

The Nam-Powers-Boyd Occupational Scale for the OCC2010 Classification in the IPUMS American Community Surveys

by
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Introduction

After the 2000 census of population, the American Community Surveys (ACS) replaced the long form of the United States of America decennial census. The ACS is fielded every year by the United States Bureau of the Census as a survey that is sent to a smaller percentage of the population than normally would be covered by the long form. Consistent with the design of the earlier long form, the ACS is legally mandated; persons are required to answer the questions as best they can.

Information on occupations, the bundle of activities and tasks performed by those with labor force employment, has been collected for a long time. The term “occupations” appear in the instructions for the 1820 census of populations although earlier censuses also collected information on occupational-like concepts, such as the trades (Nam and Boyd, 2004; U.S. Bureau of the Census, 2002). Reflecting the broad economic transformations from agrarian to

post-industrial economies over the past 200 years, occupational classifications used in the census and the detail collected have change over time.

Occupational Classifications and Occupational Scales

The American Community Surveys are not exempt from such changes in occupational classifications; indeed, because the ACS is an annual survey, it is subject to minor changes on an annual basis (for recent developments in the censuses and the ACS see:

<http://www.census.gov/people/io/methodology>). Several harmonizations of occupational classifications exist across censuses and the ACS; these are prepared by and are attached to the Integrated Public use Microdata Series (IPUMS), housed at the Minnesota Population Center, University of Minnesota. OCC2010 is the most recent harmonized classification; it uses the ACS 2010 classification to recode the original occupational classifications used in censuses between 1950 and 2000 and in the American Community Surveys from 2001 to 2014. Details are found in: https://usa.ipums.org/usa-action/variables/OCC2010#description_section

Occupational classifications now contain numerous titles, raising challenges for researchers who often are working with 400 to 500 titles, depending on the census or survey year. One strategy is to collapse titles into a comparatively small list of aggregated groups; another is to transform the occupational information contained in these large listings of occupational titles into scales that can then be used to produce point estimates or can be used in multivariate analyses. Over the years, a number of occupational scales have been produced by different researchers (Boyd, 2008; IPUMS, no date; Nam and Boyd, 2004).

The most recent composite scale is produced by Boyd and Nam (2015). It uses the 2010 ACS occupational classification for the OCC variable and rests on a methodology developed by

Charles B. Nam and most recently described as the Nam-Powers-Boyd scale (NPB). Because of the comparatively small sample sizes of the annual ACS, the most recent scale is derived from three years of data from the 2010, 2011 and 2012 ACS files which are part of IPUMS. Interested researchers should consult the 2015 background document and other related papers which provide details on the construction of this scale (Boyd, 2008; Boyd and Nam, 2015; Nam and Boyd 2004). Succinctly, occupations are assigned a score that represent the educational and earnings characteristics of each ith occupational title. Hypothetically, scores range from a low of zero to a high of 100.

Constructing the Nam-Powers-Boyd Scale for the OCC2010 Classification

The Nam-Powers-Boyd scale that was constructed in 2015 rests on data found for the three year ACS files, from 2010-2012 and obtained from IPUMS in the first half of 2015 (Boyd and Nam, 2015). The 2012 ACS recodes 13 occupations into other occupational categories. In order to be consistent across all three years of data, this recoding was also applied to the data from the 2010 and 2011 ACS. The following indicate where those 13 occupational titles were aggregated into another occupation:

(6430=6420)
 (6500=6220)
 (7550=7630)
 (7960=7950)
 (8000=7950)
 (8010=7950)
 (8060=8100)
 (8150=8220)
 (8200=8220)
 (8210=8220)
 (8340=8330)
 (8860=8965)
 (9230=9260)

Additionally, occupational titles for military occupations were omitted as the scale is designed to capture the relative ranking of occupations held by the civilian labour force (workers who were employed on military bases or in military institutions also were omitted – see Boyd and Nam 2015). Altogether, NPB scores were calculated for 474 occupational titles from the OCC variable.

