

Occupational Requirements Survey

Overview

The **Occupational Requirements Survey (ORS)** is a survey of establishments in private industry and state and local government conducted by the Bureau of Labor Statistics (BLS). The ORS publishes information about job requirements, including physical demands; environmental conditions; education, training, and experience; as well as cognitive and mental requirements. This *Handbook of Methods* explains the process and concepts for the 2019–23 reference period estimates.

Quick Facts: Occupational Requirements Survey	
Subject areas	Job requirements
Key measures	<ul style="list-style-type: none">• Cognitive and mental requirements• Education, training, and experience• Environmental conditions• Physical demand
How the data are obtained	Survey of businesses, Government agencies
Classification	Occupation
Periodicity of data availability	Annual
Geographic detail	National
Scope	Private sector, State and local government
Revision Information	Exhibit 7 has been updated.
Key products	<ul style="list-style-type: none">• News releases• Occupational group profiles• Database query tool• Excel dataset• Factsheets
Program webpage	www.bls.gov/ors

Concepts

The Occupational Requirements Survey (ORS) provides estimates measuring four types of occupational requirements: physical demands; environmental conditions; education, training, and experience; as well as cognitive and mental requirements. Survey estimates help to define and describe the requirements of work in the U.S. economy.

The ORS is designed to explain what is required to perform critical job functions of selected jobs. The survey does not focus on specific capabilities or experiences that individual workers have if the employer does not require them. For example, a job may require a bachelor's degree, but workers performing the job may have more advanced degrees, such as a doctorate degree (Ph.D.). For the purposes of the ORS, the requirement is a bachelor's degree. The distinction is significant because the objective of the survey is to measure job requirements, not the characteristics of the workers. See the [Data sources](#) section for information on how occupational requirements are collected.

The ORS is a nationally representative establishment-based survey. Private industry and state and local government establishments in the 50 states and the District of Columbia are eligible for selection. Major exclusions from the survey are workers in federal and quasi-federal agencies (examples include the military, postal service, and Federal Reserve), establishments in the [agriculture, forestry, fishing, and hunting industry sector](#), workers employed by [private households](#), contractors (onsite workers at the surveyed establishment who are paid by another party are not included in data collection from the surveyed establishment), the self-employed, volunteers, unpaid workers, individuals receiving long-term disability compensation, and those working overseas. Individuals who set their own pay, such as business owners, and family members who are paid token wages are also excluded. Employees in sampled jobs must receive market-based payments, such as salary, commission, or hourly wages, from the establishment for services performed in the labor market and the establishment must pay the employer's portion of Medicare taxes on the worker's wages.

Key concepts and definitions

These key concepts and definitions explain the ORS sampling, collection, estimation, and publication processes.

Accommodation. As defined in the [Americans with Disabilities Act of 1990](#), "an accommodation is any change in the work environment or in the way things are customarily done that enables an individual with a disability to enjoy equal employment opportunities." The ORS collects information about how workers are required to perform jobs in support of critical job tasks without accommodations, as not all employers can offer the same accommodations.

Cognitive and mental requirements. The qualifications that workers need to use judgment, make decisions, interact with others, and adapt to changes in a job. For a list of cognitive and mental requirements and corresponding estimate types, see [appendix A](#) in the [Calculation](#) section.

Critical job function. The main purpose and the primary pay factor for the job. It consists of critical tasks that are integral to the job.

Critical tasks. Activities workers must perform to carry out their critical job function(s).

Duration. The scale used to categorize the amount of time workers perform physical demands, are exposed to environmental conditions, or the amount of time necessary to complete education, training, and experience requirements. Most physical demands and environmental conditions are measured using duration levels. For example, if speaking is required for 1 hour of an 8-hour workday then the associated duration level is "occasionally" because this level of speaking falls between 2 percent and 33 percent of the workday. For more information, see the [Calculation](#) section.

Education, training, and experience. The minimum level of formal education required, credentials necessary, on-the-job training, and prior work experience necessary for average performance in selected jobs. For a list of education, training, and experience requirements and corresponding estimate types, see [appendix A](#) in the [Calculation](#) section.

Environmental conditions. The various tangible or concrete hazards or difficulties that are in proximity to the location where jobs' critical tasks are performed. For a list of environmental conditions and corresponding estimate types, see [appendix A](#) in the [Calculation](#) section. The [visual overview of environmental elements](#) and [collection manuals](#) on the [Information for Survey Participants](#) section of the website provide examples and definitions of environmental conditions.

Establishment. A single economic unit that engages in one, or predominantly one, type of economic activity. For private industries in the survey, the establishment is usually a single physical location, such as a mine, a factory, an office, or a store, where workers produce goods or provide services.

- For private industry, if a sampled establishment is owned by a larger entity with many locations, only the employment and characteristics of the establishment selected for the sample are considered for the survey.
- For state and local governments, an establishment can include more than one physical location, such as a school district or a police department.

Frequency. The number of times workers experience a requirement while performing critical tasks. Many cognitive and mental requirements are measured using frequencies. For example, fast food workers may have their work reviewed more than once per day, whereas software developers may have their work reviewed less frequently, such as less than once per day. The estimates reflect the maximum number of times that the requirement is typically experienced by workers performing critical tasks.

