Colorado Adoption/Twin Study of Lifespan behavioral development & cognitive aging (CATSLife1)

OCCUPATION CODEBOOK:
CENSUS 2010 CODING (OCC)
OCCUPATIONAL INFORMATION NETWORK STANDARD OCCUPATIONAL CLASSIFICATION (O*NET SOC)

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Occupation Coding Review

Coding Guidelines for Tricky Occupations or Occupations Missing Titles

Description:

For the OnlineQ, participants were asked two open ended items pertaining to occupation: "What is the most important job you currently have?" and "What is the most important recent job you have had?" where participants freely responded. In cases where participants responded with more than one job title/occupation, responses were separated. Research assistants were then instructed to review each response and code the response to the appropriate U.S. 2010 Census Occupation Code (OCC) by matching the response as best possible match to the associated Occupation Title. A subsequent group of research assistants also match the provided job title to 2019 Occupational Information Network Standard Occupational Classification (O*NET-SOC)

For coding to 2010 OCC, a consensus meeting was organized to set final codes for occupation responses. Consensus members included the project PI, several graduate students, and lab manager. Original coded entries were reviewed for accuracy and under cases where disagreement existed between RAs on code assignment, consensus members chose the final assigned code.

For coding to 2019 O*NET-SOC, a post-doc fellow and two research assistants work together in pairs to review all the codings. A weekly consensus meeting was organized to compare code and set final codes when disagreement exist. Any disagreement would be discussed among the three and assigned a final code. Overall, the inter-rater reliability is 76.2%

Consensus Group Members (OCC)

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Consultant Group Members

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Associated Papers:

Literature for census code for homemaker. To review details on decision.

Foster, R. H., Kanotra, S., Stern, M., & Elsea, S. H. (2011). Educational and occupational aspirations among mothers caring for a child with Smith-Magenis Syndrome. *Journal of Developmental and Physical Disabilities, 23*(6), 501-514.

Motz, P. (2018). *Occupational exposure to metals and impact on dementia incidence*

Occupation Indices and Resources

OCC: Census 2010 Industry Index & Census 2010 Occupation Index

O*NET-SOC: O*Net

Variable Table:

Datafiles:

OCC:

Long format: job_census_code_long_29JUL22.sav

Wide format: job_census_code_wide_29JUL22.sav

Logbook: LOGBOOK_Final Census Codes.docx

O*NET-SOC & OCC:

CATSLife_job_title_27Apr23.sav

Table below corresponds to the *CATSLife_job_title_27Apr23.sav*

Variable Name	Item	Original Variable Name
jobCurrent	Lower cases string of self-reported job title (current or most recent)	Obtained from CLQ00006 and CLQ00008
ambiguous	Whether the job title is ambiguous and unclear	
lackRrep	Whether the job title is lack of representation in O*NET-SOC 2019 system or not	
homemaker	Whether the participant self-identified as homemaker or	

	not	
military	Whether the participant self-identified as working in military or not	
privacy_flag	Participant job response altered as original response may provide identifiable information	
jobfrom	Whether the self-reported job title is the current or most recent (1=current, 2 = recent)	
curHaveJob	Do you currently have a job (paid or voluntary)? (1 = yes, 2 = no)	CLQ00005
everHadJob	Have you ever had a job (paid or voluntary)? (1 = yes, 2 = no)	CLQ00007
jobPrestige	Rate your position at current jobor if not currently employed, your most recent job.Which category best describes(d) your job?	CLQ00009
jobHour	How many hours per week do (did) you typically work at this job?	CLQ00010
jobAsCareer	Are you currently working at a job in which you consider to be your career? (1 = yes, 2 = no)	CLQ00011
jobPrepCareer	How much does your current job prepare you for your career?	CLQ00012
careerComm	How committed are you to a career in the field in which you currently are working?	CLQ00013
importantJobCareer	How important is it for you to have a job in which you consider a career?	CLQ00014
EAPrepCareer	How much do you think your current education level has prepared you for your career?	CLQ00015
onetSOC	O*NET-SOC 2019 code for job title	
onetTitle	O*NET-SOC job title	
occ_2010	2010 Census Occupation Code (4 digit code) or SOC code if census unavailable (9 alphanumeric digits)	

