

Guidelines for Using the CIP-SOC Crosswalk

National Center for Education Statistics and Bureau of Labor Statistics

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Purpose and uses of the CIP-SOC crosswalk

The purpose of the CIP to SOC crosswalk is to provide data users with a resource for relating the Classification of Instructional Programs (CIP) and the Standard Occupational Classification (SOC). A CIP-SOC relationship indicates that programs classified in the CIP category prepare individuals directly for jobs classified in the SOC category. Potential uses for the CIP-SOC crosswalk include but are not limited to:

1. Presenting data on and analyzing the relationship of education and training programs to the labor market;
2. Analyzing labor market supply-demand conditions and trends;
3. Providing information on the labor market for use in making education and training program funding decisions, including expansion or contraction of program offerings;
4. Providing information on tasks and other characteristics of occupations related to programs for use in developing and maintaining education and training curriculum;
5. Providing information and guidance to individuals in making decisions about careers and education or training choices or conducting a job search, by using the crosswalk to help answer questions such as "For what occupations might this type of education or training program qualify me?" and "To get a job in this occupation, what type of programs should I take?" ; and
6. As a basis for mapping CIP and SOC to career clusters and career pathways.

This document is intended to assist crosswalk users by providing guidelines in how it might be applied and background information on how the crosswalk was developed.

Guidelines for using the CIP-SOC crosswalk

The CIP-SOC crosswalk is an important tool in relating data about programs to data about occupations and the labor market. This type of analysis can help inform decisions about training programs, such as whether to expand, contract, start up, or end specific programs.

Units of analysis. Analyses of programs and occupations often use "units of analysis" to approximate the occupational labor market. Units of analysis are "groups (clusters) of related occupations and structured training programs that approximate occupational labor markets. The grouping of occupations

and their job openings and related training programs and their graduates (completers) allows demand data to be compared to institutional supply information from education and training programs.”¹

The CIP-SOC crosswalk provides a starting point for developing units of analysis. Analysts should also take into account information about the specific training institutions or programs in their area, or industries and occupations important in their area’s economy, when applying the crosswalk for this purpose.

Career clusters. Career clusters are “groupings of occupations that are aggregated, because workers in these career areas share similar interests and strengths. Each cluster includes numerous occupations that require varying degrees of education and training.”² The National Association of State Directors of the Career Technical Education Consortium has identified 16 Career Clusters.³ The CIP-SOC crosswalk is useful in developing career clusters.

Level of education. In using the crosswalk, users should also take into account the level of education required for entry into the occupation. Programs classified in a CIP category may be offered at various levels of education (e.g., Associate’s, Bachelor’s, or graduate level). It may not be appropriate, for example, to consider the number of completers of programs at the Associate’s level as supply to occupations where a bachelor’s or higher degree is required. General information on education and training requirements of occupations is available from the Bureau of Labor Statistics (BLS) Employment Projections program.⁴ BLS also provides data on the educational attainment distribution of workers by occupation, using data from the Census Bureau’s American Community Survey.⁵

How NCES and BLS developed the 2010 CIP-SOC Crosswalk

The National Center for Education Statistics (NCES) and BLS worked together to prepare the 2010 crosswalk. The process began with using the existing crosswalk between the 2000 editions of CIP and SOC and the crosswalks between the 2000 and 2010 CIP and between the 2000 and 2010 SOC. This initial file was divided into portions related to new or changed SOCs, new or changed CIPs, and unchanged codes. These portions were reviewed and modified according to the guiding principles presented below. Generally, the review was accomplished by an initial review conducted by one agency, and the file and changes proposed by the first agency were reviewed by the other agency. Differences in recommendations were then resolved by conference calls. The two agencies convened a meeting with external expert reviewers to obtain comments on the guidelines and the CIP-SOC mapping. The final

¹ Occupational Supply Demand System, Georgia Career Information Center, Georgia State University, http://www.occsupplydemand.org/OSD_FAQs.htm

² Occupational Supply Demand System, Georgia Career Information Center, Georgia State University, http://www.occsupplydemand.org/OSD_FAQs.htm

³ <http://www.careerclusters.org/>

⁴ http://www.bls.gov/emp/ep_table_111.htm

⁵ <http://www.bls.gov/emp/> The current education and training categories will be replaced with a new set of categories for the 2010-2020 projections, to be published in December 2011. Educational attainment distributions are presented in Employment Projections Table 1.11.

guidelines and published crosswalk take into account the agencies' consideration of reviewer comments.