Exhibit 1. Level of detail used in collection and in publishable Occupational Requirements Survey estimates.

Data elements	Collection	Publishable
Ownership		
Civilian workers	No	Yes
Private industry	Yes	No
State and local government	Yes	No
Worker characteristics		
Occupation ^[1]	Yes	Yes
Full- and part-time status	Yes	No
Establishment characteristics		
Industry ^[2]	Yes	No
Establishment size	Yes	No
Geographic area		
Census region	Yes	No

^[1] Military specific occupations and other occupations specific to the federal government (11-9131 postmasters and mail superintendents, 43-5051 postal service clerks, 43-5052 postal service mail carriers, and 43-5053 postal service mail sorters, and processing machine operations) are excluded from the survey.

^[2] Establishments in the Agriculture, Forestry, Fishing, and Hunting sector as well as private households are excluded from the survey.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Industry. Establishments are classified into industries using the 2017 [North American Industry Classification System](#) (NAICS). NAICS uses a 6-digit hierarchical coding system to classify all economic activity into 20 industry sectors. Of those 20 sectors, 5 are mainly goods-producing sectors and 15 are entirely service-providing sectors. Industry classification is used when sampling establishments. Estimates are not published at this level of detail. See exhibit 1 for detail of collected and published estimates.

Job. A position where one or more workers are employed at an establishment. The job is characterized by its critical tasks in support of the critical function(s). The term job refers to a single position in a single establishment, but an establishment may have more than one worker in that job on their payroll. For example, a restaurant may have 20 waiters all serving the same function and performing identical tasks. The ORS considers all 20 of those waiters to be duplicates of the same job at that worksite. Because the ORS measures the requirements of a job and is weighted by the number of workers employed in that job, "jobs" and "workers" may be used interchangeably in ORS publications.

Job demands. The physical demands; environmental conditions; education, training, and experience; as well as cognitive and mental requirements necessary to perform critical job functions. These job demands can include observable behaviors such as keyboarding, driving, and standing. These can also include unobservable behaviors such as learning, applying knowledge, and problem solving.

Mean (average). The mean, or average, is calculated for continuous values, such as hours spent standing, or days of on-the-job training required. Additional information is included in the [Calculation](#) section.

Modes. The mode is the value that appears most frequently in a job requirement category. Modes for certain job requirement categories are calculated so that the user may identify the estimate within a category with the largest weighted number of workers. These estimates are presented in the databases via a footnote.

Occupation. A generalized job or family of jobs common to many industries and areas, such as an economist or carpenter. An occupation differs from a job because it refers to a profession or trade and not a single position in a single establishment. The ORS uses the 2018 [Standard Occupational Classification \(SOC\)](#) system to classify occupations to the six-digit level. [Implementing 2018 SOC](#) provides information about the occupational classification in published estimates. Military specific occupations (55-0000) and postal service occupations (11-9131, 43-5051, 43-5052, 43-5053) are out of scope for the ORS. See exhibit 1 for detail of collected and published estimates.

Percentage of workers. The number of workers in an occupation that have a certain requirement divided by the total number of workers in that occupation. For example, the number of teachers who are required to reach overhead divided by the total number of teachers equals the percentage of teachers with that requirement. For more information, see the [Calculation](#) section.

Percentiles. Percentiles (10th, 25th, 50th, 75th, and 90th) are used for estimates with continuous values, such as hours spent sitting, or days of prior work experience required. The 50th percentile is considered the median of the estimates. Additional information is included in the [Calculation](#) section.

Physical demands. Refer to the physical activities required to perform tasks in a job. The presence and, in some cases, duration of these activities are published. For a list of physical demands and corresponding estimate types, see [appendix A](#) in the [Calculation](#) section. The [visual overview of physical elements](#) and [collection manuals](#) on the [Information for Survey Participants](#) section of the website provide examples and definitions of physical demands.

Respondent. Human resource managers or specialists, occupational safety managers, supervisors, or owners at an establishment that provide data during a survey collection.

Specific Vocational Preparation (SVP). The minimum amount of preparation time required for workers to learn the techniques, acquire the information, and develop the aptitude needed for basic performance in a specific job. Additional information on [specific vocational preparation](#) is in the [Calculation](#) section.

Task list. A list that outlines the critical job function(s) and itemizes the critical tasks performed within a job. Only requirements necessary to perform critical tasks are in-scope for the ORS. These lists are provided by respondents to field economists. See the [Data sources](#) section for more information on how task lists are used.

Wave. The combination of multiple samples was used to produce final estimates. The first wave consisted of three samples collected between 2015 and 2018. Preliminary estimates were published after each sample was collected. The 2018 final estimates included data from all three sample groups, whereas the 2017 estimates included two sample groups, and 2016 estimates included one. The second wave will include five samples, each collected over approximately a 1-year period. Final estimates are produced by combining all samples within the wave. See the [Design](#) and [Presentation](#) sections for additional information on second wave samples and estimates. Exhibit 8 in the [History](#) section shows the structure of a wave and how samples are combined and published throughout the wave.

Work status. Full-time or part-time status is based on the establishment's definition of those terms and not determined by the number of hours employees work. This characteristic is collected as described in the [Design](#) section and ensures that job requirements correspond to the selected jobs. However, estimates are not published by this level of detail, meaning that users can not view data broken down by work status. See exhibit 1 for detail of collected and published estimates.