Item Values:

Original Questionnaire Items:

CLQ00005 Do you currently have a job (paid or voluntary:
1 = Yes
2 = No
999 = Would Rather Not Answer

CLQ00006 What is the most important job you currently have? (if you would rather not answer, please write n/a in the box)
Participant-entered free response

CLQ00007 Have you ever had a job (paid or voluntary)?

1 = Yes
2 = No
999 = Would Rather Not Answer

CLQ00008 What is the most important recent job you have had?
Participant-entered free response

CLQ00009 Rate your position at current job or if not currently employed, your most recent job.Which category best describes(d) your job?
1 = top executive; proprietor of a major business; professional requiring an advanced degree
      2 = manager; proprietor of a medium business; professional requiring a college degree
      3 = administrative personnel; small business owner; semiprofessional
      4 = sales and clerical work; technician
      5 = skilled manual worker
      6 = machine operator and semiskilled worker
      7 = unskilled worker
      8 = homemaker
      999 = Would Rather Not Answer

CLQ00010 How many hours per week do (did) you typically work at this job?
1 = less than 20 hours
2 = 20 to 30 hours
3 = 31 to 40 hours
4 = more than 40 hours
999 = Would Rather Not Answer

CLQ00011 Are you currently working at a job in which you consider to be your career?
1 = Yes
2 = No
999 = Would Rather Not Answer

CLQ00012 How much does your current job prepare you for your career?
1 = very much
2 = somewhat
3 = not very much
4 = not at all
999 = Would Rather Not Answer

CLQ00013 How committed are you to a career in the field in which you currently are working?
1 = very committed
2 = somewhat committed
3 = not very committed
4 = not at all committed
999 = Would Rather Not Answer

CLQ00014 How important is it for you to have a job in which you consider a career?
1 = very important
2 = somewhat important
3 = not very important
4 = not at all important
999 = Would Rather Not Answer

CLQ00015 How much do you think your current education level has prepared you for your career?
1 = very much
2 = somewhat
3 = not very much
4 = not at all
999 = Would Rather Not Answer

JobCurrent:
No scheme because response is open ended response. For these variables, the participants original response from CLQ00006 or CLQ00008 was preserved and separated if multiple jobs were listed.

Ambiguous
Jobs that were unclear and ambiguous were listed under the variable "ambiguous. These are self-reported jobs that do not have detailed job titles or is too vague to possibly have multiple matches in O*NET's title. For more information on coding protocol and decisions/rationale see "General Guidelines for Occupations" points 4 - 7, specifically resolving coders disagreement.

LackRep
Jobs that were specific, but do not have a clear representation in O*NET-SOC taxonomy, were listed under the variable "lackRep". For more information on coding protocol and decisions/rationale see "General Guidelines for Occupations" points 4 – 7.

Homemaker:
1 = Participant flagged to having a response that indicates being a homemaker, parent, significant other, and responses of a similar nature

Military:
1 = Participant flagged to having a response that indicates holding a job at the military.

Privacy:
1 = Participant flagged to having original response that could potentially be used to identify the participant. These participants' original responses were altered to be less specific.

Jobfrom:
1 = current job (response from CLQ00006)
2 = recent job (response form CLQ00008)

2019 O*NET-SOC code:

The O*NET database is a comprehensive database that provides occupational definitions for professions in the modern-day American workplace. Since the 1990s, the US Department of Labor has developed and maintained the database to provide up-to-date information as the nature of the occupations listed changes. O*NET includes 1016 occupational titles, within with 923 codes included data-level information, and 93 titles without direct information. Examples for those 93 titles without linked up job characteristics are military specific occupation (e.g., air force pilot), and catch-all category used for occupations with a wide range of characteristics that do not fit into one of the detailed O*NET-SOC occupations (e.g., personal care and service workers, all other). For each of the 923 codes with details, O*NET provides information regarding personal requirements, personal characteristics, experience requirements, job requirements, and the state of the labor market. We summarized those job specificities as job characteristics, and all job characteristics are accessible via O*NET-SOC code.