Guiding principles for mapping CIP and SOC codes

In developing the crosswalk, NCES and BLS agreed on the following guiding principles.

A CIP-SOC relationship must indicate a "direct" relationship, that is, programs in the CIP category are preparation directly for entry into and performance in jobs in the SOC category. The programs satisfy requirements for entry and/or prepare individuals to meet licensure or certification requirements to work in the occupation.

It is possible that there may be no direct correspondence between a CIP Code and a SOC code. This may occur because the occupation does not require any postsecondary education, because the CIP program is not career related, or because an insufficient number of institutions offer the program, to justify having a CIP Code.

Relationships between CIP and SOC may be one-to-one, one-to-many, many-to-one, or many-to-many. Since SOC codes tend to be more specific than CIP codes, it is likely that one CIP code will map to multiple SOC codes. This is in part because the CIP codes describe instructional programs that will often provide training that can be applied to multiple occupations.

Treatment of certain SOC and CIP categories

NCES and BLS also agreed on the following treatment of certain SOC and CIP categories.

CIP general program codes. The CIP contains general program codes, identified by use of the modifier "General" in the CIP title, such as 01.0101 Agricultural Business and Management, General. Programs coded to these CIPs provide general instruction covering a range of topics within the two digit CIP series, in contrast to more specialized instruction in programs classified in other detailed CIP codes. If the description for a general CIP code includes content preparing an individual to enter a SOC occupation, the CIP code should be identified as related to that SOC. Note that the same SOC may also be mapped to CIPs for specialized programs.

CIP "other" program codes. The CIP contains "other" program codes. At the detailed CIP level, these are codes ending in "99" (code format XX.XX99 or xx.9999) and the title ends in "Other." These codes are intended to include specialized programs that are not classified into other detailed 6 digit CIPs in the same group. For example, CIP 03.0199 Natural Resources Conservation and Research, Other, includes programs that provide specialized instruction in Natural Resources Conservation and Research but are not properly classified in the two detailed 6 digit CIPs in this group: 03.0103 Environmental Studies and 03.0104 Environmental Science.

Where the scope of the group containing an "other" CIP is limited, it may be possible to map the CIP to specific SOC occupations. For example, CIP 45.0299 Anthropology, Other, may be mapped to SOC 19-3091 Anthropologist and Archeologists, where all other CIPs in group 45.02 Anthropology are mapped.

Where the scope of the group containing an “other” CIP is broader, however, it may not be possible to identify SOC codes for which the CIP program provides direct preparation. This is true, in part, because the CIP provides little or no guidance or information about what specialties are actually classified in the “other” CIP code, and the CIP classification allows for variation by state as to what is classified as “other.” An additional factor is that certain residual “other” CIP codes (code format XX.9999) are by design quite wide-ranging, and it cannot be assumed that they provide direct preparation for specific SOC occupations. For example, CIP 11.9999 Computer and Information Sciences and Support Services, Other is very broad, making it impossible to link to SOC codes in any meaningful way. For “other” CIP codes where there is not an obvious SOC match, the SOC assignment for these CIP codes is indicated as “no match” and coded as 99.9999.

SOC “all other” detailed occupations. The SOC includes “all other” or “residual” detailed occupations, identified by codes ending in ‘9.’ These SOC codes include specific occupations that are not properly classified into detailed SOC codes in the same group. For example, SOC 17-3019 Drafters, All Other, includes specific drafting occupations not classified in 17-3011 Architectural and Civil Drafters, 17-3012 Electrical and Electronics Drafters, or 17-3013 Mechanical Drafters.

The 2010 SOC provides a Direct Match Title File (DMTF) that is useful in identifying CIP codes for “all other” SOC codes.⁶ This file lists associated job titles for detailed SOC occupations. Each of these titles is a direct match to a single SOC occupation, meaning that all workers with a job title listed in the DMTF are classified in only one detailed SOC occupation code. For example, the DMTF lists five titles that are direct matches to SOC 17-3019 Drafters, All Other: Blueprint Tracer, Drafting Layout Worker, Draughtsman, Geological Drafter, and Marine Drafter. These titles generally may be used to identify related CIPs for this “all other” SOC.

Because the DMTF is not exhaustive of the job titles that may be classified into the residual, however, matches to “all other” SOC codes should be made only where a good rationale can be provided. Note that it does not automatically follow that a residual CIP code matches up with a residual SOC code.