Data sources

Bureau of Labor Statistics (BLS) field economists are extensively trained and given detailed instructions on data collection techniques. They employ a variety of methods, including personal visits, mail, telephone, email, and video calls, to obtain data from Occupational Requirements Survey (ORS) respondents. Field economists do not use paper or online questionnaires to collect these data; instead, they rely on a conversational interview and descriptive documents, such as task lists, to collect information on occupational requirements from respondents. Field economists collect each sample over a 1-year period and perform the following activities:

- Verify that the [North American Industry Classification System](#) (NAICS) industry code accurately describes the primary business activity of the sampled establishment.
- Review a list of employees or a list of job titles provided by the establishment respondent to determine the sampled jobs. See the [Design](#) section for more information.
- Determine the correct occupation code and work level for each sampled job based on the job description and type of work performed. For more information on work levels, see [National Compensation Survey: Guide for Evaluating Your Firm's Jobs and Pay](#), the [Design](#) section, and the [Calculation](#) section.
- Examine whether workers in the sampled job work full- or part-time based on the establishments' definition of work status. The usual work schedule is also collected and includes the expected daily and weekly hours as well as the annual weeks that workers are expected to perform.
- Collect data on job requirements that pertain to the sampled job's physical demands; environmental conditions; education, training, and experience; as well as cognitive and mental requirements. Field economists refer to task lists provided by respondents to understand the job requirements necessary to perform critical job functions.

For more detailed explanation of data collection process as well as examples of data coding scenarios refer to the [ORS Collection Manuals](#).

Confidentiality

All ORS-collected data and tabulated estimates are subject to the BLS confidentiality requirements that prevent the disclosure of establishment and respondent identifying information. ORS-collected data and tabulated estimates are used solely for statistical purposes. BLS has a strict [confidentiality policy](#) which ensures that the survey sample composition, lists of sampled establishments, responding establishments, and names of respondents will be kept confidential. In addition, the policy assures respondents that published figures will not reveal the identity of any specific establishment and will not allow the data of any specific responding establishment to be identified. Each published estimate is screened to ensure that it meets these confidentiality requirements.

Design

Occupational Requirements Survey (ORS) data are collected from a national probability sample of establishments and occupations. Probability samples are subject to sampling and nonsampling errors, which are discussed in the [Calculation](#) section.

Establishment selection

The ORS program uses a probability-proportional-to-size (PPS) technique to select a sample of private industry establishments as well as state and local government establishments from across the nation. The larger the establishment's employment size, the greater its chance of being selected. Establishments from all 50 states and the District of Columbia are eligible for selection.

The second wave total sample size will include approximately 60,000 establishments, collected over a 5-year period (2018–23). Private industry establishments will account for 85 percent (51,000) of the total, and state and local government establishments will account for the remaining 15 percent (9,000). Approximately one-fifth of the total sample size will be independently sampled each year from private industry and state and local government establishments in proportion to their representation in the full 5-year sample. When establishments are selected in more than one sample, collection is only performed once in that wave.

The sampling design for the 5-year private industry sample is a two-stage stratified sample of private industry establishments and occupations within selected establishments. Forty strata are formed by the cross-classification of the predicted presence and absence of predetermined occupations in establishments, four U.S. Census regions (Midwest, Northeast, Southeast, and West), and aggregate industry (education services, financial activities, goods-producing, healthcare and social assistance, and service-providing). For the purposes of sample selection, predetermined occupations are the 200 six-digit SOCs with the lowest employment across all ownerships based on the [May 2017 Occupational Employment and Wage Statistics](#) (OEWS) estimates.

Exhibit 2. List of predetermined occupations

SOC code	Occupation
11-3111	Compensation and benefits managers
11-9071	Gambling managers
11-9161	Emergency management directors
11-9171	Funeral home managers
13-1011	Agents and business managers of artists, performers, and athletes
13-1021	Buyers and purchasing agents, farm products
13-1032	Insurance appraisers, auto damage
15-2021	Mathematicians
17-1021	Cartographers and photogrammetrists
17-2021	Agricultural engineers
17-2121	Marine engineers and naval architects
17-2151	Mining and geological engineers, including mining safety engineers

Exhibit 2. List of predetermined occupations

SOC code	Occupation
17-2161	Nuclear engineers
17-3021	Aerospace engineering and operations technologists and technicians
17-3024	Electro-mechanical and mechatronics technologists and technicians
17-3025	Environmental engineering technologists and technicians
19-1012	Food scientists and technologists
19-1013	Soil and plant scientists
19-1023	Zoologists and wildlife biologists
19-1041	Epidemiologists
19-2011	Astronomers
19-2012	Physicists
19-2021	Atmospheric and space scientists
19-2032	Materials scientists
19-2043	Hydrologists
19-3022	Survey researchers
19-3032	Industrial-organizational psychologists
19-3041	Sociologists
19-3091	Anthropologists and archeologists
19-3092	Geographers
19-3093	Historians
19-3094	Political scientists
19-4043	Geological technicians, except hydrologic technicians
19-4051	Nuclear technicians
19-4092	Forensic science technicians
19-5012	Occupational health and safety technicians
23-1022	Arbitrators, mediators, and conciliators