We similarly construct the NPB for the OCC2010 classification with data from the three year ACS, obtained in January 2016. In this file, earnings are transformed into the 2012 equivalent dollars and a single top-coding of earnings exists for all three ACS years. Additionally, because the OCC2010 classification developed by IPUMS is intended to maximize harmonization of occupational classification for censuses and the ACS from 1950, it contains fewer occupational titles than the OCC classification for 2010. When producing the scale for the OCC2010 classification from the 2010-2012 ACS data, we also applied the criteria used in constructing the recent Nam-Powers-Boyd scale from the OCC variable. We recoded the thirteen occupations list above and we omitted military occupations along with omitting a few workers in military settings (see: Boyd and Nam, 2015). Otherwise we followed the same procedures outlined in Boyd and Nam (2015) for constructing the OCC2010 Nam-Powers-Boyd scale. Altogether NPB scores were produced for 449 occupations, derived from the OCC2010 variable and using the 2010-2011 and 2012 ACS data.

As noted in Boyd and Nam (2015), the Nam-Powers method takes into account the shape of the distribution (the density function) as well as the absolute difference between occupations in median education or income. And the value for the i^{th} occupation has a straightforward interpretation: it is the percentage of persons who are in occupations having combined average levels of (median) education and earnings/income lower than the i^{th} occupation.

References

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Occupational Codes for OCC2010, Occupational Titles and the Nam-Powers-Boyd scores, American Community Survey, 2010-2012

2010- 2012 ACS OCC2010 Code	Occupational Title	Nam- Powers- Boyd Score
10	Chief executives and legislators/public administration	93
20	General and Operations Managers	84
30	Managers in Marketing, Advertising, and Public Relations	89
100	Administrative Services Managers	77
110	Computer and Information Systems Managers	92
120	Financial Managers	85
130	Human Resources Managers	85
140	Industrial Production Managers	82
150	Purchasing Managers	87
160	Transportation, Storage, and Distribution Managers	68
205	Farmers, Ranchers, and Other Agricultural Managers	41
220	Constructions Managers	73
230	Education Administrators	92
300	Architectural and Engineering Managers	96
310	Food Service and Lodging Managers	52
330	Gaming Managers	64
350	Medical and Health Services Managers	87
360	Natural Science Managers	97
410	Property, Real Estate, and Community Association Managers	68
420	Social and Community Service Managers	81
430	Managers, nec (including Postmasters)	86
500	Agents and Business Managers of Artists, Performers, and Athletes	66
510	Buyers and Purchasing Agents, Farm Products	57
520	Wholesale and Retail Buyers, Except Farm Products	61
530	Purchasing Agents, Except Wholesale, Retail, and Farm Products	74
540	Claims Adjusters, Appraisers, Examiners, and Investigators	75
560	Compliance Officers, Except Agriculture	83

600	Cost Estimators	75
620	Human Resources, Training, and Labor Relations Specialists	79
700	Logisticians	73
710	Management Analysts	90
720	Meeting and Convention Planners	73
730	Other Business Operations and Management Specialists	82
800	Accountants and Auditors	85
810	Appraisers and Assessors of Real Estate	73
820	Budget Analysts	89
830	Credit Analysts	82
840	Financial Analysts	94
850	Personal Financial Advisors	92
860	Insurance Underwriters	80
900	Financial Examiners	92
910	Credit Counselors and Loan Officers	77
930	Tax Examiners and Collectors, and Revenue Agents	74
940	Tax Preparers	46
950	Financial Specialists, nec	78
1000	Computer Scientists and Systems Analysts/Network systems Analysts/Web Developers	87
1010	Computer Programmers	90
1020	Software Developers, Applications and Systems Software	94
1050	Computer Support Specialists	73
1060	Database Administrators	90
1100	Network and Computer Systems Administrators	82
1200	Actuaries	95
1220	Operations Research Analysts	92
1240	Mathematical science occupations, nec	93
1300	Architects, Except Naval	90
1310	Surveyors, Cartographers, and Photogrammetrists	82
1320	Aerospace Engineers	95
1350	Chemical Engineers	94
1360	Civil Engineers	93