Identifying CIP-SOC relationships for certain occupational or program groups

Managers. SOC major group 11 (SOC codes 11-XXXX) includes detailed occupations for managers. The SOC definitions for these programs generally contain the terms “plan, direct, or coordinate” to distinguish management tasks. Generally, CIP programs mapped to manager occupations contain these same or similar terms or otherwise indicate that the program provides preparation in management. For example, CIP 52.0801 Finance, General maps to three managerial occupations, 11-1011 Chief Executives, 11-1021 General and Operations Managers, and 11-3031 Financial Managers, because programs in CIP 52.0801 prepare individuals to “plan, manage, and analyze the financial and monetary aspects and performance of business enterprises, banking institutions, or other organizations.”

Supervisors. For SOC occupations in Major Groups 33-0000 through 53-0000, the SOC may contain a first-line supervisory SOC occupation relevant to the non-supervisory occupation. If so, generally the

⁶ See <http://www.bls.gov/soc/#materials>

first-line supervisor occupation should be assigned the CIP programs related to the occupations of workers they supervise. There may also be other CIP programs related to these supervisory occupations. For example, programs that map to detailed occupations in minor group 47-2000 Construction Trades Workers also map to the corresponding supervisory occupation for these workers, 47-1011 First-line Supervisors of Construction Trades and Extraction Workers.

Teachers. Qualifications to enter teaching occupations vary across jurisdictions, types of schools, and levels of education. For SOC occupations for teachers (minor groups 25-1000 through 25-3000), two types of CIP programs were considered: programs that prepare individuals to teach (found in series 13 Education), and programs that provide instruction in the subject matter taught in the SOC occupation (found throughout the CIP in diverse arts and sciences series).

CIP titles and descriptions for programs that prepare individuals to teach usually identify the level of education (pre-school, elementary, etc.). These programs generally are mapped to SOC occupations based on the subject matter and level of education. For example, CIP 13.1301 Agricultural Teacher Education is described as “A program that prepares individuals to teach vocational agricultural programs at various educational levels.” This indicates that this program may be mapped to SOC 25-2023 Career/Technical Education Teachers, Middle School and 25-2032 Career/Technical Education Teachers, Secondary School.

CIP programs that provide instruction in the subject matter taught are generally assigned to detailed occupations in SOC minor group 25-1000 Postsecondary Teachers. For example, CIP 26.0307 Plant Physiology may be mapped to SOC 25-1042 Biological Sciences Teachers, Postsecondary. These programs may also be mapped to middle school and secondary school teacher occupations in SOC minor group 25-2000, unless the subject matter is not generally taught at these levels. For example, because biology is generally taught at the middle and secondary school levels, CIP 26.0101 Biology/Biological Sciences, General may be mapped to SOC 25-2031 Secondary School Teachers, Except Special and Career/Technical Education, and SOC 25-2022 Middle School Teachers, Except Special and Career/Technical Education. However, CIP 26.0307 Plant Physiology would not be mapped to these SOC codes because the subject content is too narrow to provide direct preparation for middle and secondary school teachers.

In applying the crosswalk to compare education program data to employment information for teaching occupations, users should take into account the level of education of program completers and the level of education required in the occupation (e.g., bachelor’s completers would not be qualified for university-level postsecondary positions that generally require a doctorate, but might be qualified for other postsecondary teaching positions). Users should also take into account the teacher entry requirements in their state and local jurisdictions.

Residency programs and physicians and surgeons occupations. CIP group 60, Residency Programs, contains two four-digit groups for classifying residency programs for physicians and surgeons: 60.04 Medical Residency Programs - General Certificates and 60.05 Medical Residency Programs - Subspecialty Certificates. Programs in series 60.04 represent first residency programs for physicians. Programs in

series 60.05 represent advanced residency programs that require the completion of a prior first residency. For all programs in 60.05, the CIP descriptions list programs that are prerequisites for entry.

Programs in 60.04 are mapped to detailed occupations in the SOC broad group 29-1060 Physicians and Surgeons, based on the type of medical care involved. For example, 60.0419 Obstetrics and Gynecology Residency Program is mapped to SOC 29-1064 Obstetricians and Gynecologists. Similarly, programs in 60.05 are mapped to those occupations in SOC 29-1060 for which they provide direct preparation. However, CIP programs in 60.05 are not mapped to the SOC occupations that serve as prerequisites for entry because individuals have already completed that preparation prior to entering the 60.05 residency program.

For example, the description for CIP 60.0525 Hospice and Palliative Medicine Residency Program lists completion of a program in Obstetrics and Gynecology as meeting the prerequisite requirement. This CIP would not be mapped to SOC 29-1064 Obstetricians and Gynecologists on the basis of the prerequisite.