Exhibit 2. List of predetermined occupations

SOC code	Occupation
25-1031	Architecture teachers, postsecondary
25-1041	Agricultural sciences teachers, postsecondary
25-1043	Forestry and conservation science teachers, postsecondary
25-1051	Atmospheric, earth, marine, and space sciences teachers, postsecondary
25-1053	Environmental science teachers, postsecondary
25-1054	Physics teachers, postsecondary
25-1061	Anthropology and archeology teachers, postsecondary
25-1062	Area, ethnic, and cultural studies teachers, postsecondary
25-1063	Economics teachers, postsecondary
25-1064	Geography teachers, postsecondary
25-1065	Political science teachers, postsecondary
25-1067	Sociology teachers, postsecondary
25-1082	Library science teachers, postsecondary
25-1111	Criminal justice and law enforcement teachers, postsecondary
25-1112	Law teachers, postsecondary
25-1113	Social work teachers, postsecondary
25-1192	Family and consumer sciences teachers, postsecondary
25-1193	Recreation and fitness studies teachers, postsecondary
25-2023	Career/technical education teachers, middle school
25-4011	Archivists
25-4012	Curators
25-4013	Museum technicians and conservators
25-9021	Farm and home management educators
27-1012	Craft artists
27-1013	Fine artists, including painters, sculptors, and illustrators

Exhibit 2. List of predetermined occupations

SOC code	Occupation
27-1027	Set and exhibit designers
27-2021	Athletes and sports competitors
27-2023	Umpires, referees, and other sports officials
27-2031	Dancers
27-2032	Choreographers
27-2041	Music directors and composers
27-3023	News analysts, reporters, and journalists
27-3092	Court reporters and simultaneous captioners
27-4014	Sound engineering technicians
29-1022	Oral and maxillofacial surgeons
29-1023	Orthodontists
29-1024	Prosthodontists
29-1081	Podiatrists
29-1124	Radiation therapists
29-1125	Recreational therapists
29-1128	Exercise physiologists
29-1161	Nurse midwives
29-1181	Audiologists
29-1218	Obstetricians and gynecologists
29-2033	Nuclear medicine technologists
29-2091	Orthotists and prosthetists
29-2092	Hearing aid specialists
29-9092	Genetic counselors
31-2012	Occupational therapy aides
33-2021	Fire inspectors and investigators

Exhibit 2. List of predetermined occupations

SOC code	Occupation
33-2022	Forest fire inspectors and prevention specialists
33-3041	Parking enforcement workers
33-3052	Transit and railroad police
33-9011	Animal control workers
33-9031	Gambling surveillance officers and gambling investigators
35-2013	Cooks, private household
39-2011	Animal trainers
39-3012	Gambling and sports book writers and runners
39-3021	Motion picture projectionists
39-3092	Costume attendants
39-3093	Locker room, coatroom, and dressing room attendants
39-4011	Embalmers
39-5011	Barbers
39-5091	Makeup artists, theatrical and performance
39-5093	Shampooers
39-7012	Travel guides
41-9012	Models
41-9091	Door-to-door sales workers, news and street vendors, and related workers
43-2021	Telephone operators
43-3041	Gambling cage workers
43-4021	Correspondence clerks
43-9031	Desktop publishers
43-9081	Proofreaders and copy markers
43-9111	Statistical assistants
47-2011	Boilermakers

Exhibit 2. List of predetermined occupations

SOC code	Occupation
47-2022	Stonemasons
47-2042	Floor layers, except carpet, wood, and hard tiles
47-2043	Floor sanders and finishers
47-2053	Terrazzo workers and finishers
47-2072	Pile driver operators
47-2082	Tapers
47-2142	Paperhangers
47-2171	Reinforcing iron and rebar workers
47-2231	Solar photovoltaic installers
47-3014	Helpers--painters, paperhangers, plasterers, and stucco masons
47-3016	Helpers--roofers
47-4061	Rail-track laying and maintenance equipment operators
47-4091	Segmental pavers
47-5011	Derrick operators, oil and gas
47-5012	Rotary drill operators, oil and gas
47-5023	Earth drillers, except oil and gas
47-5032	Explosives workers, ordnance handling experts, and blasters
47-5041	Continuous mining machine operators
47-5043	Roof bolters, mining
47-5044	Loading and moving machine operators, underground mining
47-5051	Rock splitters, quarry
47-5081	Helpers--extraction workers
49-2021	Radio, cellular, and tower equipment installers and repairers
49-2091	Avionics technicians
49-2092	Electric motor, power tool, and related repairers

Exhibit 2. List of predetermined occupations

SOC code	Occupation
49-2093	Electrical and electronics installers and repairers, transportation equipment
49-2096	Electronic equipment installers and repairers, motor vehicles
49-3052	Motorcycle mechanics
49-3091	Bicycle repairers
49-3092	Recreational vehicle service technicians
49-9045	Refractory materials repairers, except brickmasons
49-9061	Camera and photographic equipment repairers
49-9063	Musical instrument repairers and tuners
49-9064	Watch and clock repairers
49-9081	Wind turbine service technicians
49-9092	Commercial divers
49-9094	Locksmiths and safe repairers
49-9095	Manufactured building and mobile home installers
49-9097	Signal and track switch repairers
51-2021	Coil winders, tapers, and finishers
51-2061	Timing device assemblers and adjusters
51-4022	Forging machine setters, operators, and tenders, metal and plastic
51-4032	Drilling and boring machine tool setters, operators, and tenders, metal and plastic
51-4035	Milling and planing machine setters, operators, and tenders, metal and plastic
51-4051	Metal-refining furnace operators and tenders
51-4052	Pourers and casters, metal
51-4061	Model makers, metal and plastic
51-4062	Patternmakers, metal and plastic
51-4071	Foundry mold and coremakers
51-4192	Layout workers, metal and plastic