1400	Computer Hardware Engineers	91
1410	Electrical and Electronics Engineers	93
1420	Environmental Engineers	94
1430	Industrial Engineers, including Health and Safety	91
1440	Marine Engineers and Naval Architects	90
1450	Materials Engineers	91
1460	Mechanical Engineers	91
1520	Petroleum, mining and geological engineers, including mining safety engineers	94
1530	Engineers, nec	94
1540	Drafters	71
1550	Engineering Technicians, Except Drafters	71
1560	Surveying and Mapping Technicians	57
1600	Agricultural and Food Scientists	83
1610	Biological Scientists	88
1640	Conservation Scientists and Foresters	85
1650	Medical Scientists, and Life Scientists, All Other	95
1700	Astronomers and Physicists	97
1710	Atmospheric and Space Scientists	93
1720	Chemists and Materials Scientists	91
1740	Environmental Scientists and Geoscientists	91
1760	Physical Scientists, nec	93
1800	Economists and market researchers	98
1820	Psychologists	92
1830	Urban and Regional Planners	94
1840	Social Scientists, nec	82
1900	Agricultural and Food Science Technicians	57
1910	Biological Technicians	64
1920	Chemical Technicians	69
1930	Geological and Petroleum Technicians, and Nuclear Technicians	76
1960	Life, Physical, and Social Science Technicians, nec	54
2000	Counselors	75
2010	Social Workers	77

2020	Community and Social Service Specialists, nec	64
2040	Clergy	77
2050	Directors, Religious Activities and Education	66
2060	Religious Workers, nec	52
2100	Lawyers, and judges, magistrates, and other judicial workers	99
2140	Paralegals and Legal Assistants	70
2150	Legal Support Workers, nec	68
2200	Postsecondary Teachers	83
2300	Preschool and Kindergarten Teachers	50
2310	Elementary and Middle School Teachers	85
2320	Secondary School Teachers	86
2330	Special Education Teachers	82
2340	Other Teachers and Instructors	47
2400	Archivists, Curators, and Museum Technicians	76
2430	Librarians	81
2440	Library Technicians	25
2540	Teacher Assistants	37
2550	Education, Training, and Library Workers, nec	79
2600	Artists and Related Workers	58
2630	Designers	68
2700	Actors, Producers, and Directors	74
2720	Athletes, Coaches, Umpires, and Related Workers	33
2740	Dancers and Choreographers	31
2750	Musicians, Singers, and Related Workers	45
2760	Entertainers and Performers, Sports and Related Workers, All Other	42
2800	Announcers	55
2810	Editors, News Analysts, Reporters, and Correspondents	78
2825	Public Relations Specialists	84
2840	Technical Writers	87
2850	Writers and Authors	74
2860	Media and Communication Workers, nec	57
2900	Broadcast and Sound Engineering Technicians and Radio Operators, and media and communication equipment workers, all othe	66

2910	Photographers	48
2920	Television, Video, and Motion Picture Camera Operators and Editors	64
3000	Chiropractors	94
3010	Dentists	100
3030	Dieticians and Nutritionists	77
3040	Optometrists	98
3050	Pharmacists	98
3060	Physicians and Surgeons	100
3110	Physician Assistants	90
3120	Podiatrists	99
3130	Registered Nurses	84
3140	Audiologists	93
3150	Occupational Therapists	89
3160	Physical Therapists	92
3200	Radiation Therapists	87
3210	Recreational Therapists	71
3220	Respiratory Therapists	77
3230	Speech Language Pathologists	90
3240	Therapists, nec	78
3250	Veterinarians	98
3260	Health Diagnosing and Treating Practitioners, nec	74
3300	Clinical Laboratory Technologists and Technicians	72
3310	Dental Hygienists	73
3320	Diagnostic Related Technologists and Technicians	74
3400	Emergency Medical Technicians and Paramedics	62
3410	Health Diagnosing and Treating Practitioner Support Technicians	53
3500	Licensed Practical and Licensed Vocational Nurses	60
3510	Medical Records and Health Information Technicians	51
3520	Opticians, Dispensing	59
3530	Health Technologists and Technicians, nec	63
3540	Healthcare Practitioners and Technical Occupations, nec	77
3600	Nursing, Psychiatric, and Home Health Aides	33