Within the 923 codes, 722 codes are classified by a 6-digit code. These are organized in 22 major groups from management (11-0000 - 11-9199.11) to transportation (53-0000 – 53-7190). For a visual display of the occupational taxonomy, see https://www.onetcenter.org/taxonomy.html. In general, we tried to match participant response to most appropriate job listing following the O*NET-SOC 2019 taxonomy. If the best match is one of the 923 codes with detailed data, we then documented the code. For those 93 titles without detailed data-level information, we searched for similar SOC codes and occupational titles.

Census 2010 Code:

Occupation titles in the 2010 Census Occupation Code are classified by a 4-digit code. These are organized in 22 major subgroupings from "Management (0010-0430)" to "Transportation and Material Moving (9000-9750)". We tried to match participant response to most appropriate job listing within the 2010 Census with the lowest level of specificity unless participant indicated otherwise. Example of non-specific response where code to non-specified (n.s.) industry occupation title:

Participant response "engineer"
2010 Census Occupation Code   2010 Occupation Title
1530   Engineer\n.s.

In rare cases where occupations were unable to be coded within the 2010 Census, the 6-digit code from the 2018 Standard Occupational Classification (SOC) displayed after searching an occupation using the Occupation Information Network (O*Net) Program (https://www.onetonline.org/). The 6-digit SOC code may also include a decimal point and additional digit(s) after the sixth digit to add greater detail to distinguish between occupations in a group (https://www.bls.gov/soc/2018/soc_2018_class_and_coding_structure.pdf). Example:

> O*Net Search: Penetration Testers
> SOC code: 15-1299.04

-99 = participant had response that could not be coded due to being too ambiguous (i.e. "my job"), non-specific reference to working in the military or being a student.

General Guidelines for Occupations Decisions:

The following overview outlines the decision-making process for determining the final occupational codes for participants, especially cases whose listed occupation is "military," "student," "homemaker," or otherwise unclear. These guidelines were developed to ensure consistent decision-making when there is a lack of clarity or disagreement among coders about the appropriate code. The following guidelines are applied to both OCC and O*NET-SOC coding.

The guidelines are not strict decision rules for all cases, as they allow for exceptions in cases where there is sufficient information provided by the participant. For example, if the job title is ambiguous or falls under the "nonidentifiable" category, the guidelines provide decisions for why some "ambiguous" job titles may be coded or set to missing.

In cases where the provided job title is not represented in the coding system, such as "diplomat," the guidelines document how the job was matched to ones with the closest job descriptions, based on factors such as comparative job skills, tasks, training requirements, and wages.

If the industry or level of the occupation title is not known, the guidelines suggest selecting the conservative level code or the code with the brightest outlook. This is especially the case for O*NET-SOC given the abundance of subgroup occupations under each major group jobs. For instance, a teacher would be coded as an elementary school teacher (25-2021.00) rather than middle school teacher (25-2022.00) if their job title is ambiguous.

Overall, these guidelines aim to provide a standardized process for determining final occupational codes, while allowing for flexibility in cases where there is sufficient information provided or the job title does not fit neatly into the coding system.

Decision guidelines were reviewed by Chandra Reynolds, Robin Corley, Shandell Pahlen, Fared Dungore, and Chloe Myers. The O*NET-SOC specific guidelines were reviewed by Anqing Zheng, Aileen Tran, and Haylee Lemus.

1) How to code **military**
    a. Military occupations are not codable within the census 2010 nor O*NET-SOC 2019
        i. Example: military engineer, nurse, or cook
        ii. Decision: Code the military title to a comparable civilian job
        iii. Background resources
        iv. All military occupations are categorized separately from civilian occupations (e.g., job family 55-0000). There is a limitation to use these codes, and these codes will not link up with O*NET indices of skill, knowledge, abilities, etc (e.g., occupation cognitive demand).