Exhibit 2. List of predetermined occupations

SOC code	Occupation
51-4194	Tool grinders, filers, and sharpeners
51-6041	Shoe and leather workers and repairers
51-6042	Shoe machine operators and tenders
51-6051	Sewers, hand
51-6061	Textile bleaching and dyeing machine operators and tenders
51-6062	Textile cutting machine setters, operators, and tenders
51-6091	Extruding and forming machine setters, operators, and tenders, synthetic and glass fibers
51-6092	Fabric and apparel patternmakers
51-7021	Furniture finishers
51-7031	Model makers, wood
51-7032	Patternmakers, wood
51-8011	Nuclear power reactor operators
51-8012	Power distributors and dispatchers
51-8092	Gas plant operators
51-9031	Cutters and trimmers, hand
51-9051	Furnace, kiln, oven, drier, and kettle operators and tenders
51-9082	Medical appliance technicians
51-9123	Painting, coating, and decorating workers
51-9191	Adhesive bonding machine operators and tenders
51-9192	Cleaning, washing, and metal pickling equipment operators and tenders
51-9193	Cooling and freezing equipment operators and tenders
51-9194	Etchers and engravers
53-1041	Aircraft cargo handling supervisors
53-2022	Airfield operations specialists
53-3011	Ambulance drivers and attendants, except emergency medical technicians

Exhibit 2. List of predetermined occupations

SOC code	Occupation
53-4013	Rail yard engineers, dinkey operators, and hostlers
53-4022	Railroad brake, signal, and switch operators and locomotive firers
53-4041	Subway and streetcar operators
53-5022	Motorboat operators
53-5031	Ship engineers
53-6011	Bridge and lock tenders
53-6041	Traffic technicians
53-7031	Dredge operators
53-7041	Hoist and winch operators
53-7071	Gas compressor and gas pumping station operators
53-7072	Pump operators, except wellhead pumpers
53-7073	Wellhead pumpers
53-7121	Tank car, truck, and ship loaders

Note: Predetermined occupations represent those with the lowest number of employed workers in the occupation across all ownerships based on 2017 Occupational Employment Statistics (OES) estimates.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Each sampled establishment has an assigned six-digit industry code from the [North American Industry Classification System](#) (NAICS). When a single physical location encompasses two or more distinct economic activities, the industry code assigned is based on the establishment's principal product or products, whether produced or distributed, or the principal services rendered by the establishment. When determining the principal product or service rendered, employment is used to determine the primary business activity and assign an industry code. When the primary activity cannot be determined by employment then it's determined based on the revenue generated.

The sampling frame, or universe, is the list of establishments from which the survey sample is selected. The ORS establishment sample is drawn from the [Quarterly Census of Employment and Wages](#) (QCEW) and units reporting to the [Railroad Retirement Board](#).¹

Job selection

Bureau of Labor Statistics (BLS) field economists use a four-step process to select and classify jobs for which data are to be collected from the sampled establishment.

Step 1

The first step in the process differs depending on establishment ownership. For private industry establishments, the ORS utilizes an occupational sample that is drawn from a modeled occupational frame created by the [Occupational Employment and Wage Statistics](#) (OEWS) program.² This frame informs the selection of occupations within establishments by joining industry information from the [QCEW](#) with occupational information from the [OEWS](#). A modeled occupational frame is not available for state and local government establishments because of data constraints.

Field economists are given a prioritized list of six-digit occupational codes for each private industry sampled establishment. The number of jobs selected for data collection is based on the establishment's employment size at the time the sample was drawn, according to the criteria on exhibit 3, and the projected number of occupations at the establishment from the modeled occupational frame. These occupations are listed in priority order, with any predetermined occupations listed first. Field economists determine whether any of the listed occupations exist in the sampled establishment. Field economists stop matching when they reach the targeted number of selected jobs or when the end of the list is reached. This job selection method is used to ensure that occupations with lower probability of selection are included in the survey.

If none of the occupations on the prioritized list are present in the establishment, the field economist collects data by using probability sampling of occupations (PSO). The field economist uses the PSO technique to randomly select jobs for which data are to be collected. This process ensures that the probability of selecting a given job is proportional to the number of workers in the job at the establishment. This process is used to select jobs from state and local government establishments.³

Exhibit 3. Number of sampled jobs based on establishment employment

Number of employees	Number of sampled jobs
1-49	Up to 4
50-249	6
250 or more	8

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Step 2

Field economists classify the sampled jobs into occupations based on the workers' actual job duties and responsibilities, not based on their job titles or specific education. For example, an employee trained as an engineer, but is working as a drafter, is reported as a drafter. Field economists classify employees who perform the duties of two or more distinct occupations as working in the occupation that requires the highest level of skill or in the occupation in which the employee spends the most time if there is no measurable difference in skill requirements. Each sampled job is classified by the 2018 [Standard Occupational Classification](#) (SOC) system at the six-digit level of detail.