3610	Occupational Therapy Assistants and Aides	69
3620	Physical Therapist Assistants and Aides	60
3630	Massage Therapists	47
3640	Dental Assistants	45
3650	Medical Assistants and Other Healthcare Support Occupations, nec	46
3700	First-Line Supervisors of Correctional Officers	72
3710	First-Line Supervisors of Police and Detectives	84
3720	First-Line Supervisors of Fire Fighting and Prevention Workers	82
3730	Supervisors, Protective Service Workers, All Other	68
3740	Firefighters	76
3750	Fire Inspectors	72
3800	Sheriffs, Bailiffs, Correctional Officers, and Jailers	57
3820	Police Officers and Detectives	78
3900	Animal Control	44
3910	Private Detectives and Investigators	74
3930	Security Guards and Gaming Surveillance Officers	39
3940	Crossing Guards	12
3950	Law enforcement workers, nec	17
4000	Chefs and Cooks	13
4010	First-Line Supervisors of Food Preparation and Serving Workers	34
4030	Food Preparation Workers	13
4040	Bartenders	35
4050	Combined Food Preparation and Serving Workers, Including Fast Food	13
4060	Counter Attendant, Cafeteria, Food Concession, and Coffee Shop	5
4110	Waiters and Waitresses	25
4120	Food Servers, Nonrestaurant	16
4130	Food preparation and serving related workers, nec	5
4140	Dishwashers	1
4150	Host and Hostesses, Restaurant, Lounge, and Coffee Shop	16
4200	First-Line Supervisors of Housekeeping and Janitorial Workers	40
4210	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	42
4220	Janitors and Building Cleaners	17

4230	Maids and Housekeeping Cleaners	6
4240	Pest Control Workers	40
4250	Grounds Maintenance Workers	10
4300	First-Line Supervisors of Gaming Workers	60
4320	First-Line Supervisors of Personal Service Workers	51
4340	Animal Trainers	40
4350	Nonfarm Animal Caretakers	25
4400	Gaming Services Workers	44
4420	Ushers, Lobby Attendants, and Ticket Takers	20
4430	Entertainment Attendants and Related Workers, nec	21
4460	Funeral Service Workers and Embalmers	63
4500	Barbers	26
4510	Hairdressers, Hairstylists, and Cosmetologists	28
4520	Personal Appearance Workers, nec	22
4530	Baggage Porters, Bellhops, and Concierges	38
4540	Tour and Travel Guides	33
4600	Childcare Workers	21
4610	Personal Care Aides	22
4620	Recreation and Fitness Workers	33
4640	Residential Advisors	32
4650	Personal Care and Service Workers, All Other	25
4700	First-Line Supervisors of Sales Workers	63
4720	Cashiers	17
4740	Counter and Rental Clerks	22
4750	Parts Salespersons	38
4760	Retail Salespersons	33
4800	Advertising Sales Agents	72
4810	Insurance Sales Agents	71
4820	Securities, Commodities, and Financial Services Sales Agents	86
4830	Travel Agents	58
4840	Sales Representatives, Services, All Other	72
4850	Sales Representatives, Wholesale and Manufacturing	76