1. Refer to SOC military occupation crosswalk, code based on civilian occupation equivalent
   a. see https://www.onetonline.org/crosswalk/MOC/
   b. or download file: Military Occupational Classification (MOC) in MS Access, XLSX, CSV formats (ZIP) from https://www.onetcenter.org/crosswalks.html
   b. If no recognizable job title is given, how do we code?
      i. Example: "US army infantry" "Air Force officer"
      ii. Decision: Refer to SOC occupation codes and set 1 = Military
   c. If only the military branch is given, how do we code these cases?
      i. Example: "US army" "Air Force"
      ii. Decision: Set to NA and 1 = Military
2) How to code **homemakers**.
   a. Homemakers are not codable within the census 2010 nor O*NET-SOC 2019
      i. Decision: In OCC code, homemakers were coded as SOC 39-9099.00: Personal care and service workers, all homemakers- census 2010 code: 4650. However, since 39-9099.00 was an 'all other' title, such that O*NET data is not available for this category, O*NET-SOC code is set to NA, and 1 = homemaker
   b. Background surrounding decision
      i. A thesis by Motz (2018) used the SOC code 39-9099 (Personal care and service workers, all other for homemakers) to categorized homemakers.
         1. Motz, P. (2018). *Occupational exposure to metals and impact on dementia incidence*. https://digital.lib.washington.edu/researchworks/bitstream/handle/1773/42319/Motz_washington_0250O_18690.pdf?sequence=1&isAllowed=y
      ii. Further a study by Foster et al., (2011) found a large majority of self-identified homemakers noted their responsibilities fall under the Personal Care & related occupations major category (e.g., SOC code: 39-0000). Note this study was done with women.
         1. Foster, R. H., Kanotra, S., Stern, M., & Elsea, S. H. (2011). Educational and occupational aspirations among mothers caring for a child with Smith-Magenis Syndrome. *Journal of Developmental and Physical Disabilities, 23*(6), 501-514. https://link.springer.com/content/pdf/10.1007/s10882-011-9241-5.pdf
   c. Some homemakers are not parents, do we code them differently?
      i. Example: "wife" "boyfriend"
      ii. Decision: No, all homemakers or domestic partners are coded the same. There is no reason to assume there is a difference in responsibilities based on parental status. Further, it may introduction sex or age biases into coding decisions.
3) How to code **students**

a. Students are not codable within the census 2010 nor O*NET-SOC 2019.
   i. Decision: Set to missing (-99/NA).
      1. Student is not considered an occupation and even if individuals are full-time students are carry a lot of responsibilities, we cannot presume they are similar to other non-codable responses like military professions or homemakers.
b. Most participants that answer student also put in another job title. How do we code?
   i. Example: "student.   server"
   ii. Decision: Only code to provided job title, as student is set to missing.

4) Other **ambiguous** job titles or **lack of representation** when matched with O*NET-SOC
   a. Research Assistant
      i. Coded as social science research assistants (19-4061.00) as both jobs focuses in preparing publication material, designing programs for analytical tasks, and has comparative training requirements (need considerable preparation) and wages
   b. Sales
      i. Coded as retail salespersons (41-2031.00) if no other specifications
      ii. If they identified as sales representatives for specific company/ service type, coded as
         1. 41-4011.00, Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products
         2. 41-3091.00, Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel
         3. 41-4012.00, Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
   c. Business owner
      i. Combined with occupational rank, such that if they self-identified as medium or small business owner, we coded the title as 41-1011.00 (first-line supervisor of retail workers/business owner/manager).
      ii. The job description best fitted the projected range of work entailed by small business owner, and one of the example job title for this SOC is store manager. It also has an increasing prevalence in job markets and its good coverage in job characteristics.
      iii. If the participant provide managerial roles and self-identified as top-executive, or provided job titles within a large corporative business, we coded the title as general and operations managers (11-1021.00)
      iv. If the self-report includes specific industry, we align the code to fit the specific industry. Example: Yoga studio owner: fitness center manager: 11-9179.01
      v. When industry is not specified, business owner was marked as 1 = lackRep when no other information provided
   d. Doctor/Physician