ORS classifies sampled jobs found in establishments into the most detailed occupational code available. Federal statistical agencies are mandated to use the [SOC](#) system for the purpose of collecting, calculating, or disseminating occupational or labor market data.

Step 3

Field economists obtain work status (full-time or part-time) and work schedule for the selected job. The work status is based on the responding establishment's definition for full- and part-time and is not based on an hour threshold. The work schedule is used to determine the duration levels and reflects the usual expected hours in a day, days in a week, and weeks in the year. The job requirements in the establishment are for all workers in the selected job with the same work status and work schedule. For definitions of occupational characteristics, see the [Concepts](#) section.

Step 4

Field economists evaluate the job to determine the work level of its duties and responsibilities using a point-factor system, which is based on the National Compensation Survey.⁴ The purpose of this step is to ensure that the job requirements of all workers in an occupation are the same. The work levels are determined by a system of points based on the following factors:

- Knowledge
- Job controls and complexity
- Contacts
- Physical environment

Each factor consists of several points and a description. Field economists evaluate the duties and responsibilities of the job, accounting for the work performed, skills needed, and education and training required for the job. Points are then totaled to determine the overall work level for the job. Generally, the greater the impact, complexity, or difficulty of the factor, the higher the number of points assigned and the higher the work level.

For some occupations, such as those listed in exhibit 4, a work level cannot be determined because the four factor points are not available.

Exhibit 4. Jobs that cannot be classified by work level

SOC 2018	Occupation title
11-1031	Legislators
23-1021	Administrative law judges, adjudicators, and hearing officers
23-1022	Arbitrators, mediators, and conciliators
23-1023	Judges, magistrate judges, and magistrates
27-1013	Fine artists, including painters, sculptors, and illustrators
27-2011	Actors
27-2012	Producers and directors
27-2021	Athletes and sports competitors
27-2022	Coaches and scouts
27-2023	Umpires, referees, and other sports officials
27-2031	Dancers
27-2032	Choreographers
27-2041	Music directors and composers
27-2042	Musicians and singers
27-2091	Disc jockeys, except radio

Exhibit 4. Jobs that cannot be classified by work level

SOC 2018	Occupation title
27-2099	Entertainers and performers, sports and related workers, all other
27-3011	Broadcast announcers and radio disc jockeys
41-9012	Models

Note: Work level is defined as the difference in average hourly wages based on a range of skills, knowledge, and duties within an occupation.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Calculation

The Occupational Requirements Survey (ORS) calculates categorical and continuous estimates of job requirements by occupation and occupational group. Categorical estimates provide the percentage of workers by job requirement. For many of the categorical estimates, the ORS also identifies the mode within a categorical grouping. Continuous estimates measure the average (or mean in hours, days, percentage of workday or pounds) or percentile for the job requirement.

See [appendix A](#) at the end of this section for a full list of published occupational requirements as well as a list of corresponding estimate types.

Estimation formulas

This section includes the formulas used to calculate the ORS estimates.

Percentage of workers. The formula for the percentage of workers with a given job requirement in the domain (occupation or occupational group) is

$$\frac{\sum_{i=1}^I \sum_{g=1}^{G_i} OCCFW_{ig} \times X_{ig} \times Z_{ig}}{\sum_{i=1}^I \sum_{g=1}^{G_i} OCCFW_{ig} \times X_{ig}} \times 100$$

where

I is the total number of establishments,

G_i is the total number of sampled jobs in establishment i ,

i is the establishment,

g is the occupation within establishment i ,

$OCCFW_{ig}$ is the final sampled job weight for occupation g in establishment i ,

X_{ig} is 1 if sampled job ig meets the condition set in the domain (denominator) condition and 0 otherwise, and

Z_{ig} is 1 if sampled job ig meets the condition set in the requirement condition and 0 otherwise.

Average (mean). The formula for the average (mean) estimate of a job requirement is

$$\frac{\sum_{i=1}^I \sum_{g=1}^{G_i} OCCFW_{ig} \times X_{ig} \times Z_{ig} \times Q_{ig}}{\sum_{i=1}^I \sum_{g=1}^{G_i} OCCFW_{ig} \times X_{ig} \times Z_{ig}}$$

where

I is the total number of establishments,

G_i is the total number of sampled jobs in establishment i ,

i is the establishment,

g is the occupation within establishment i ,

$OCCFW_{ig}$ is the final sampled job weight for occupation g in establishment i ,

X_{ig} is 1 if worker ig meets the condition set in the domain (denominator) condition and 0 otherwise,

Z_{ig} is 1 if worker ig meets the condition set in the requirement condition and 0 otherwise, and

Q_{ig} is the value of a quantity for a specific requirement for occupation g in establishment i .