4900	Models, Demonstrators, and Product Promoters	19
4920	Real Estate Brokers and Sales Agents	62
4930	Sales Engineers	91
4940	Telemarketers	24
4950	Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	21
4965	Sales and Related Workers, All Other	59
5000	First-Line Supervisors of Office and Administrative Support Workers	69
5010	Switchboard Operators, Including Answering Service	36
5020	Telephone Operators	39
5030	Communications Equipment Operators, All Other	59
5100	Bill and Account Collectors	47
5110	Billing and Posting Clerks	49
5120	Bookkeeping, Accounting, and Auditing Clerks	49
5130	Gaming Cage Workers	38
5140	Payroll and Timekeeping Clerks	58
5150	Procurement Clerks	69
5160	Bank Tellers	41
5165	Financial Clerks, nec	66
5200	Brokerage Clerks	70
5220	Court, Municipal, and License Clerks	58
5230	Credit Authorizers, Checkers, and Clerks	55
5240	Customer Service Representatives	45
5250	Eligibility Interviewers, Government Programs	68
5260	File Clerks	38
5300	Hotel, Motel, and Resort Desk Clerks	31
5310	Interviewers, Except Eligibility and Loan	38
5320	Library Assistants, Clerical	38
5330	Loan Interviewers and Clerks	60
5340	New Account Clerks	59
5350	Correspondent clerks and order clerks	41
5360	Human Resources Assistants, Except Payroll and Timekeeping	60
5400	Receptionists and Information Clerks	36

5410	Reservation and Transportation Ticket Agents and Travel Clerks	56
5420	Information and Record Clerks, All Other	56
5500	Cargo and Freight Agents	50
5510	Couriers and Messengers	42
5520	Dispatchers	50
5530	Meter Readers, Utilities	47
5540	Postal Service Clerks	63
5550	Postal Service Mail Carriers	63
5560	Postal Service Mail Sorters, Processors, and Processing Machine Operators	62
5600	Production, Planning, and Expediting Clerks	65
5610	Shipping, Receiving, and Traffic Clerks	33
5620	Stock Clerks and Order Fillers	23
5630	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	37
5700	Secretaries and Administrative Assistants	52
5800	Computer Operators	60
5810	Data Entry Keyers	46
5820	Word Processors and Typists	47
5840	Insurance Claims and Policy Processing Clerks	59
5850	Mail Clerks and Mail Machine Operators, Except Postal Service	35
5860	Office Clerks, General	46
5900	Office Machine Operators, Except Computer	39
5910	Proofreaders and Copy Markers	55
5920	Statistical Assistants	62
5940	Office and administrative support workers, nec	61
6005	First-Line Supervisors of Farming, Fishing, and Forestry Workers	39
6010	Agricultural Inspectors	66
6040	Graders and Sorters, Agricultural Products	5
6050	Agricultural workers, nec	6
6100	Fishing and hunting workers	24
6120	Forest and Conservation Workers	23
6130	Logging Workers	18
6200	First-Line Supervisors of Construction Trades and Extraction Workers	53

6210	Boilermakers	49
6220	Brickmasons, Blockmasons, and Stonemasons	20
6230	Carpenters	28
6240	Carpet, Floor, and Tile Installers and Finishers	19
6250	Cement Masons, Concrete Finishers, and Terrazzo Workers	19
6260	Construction Laborers	20
6300	Paving, Surfacing, and Tamping Equipment Operators	25
6320	Construction equipment operators except paving, surfacing, and tamping equipment operators	36
6330	Drywall Installers, Ceiling Tile Installers, and Tapers	16
6355	Electricians	53
6360	Glaziers	35
6400	Insulation Workers	28
6420	Painters, Construction and Maintenance	19
6430	Paperhangers	30
6440	Pipelayers, Plumbers, Pipefitters, and Steamfitters	41
6460	Plasterers and Stucco Masons	17
6500	Reinforcing Iron and Rebar Workers	28
6515	Roofers	16
6520	Sheet Metal Workers, metal-working	40
6530	Structural Iron and Steel Workers	38
6600	Helpers, Construction Trades	12
6660	Construction and Building Inspectors	67
6700	Elevator Installers and Repairers	64
6710	Fence Erectors	18
6720	Hazardous Materials Removal Workers	33
6730	Highway Maintenance Workers	37
6740	Rail-Track Laying and Maintenance Equipment Operators	48
6765	Construction workers, nec	33
6800	Derrick, rotary drill, and service unit operators, and roustabouts, oil, gas, and mining	44
6820	Earth Drillers, Except Oil and Gas	42
6830	Explosives Workers, Ordnance Handling Experts, and Blasters	55
6840	Mining Machine Operators	49