i. We coded this job as 29-1215.00 (family medicine), given its focus on general primary care and how it fit with the conventional conception of doctor

e. Realtor

    i. Unless specified, we code this job as 41-9022.00 (Sales agent) rather than 41-9021 (broker) to be more conservative of job requirements. Sales agent is job-zone 3 whereas broker is jobzone 4.

f. Therapist

    i. We coded this job as 19-3033.00 (Clinical and Counseling Psychologists), given its broad focus on personal, social, educational, and vocational aspects of life

    ii. Comparatively, when the participant self-identified as counselor or mental health counselor, we coded the job as Mental health counselors (21-1014.00) given its narrower focus on mental health and well-being

g. Social worker

    i. We coded as mental health and substance abuse social worker 21-1023.00 given its prevalence in job market and as social worker is the alternative job titles listed on O*NET for the mental health and substance abuse social workers

    ii. When participants indicated working with family or children, we coded the title as Child, Family, and School Social Workers (21-1021.00)

h. Engineer

    i. Code as Mechanical engineer and technician if job is vague and unspecified: 17-3027.00

i. Banker

    i. Code as new account clerk (43-4141.00) given that banker typically work in banks and their job include opening new accounts for customers and explanation, which matched the duties of bankers (Opening and closing various accounts, such as checking and savings accounts)

j. Program manager

    i. We used Information Technology Project Managers (15-1299.09) for program manager, as the job duties overlapped with that of program manager, such that both are responsible for overseeing the planning, implementation, and completion of technology projects, ensuring that they are delivered on time, within budget, and to the required quality standards.

k. Editor

    i. In the case that participant identifies as editor code as 43-9081.00, Proofreaders and Copy Markers

l. Housing coordinator

    i. There isn't a good match in ONET-SOC referring to coordinator job for rental house. Default to real estate sales agent 41-9022.00 as their job duties overlap in the sense it may involve identifying and negotiating housing arrangements for employees or other clients

   m. Truck driver
     i. We code this job as 53-3032.00 (heavy truck driver), given its better coverage in job characteristics compared to light truck driver and how it fit the conventional conception of truck driver (53-3033.00)

5) Common cases leading to dual entry disagreement:
  a. Only one RA coded the job but the RA other set title to missing
    i. Example: "Labor"- one RA use the laborer census code
    ii. Decision: Check the census code to see if it is appropriate. If it is lower tier for skill-based we can accept it. Otherwise, if still unclear then use occupational rank to code (CLQ00009).
  b. If job title is just a place of business but no title is given or responsibilities
    i. Example: "Ikea"
    ii. Decision: Use occupational rank to code (CLQ00009).
      Note. If category missing or too high given lack of information (i.e. high CEO or high tier manager) then choose conservative lower-tier position such as retail service/customer service
  c. If the job title is too ambiguous to code or may be a joke response.
    i. Example: "i only have one job"
    ii. Decision: Set to missing (-99/NA).
      1. We may not be to take the response seriously, thus setting code to missing and will not use job rank to supplement.
  d. If we have two RAs, select similar but different appropriate codes.
    i. Example: art instructor (one RA coded as art teacher but at the high school level and the other at the college level)
    ii. Decision: If we don't know the industry or level then we select the conservative level code

6) If the job title is completely missing but the participant answered CLQ00009.
  a. OCC: Use occupational rank to code (CLQ00009)
  b. O*NET-SOC: without specific job title, even the industry of it, leaves too much room for interpretation with detailed O*NET-SOC job titles. Thus O*NET-SOC code was left as blank if the job title is completely missing.