Percentiles. The 10th, 25th, 50th (median), 75th, and 90th, percentiles are calculated. The ρ th percentile is the value Q_{ig} , where the value of a quantity is for a specific category for occupation g in establishment i , such that

- the sum of final sampled job weights ($OCCFW_{ig}$) across sampled jobs with a value less than Q_{ig} is less than ρ percent of all final sampled job weights and
- the sum of final sampled job weights ($OCCFW_{ig}$) across sampled jobs with a value more than Q_{ig} is less than $(100 - \rho)$ percent of all final sampled job weights.

It is possible that there is no specific sampled job ig for which both properties hold. This occurs when there exists a sampled job for which the $OCCFW_{ig}$ of records whose value is less than Q_{ig} equals ρ percent of the total weighted sampled job employment. In that situation, the ρ th percentile is the average (mean) of Q_{ig} and the value of the sampled job with the next lowest value.

Duration

Duration corresponds to the time associated with occupational requirements needed to perform critical tasks. Exhibit 5 provides the duration levels with the corresponding percent or fraction of the workday that workers perform physical demands or are exposed to environmental conditions. See [appendix B](#) at the end of this section for a list of job requirements with associated duration.

Exhibit 5. Duration levels and amount of the workday associated with each level

Duration level	Presence of the requirement in the workday
Not present	Requirement is not present and there is no associated duration
Seldom	Up to 2 percent of the workday
Occasionally	2 percent and up to 1/3 of the workday
Frequently	1/3 up to 2/3 of the workday
Constantly	2/3 or more of the workday

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

The ORS calculates a percentage-of-workers estimate for each duration. Estimates of some physical demands as well as education, training, and experience include averages (means) and percentiles to convey duration. For example, the ORS measures sitting in hours and the average (mean) and percentile estimates (10th, 25th, 50th, 75th, and 90th percentiles) are calculated for both hours and the percentage of the workday spent sitting for a specific occupation or occupational group.

Specific vocational preparation (SVP)

Although the ORS calculates most job requirement estimates from establishment responses about selected jobs' various tasks, some require an additional level of calculation. One of these is the specific vocational preparation (SVP) level, which is the amount of preparation time required for the worker to develop the skills needed to perform the job. The job requirements that contribute to the SVP are the minimum formal education, credentials, prior work experience, and on-the-job training. These requirements' associated time are then aggregated and used to determine the SVP level needed for the job. (See exhibit 6.)

Concurrent time due to credentials necessary for jobs that also require minimum formal education level, experience, or on-the-job training are not included separately in SVP. Concurrent time is reflected in the education, training, and experience requirements where the time overlaps with time necessary to obtain licenses, certifications, or other nondegree credentials.

Exhibit 6. Preparation time necessary for each specific vocational level

Specific vocational preparation (SVP) level	Preparation time
1	Short demonstration only (4 hours or less)
2	Anything beyond short demonstration up to and including 1 month
3	Over 1 month up to and including 3 months
4	Over 3 months up to and including 6 months

Exhibit 6. Preparation time necessary for each specific vocational level

Specific vocational preparation (SVP) level	Preparation time
5	Over 6 months up to and including 1 year
6	Over 1 year up to and including 2 years
7	Over 2 years up to and including 4 years
8	Over 4 years up to and including 10 years
9	Over 10 years

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Strength

Strength levels are derived from several physical requirements. The estimates reflect the amount of weight workers are required to lift or carry, how often, and whether standing or walking is required to perform critical tasks in the workday. The strength levels show whether jobs are considered sedentary, light work, medium work, heavy work, and very heavy work.

Exhibit 7. Determining strength level based on lifting or carrying duration or percentage of the workday spent standing

Strength level	Duration of lifting or carrying				Percent of workday standing ^[1]
	Seldom	Occasionally	Frequently	Constantly	
Sedentary work	Up to 10 pounds	Up to 10 pounds	Negligible ^[2]	No weight	Less than or equal to 1/3 ^[3]
Light work	11–25 pounds	11–25 pounds	1–10 pounds	Negligible weight ^[2]	
Medium work	26–50 pounds	26–50 pounds	11–25 pounds	1–10 pounds	
Heavy work	51–100 pounds	51–100 pounds	26–50 pounds	11–25 pounds	
Very heavy work	>100 pounds	>100 pounds	>50 pounds	>25 pounds	

^[1] Standing estimates includes time spent standing, walking, and in low postures.

^[2] Negligible weight includes anything lifted or carried weighing less than 1 pound.

^[3] When the sedentary lifting or carrying requirements are met, and more than 1/3 of the workday is spent standing, light work is required.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

As noted, there are special cases for strength. In instances where field economists cannot determine certain job requirements from the respondent, they record these data as "unknown" and strength level is derived through imputation. See the section, "[Benchmarking, weighting, and imputation](#)" for more information.

Low postures

The low postures estimates indicate whether workers are required to perform critical tasks while crawling, crouching, kneeling, or stooping. The amount of the workday that workers are required to perform critical tasks in low postures is provided as the percentage of workers by duration level. Individual estimates of low postures are also published as required or worker choice. Job tasks may require workers to perform low postures, but workers may choose whether to crawl, crouch, kneel, or stoop to complete the work activities.