6940	Extraction workers, nec	41
7000	First-Line Supervisors of Mechanics, Installers, and Repairers	62
7010	Computer, Automated Teller, and Office Machine Repairers	63
7020	Radio and Telecommunications Equipment Installers and Repairers	61
7030	Avionics Technicians	72
7040	Electric Motor, Power Tool, and Related Repairers	48
7100	Electrical and electronics repairers, transportation equipment, and industrial and utility	72
7110	Electronic Equipment Installers and Repairers, Motor Vehicles	48
7120	Electronic Home Entertainment Equipment Installers and Repairers	46
7130	Security and Fire Alarm Systems Installers	53
7140	Aircraft Mechanics and Service Technicians	69
7150	Automotive Body and Related Repairers	32
7160	Automotive Glass Installers and Repairers	30
7200	Automotive Service Technicians and Mechanics	36
7210	Bus and Truck Mechanics and Diesel Engine Specialists	44
7220	Heavy Vehicle and Mobile Equipment Service Technicians and Mechanics	47
7240	Small Engine Mechanics	32
7260	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers, nec	22
7300	Control and Valve Installers and Repairers	52
7315	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	46
7320	Home Appliance Repairers	37
7330	Industrial and Refractory Machinery Mechanics	52
7340	Maintenance and Repair Workers, General	44
7350	Maintenance Workers, Machinery	45
7360	Millwrights	55
7410	Electrical Power-Line Installers and Repairers	60
7420	Telecommunications Line Installers and Repairers	55
7430	Precision Instrument and Equipment Repairers	67
7510	Coin, Vending, and Amusement Machine Servicers and Repairers	38
7540	Locksmiths and Safe Repairers	44
7550	Manufactured Building and Mobile Home Installers	17
7560	Riggers	44

7610	Helpers--Installation, Maintenance, and Repair Workers	11
7630	Other Installation, Maintenance, and Repair Workers Including Wind Turbine Service Technicians, and Commercial Divers, a	40
7700	First-Line Supervisors of Production and Operating Workers	58
7710	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	48
7720	Electrical, Electronics, and Electromechanical Assemblers	31
7730	Engine and Other Machine Assemblers	40
7740	Structural Metal Fabricators and Fitters	41
7750	Assemblers and Fabricators, nec	29
7800	Bakers	24
7810	Butchers and Other Meat, Poultry, and Fish Processing Workers	19
7830	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	30
7840	Food Batchmakers	24
7850	Food Cooking Machine Operators and Tenders	17
7855	Food Processing, nec	23
7900	Computer Control Programmers and Operators	49
7920	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	40
7930	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	35
7940	Rolling Machine Setters, Operators, and Tenders, metal and Plastic	32
7950	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	27
7960	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	28
8000	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	25
8010	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	33
8030	Machinists	48
8040	Metal Furnace Operators, Tenders, Pourers, and Casters	39
8060	Model Makers and Patternmakers, Metal and Plastic	55
8100	Molders and Molding Machine Setters, Operators, and Tenders, Metal and Plastic	30
8130	Tool and Die Makers	55
8140	Welding, Soldering, and Brazing Workers	35
8150	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	44
8200	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	29
8210	Tool Grinders, Filers, and Sharpeners	28
8220	Metal workers and plastic workers, nec	31