7) How to code cases when job title and occupation rank is missing?
  a. Decision: set to missing (-99/NA)

CLQ00009 rank and matched Census 2010 code

"Rate your position at your current job or if not currently employed, your most recent job. Which category best describes(d) your job?"

1 = top executive; proprietor of a major business; professional requiring an advanced degree [census 2010: 0430]

2 = manager; proprietor of a medium business; profession requiring a college degree [census 2010: 0430]

3 = administrative personnel; small business owner; semi professional [census 2010: 0100]

4 = sales and clerical work; technician [census 2010: 4965]

5 = skilled manual worker [census 2010: 6260] [Ind code: 0770]

6 = machine operator and semiskilled worker [census 2010: 8965]

7 = unskilled worker [census 2010: 9620]

8 = homemaker [census 2010: 4650]

Further detail on census code description by occupation rank (CLQ00009)

1 = top executive; proprietor of a major business; professional requiring an advanced degree

Census title- Manager \ n.s.
Census Code- 0430
Industry- n/a
Industry title- \ any not listed

Notes- Crosswalks with 11-9199.00 - Managers, All Other on O*Net which doesn't provide additional details since too general a category. As typical, this code isn't unique and codes to other more specific census titles associated with industries (although most aren't in with this code) such as "Trustee," "Branch chief," etc.

2 = manager; proprietor of a medium business; profession requiring a college degree

Census title- Manager \ n.s.
Census Code- 0430
Industry- n/a
Industry title- \ any not listed
Notes- Crosswalks with 11-9199.00 - Managers, All Other on O*Net which doesn't provide additional details since too general a category. As typical, this code isn't unique and codes to other more specific census titles associated with industries (although most aren't in with this code) such as "Trustee," "Branch chief," etc.

3 = administrative personnel; small business owner; semi professional

Census title- Manager, administrative services
Census Code- 0100
Industry- n/a
Industry title- n/a
Notes- Crosswalks with 11-3012.00 - Administrative Services Managers on O*Net which does say "Most occupations in this zone require training in vocational schools, related on-the-job

experience, or an associate's degree." This code associated with few other census titles that are associated with industry codes such as "manager, customer service"

4 = sales and clerical work; technician

Census title- sales \ n.s.
Census Code- 4965
Industry- n/a
Industry title- \ any not listed
Notes- Crosswalks with 41-9099.00 - Sales and Related Workers, All Other on O*Net which doesn't provide additional details since too general a category. As typical, this code isn't unique and codes to other more specific census titles associated with industries (although most aren't in with this code) such as "Scalper," "Contact person," etc.

No option for a non-specified technician under census occupation codes because all are tied up to some specific industry whether related to healthcare, laboratory, medicine, etc.

5 = skilled manual worker

Census title- Skilled laborer
Census Code- 6260
Industry- 0770
Industry title- Far too many to list (563) but code does fall under specific grouping of "Construction (0770)."
Notes- Although specific to construction, by scanning the 563 industry titles does relate to many different skills and jobs and feel like next code that excludes construction completely limits it.

6 = machine operator and semiskilled worker

Census title- Machine operator \ n.s. or any specified type n.e.c.
Census Code- 8965
Industry- n/a
Industry title- \ any not listed
Notes- As typical, this code does apply to a lot of job titles too that fall under "production workers, all others" group.

7 = unskilled worker

Census title- laborer\n.s.
Census Code- 9620
Industry- n/a
Industry title- \any not listed
Notes- There is note in excel "Unskilled laborer--See "Laborer"" and since this is a very large and broad category, even though as typical there are other job titles associated with this code, seems to be the most nonspecific.

8 = homemaker

Census title- Personal Care and Service Workers, All Other
Census Code- 4650
Industry- n/a
Industry title- \ any not listed
Notes- A thesis by Motz (2018) used the SOC code 39-9099 (Personal care and service workers, all other) to categorized homemakers. Further a study by Foster et al., (2011) found a large majority of self-identified homemakers noted their responsibilities fall under the Personal Care & related occupations major category (e.g., SOC code: 39-0000). Note this study was done with women.

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