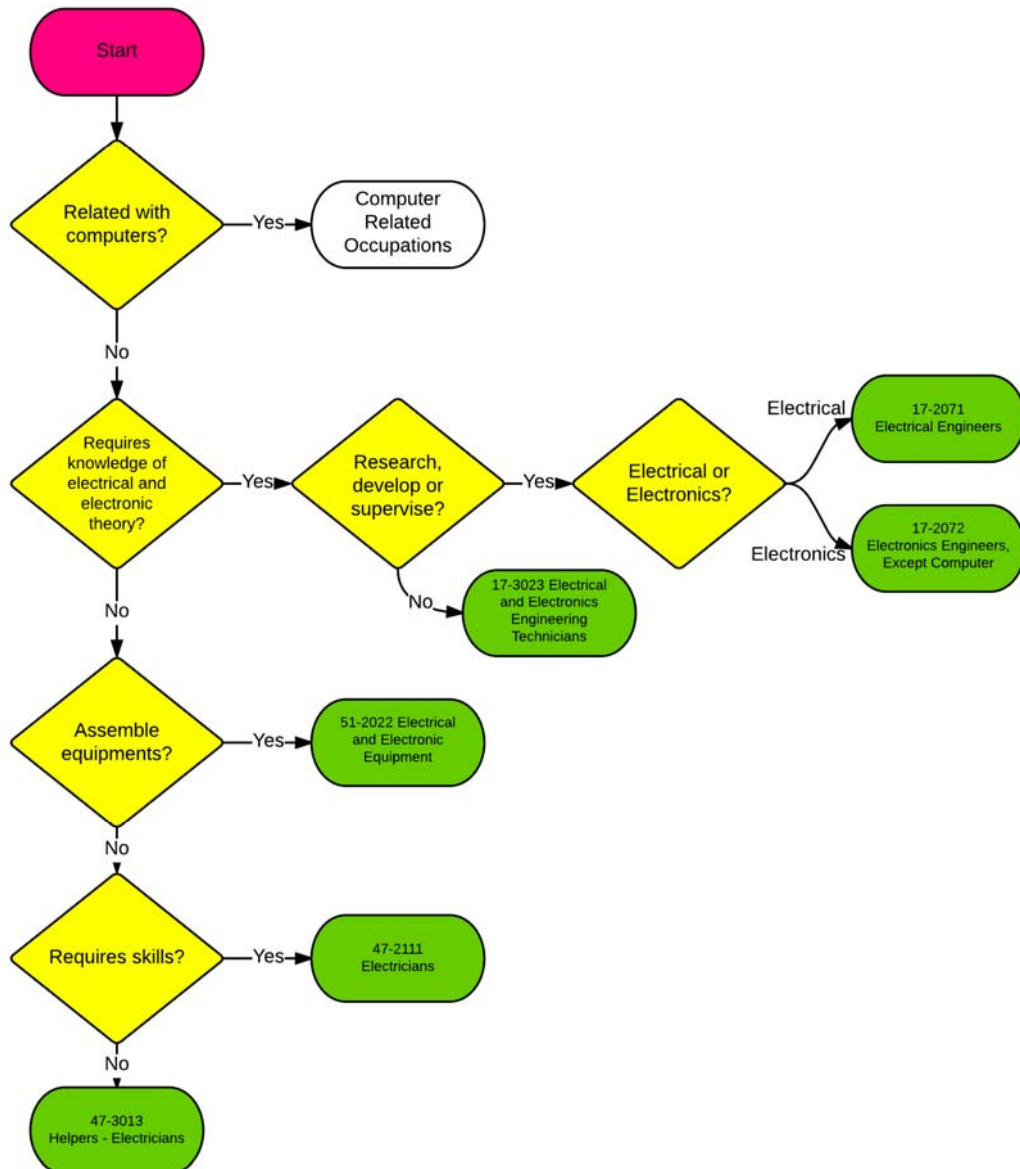
43-3031 Bookkeeping, Accounting, and Auditing Clerks

Compute, classify, and record numerical data to keep financial records complete. Perform any combination of routine calculating, posting, and verifying duties to obtain primary financial data for use in maintaining accounting records. May also check the accuracy of figures, calculations, and postings pertaining to business transactions recorded by other workers. Excludes "Payroll and Timekeeping Clerks" (43-3051).

43-3051 Payroll and Timekeeping Clerks

Compile and record employee time and payroll data. May compute employees' time worked, production, and commission. May compute and post wages and deductions, or prepare paychecks. Excludes "Bookkeeping, Accounting, and Auditing Clerks" (43-3031).

Electrical and Electronics – Flow Chart



Electrical and Electronics – Definitions of the Jobs

17-2071 Electrical Engineers

Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. Excludes "Computer Hardware Engineers" (17-2061).

17-2072 Electronics Engineers, Except Computer

Research, design, develop, or test electronic components and systems for commercial, industrial, military, or scientific use employing knowledge of electronic theory and materials properties. Design electronic circuits and components for use in fields such as telecommunications, aerospace guidance and propulsion control, acoustics, or instruments and controls. Excludes "Computer Hardware Engineers" (17-2061).

17-3023 Electrical and Electronics Engineering Technicians

Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, calibrate, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions.

47-2111 Electricians

Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems.

47-3013 Helpers—Electricians

Help electricians by performing duties requiring less skill. Duties include using, supplying or holding materials or tools, and cleaning work area and equipment.

51-2022 Electrical and Electronic Equipment Assemblers

Assemble or modify electrical or electronic equipment, such as computers, test equipment telemetering systems, electric motors, and batteries.