8230	Bookbinders, Printing Machine Operators, and Job Printers	37
8250	Prepress Technicians and Workers	40
8300	Laundry and Dry-Cleaning Workers	12
8310	Pressers, Textile, Garment, and Related Materials	11
8320	Sewing Machine Operators	12
8330	Shoe and Leather Workers and Repairers	21
8340	Shoe Machine Operators and Tenders	18
8350	Tailors, Dressmakers, and Sewers	22
8400	Textile bleaching and dyeing, and cutting machine setters, operators, and tenders	20
8410	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	22
8420	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	18
8450	Upholsterers	22
8460	Textile, Apparel, and Furnishings workers, nec	29
8500	Cabinetmakers and Bench Carpenters	30
8510	Furniture Finishers	22
8530	Sawing Machine Setters, Operators, and Tenders, Wood	18
8540	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	20
8550	Woodworkers including model makers and patternmakers, nec	29
8600	Power Plant Operators, Distributors, and Dispatchers	74
8610	Stationary Engineers and Boiler Operators	59
8620	Water Wastewater Treatment Plant and System Operators	55
8630	Plant and System Operators, nec	63
8640	Chemical Processing Machine Setters, Operators, and Tenders	57
8650	Crushing, Grinding, Polishing, Mixing, and Blending Workers	30
8710	Cutting Workers	20
8720	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	29
8730	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	47
8740	Inspectors, Testers, Sorters, Samplers, and Weighers	43
8750	Jewelers and Precious Stone and Metal Workers	36
8760	Medical, Dental, and Ophthalmic Laboratory Technicians	47
8800	Packaging and Filling Machine Operators and Tenders	17
8810	Painting Workers and Dyers	28

8830	Photographic Process Workers and Processing Machine Operators	38
8850	Adhesive Bonding Machine Operators and Tenders	24
8860	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	15
8910	Etchers, Engravers, and Lithographers	34
8920	Molders, Shapers, and Casters, Except Metal and Plastic	32
8930	Paper Goods Machine Setters, Operators, and Tenders	30
8940	Tire Builders	45
8950	Helpers--Production Workers	14
8965	Other production workers including semiconductor processors and cooling and freezing equipment operators	29
9000	Supervisors of Transportation and Material Moving Workers	57
9030	Aircraft Pilots and Flight Engineers	91
9040	Air Traffic Controllers and Airfield Operations Specialists	82
9050	Flight Attendants and Transportation Workers and Attendants	60
9100	Bus and Ambulance Drivers and Attendants	32
9130	Driver/Sales Workers and Truck Drivers	38
9140	Taxi Drivers and Chauffeurs	31
9150	Motor Vehicle Operators, All Other	16
9200	Locomotive Engineers and Operators	68
9230	Railroad Brake, Signal, and Switch Operators	59
9240	Railroad Conductors and Yardmasters	65
9260	Subway, Streetcar, and Other Rail Transportation Workers	56
9300	Sailors and marine oilers, and ship engineers	45
9310	Ship and Boat Captains and Operators	61
9350	Parking Lot Attendants	24
9360	Automotive and Watercraft Service Attendants	18
9410	Transportation Inspectors	61
9420	Transportation workers, nec	50
9510	Crane and Tower Operators	46
9520	Dredge, Excavating, and Loading Machine Operators	31
9560	Conveyor operators and tenders, and hoist and winch operators	34
9600	Industrial Truck and Tractor Operators	27
9610	Cleaners of Vehicles and Equipment	10

9620	Laborers and Freight, Stock, and Material Movers, Hand	21
9630	Machine Feeders and Offbearers	21
9640	Packers and Packagers, Hand	12
9650	Pumping Station Operators	54
9720	Refuse and Recyclable Material Collectors	16
9750	Material moving workers, nec	32

Source: Calculated by the authors from the 2010-2012 ACS, Ruggles et. al. 2015. The occupational classification is from the OCC2010 variable in the ACS.