Estimate relationships

In some cases, the relationships between ORS estimates are more complex than a job requirement being present or not present. Relationships are shown through the category and additive groups assigned to estimates in the [excel dataset](#). The category code is the same for all related estimates. For example, all sitting estimates have the same category code. The additive code is used to show how these estimates sum together. Sometimes estimates sum to 100 percent, whereas others sum to another estimate instead of 100 percent. For example, the percentage of workers utilizing and not utilizing personal protective equipment (PPE) to mitigate risks that go along with exposure to heights together sum to the percentage of workers exposed to heights. See [appendix C](#) for more information on the relationships shown in the additive codes.

Benchmarking, weighting, and imputation

The ORS program addresses establishment refusals, item nonresponse, as well as out of business and out of scope units. The ORS program adjusts the weights of the responding establishments during the estimation process to address nonresponse (specifically unit nonresponse). Imputation is used to address item nonresponse, which is when an establishment responds to the survey but is unable or unwilling to provide all the occupational requirement data needed for a given sampled job. Benchmarking adjusts final survey weights to reflect the current employment distribution in the economy.

Benchmarking

The ORS uses benchmarking to adjust the weight of each establishment in the survey and match the most current distribution of employment by several establishment and occupational characteristics. The ORS establishment sample is adjusted according to data from the [Quarterly Census of Employment and Wages](#) (QCEW) Longitudinal Database, a file of units reporting to the [Railroad Retirement Board](#), the [Occupational Employment and Wage Statistics](#) (OEWS) survey, and the [Current Employment Statistics](#) (CES) survey. The QCEW, railroad information, and OEWS survey provide historical employment data needed for the benchmarking process, but since these sources do not have current employment data, the ORS also uses CES to make an adjustment to employment. The benchmark process updates the initial employment weights, assigned during sampling, by current employment. Benchmarking ensures that survey estimates reflect the most current employment distribution by industry, employment size, geographic area, and major occupational group.

As an example of the benchmarking process, 40 private industry, 10 local government, and 5 state government units in the service sector were selected from the ORS sampling frame. These units consist of establishments employing 200,000 private industry workers, 30,000 local government workers, and 10,000 state government workers. If, by the time of survey processing, the private service sector experienced an employment increase of 10,000 workers (5 percent) and there is no increase in employment in the service sectors of state and local government, then the sample would underrepresent current employment in the private industry service sector in the absence of benchmarking. In this example, the ORS program would adjust the sample weights of the 40 service sector firms in private industry to ensure that the number of workers in establishments in the sampling frame rises to 210,000. The ownership employment counts for the private industry service sector would then reflect the current proportions of 84 percent for private industry, 12 percent for local government, and 4 percent for state government employment.

Weighting

An establishment is considered responding if it provided information for at least one sampled job. Similarly, a nonresponding establishment is one that is unable or unwilling to provide information for at least one sampled job. If the contact person (respondent) for an establishment refuses to participate, then the associated establishment is considered nonresponding. The ORS program adjusts weights for unit (establishment) nonresponse by redistributing the weights of nonresponding establishments to similar establishments. The ORS program groups similar respondents into cells that are defined by characteristics such as the industry, size class, and geographic area of the establishment. For example, if the nonresponding establishment was in the manufacturing industry and had an employment of 350 workers, the ORS

program would adjust the weights of responding manufacturing establishments with 100–499 workers during estimation. Applied at the establishment level, this adjustment is a nonresponse adjustment factor (NRAF), and it is calculated using the following formula:

$$NRAF = \frac{\Sigma A + \Sigma B}{\Sigma A}$$

where

ΣA = weighted employment of all usable establishments in the nonresponse cell, and

ΣB = weighted employment of all viable but not usable establishments in the nonresponse cell.

If there are no responding establishments to reweight within the industry or employment size group, then additional responding units from similar geographic areas are considered. Establishments no longer in operation or out of the scope of the survey and establishments with no workers within the scope of the survey are considered unviable and excluded from survey estimates.

The ORS program may also adjust weights for sampled job nonresponse, which is when an establishment does not provide any occupational requirements data for a given sampled job. The ORS program addresses sampled job nonresponse during the interview with an adjustment that redistributes the weights of nonresponding sampled jobs to responding sampled jobs in the same occupational group, ownership, industry, and size class.

In addition to the job nonresponse adjustment factor, final occupational weights consider the sampling process used to select jobs, the establishment weight, and overall employment. The [Design](#) section provides more information on the job selection process.

The ORS program applies additional adjustment factors to special situations that may have occurred during data collection. For example, when a sample unit is one of two establishments owned by a given company and the respondent provides data for both locations combined instead of data for the sampled unit, the ORS program adjusts the weight of the sampled unit to reflect the employment data for the sampled unit.

Imputation

Item nonresponse occurs when an establishment responds to the survey but is unable or unwilling to provide some of the occupational requirements for a given sampled job. Item nonresponse is addressed through item imputation in certain situations. Item imputation replaces missing values for an item or items with values derived from sampled jobs within similar establishments with similar worker characteristics that have a value for the item. For ORS estimates, items with missing values are imputed within groups of ORS job requirements that are related. For example, one ORS group refers to categorical variables only and includes such requirements as vision and driving. Within the group, the ORS imputes values by a process that matches sampled jobs using occupational information from similar occupations in similar establishments.

For estimates that are calculated from multiple values, such as strength and specific vocational preparation (SVP), missing component values are imputed to calculate these estimates.

For more information, see estimation within the [research section](#) of the ORS website.

Reliability of ORS estimates

To assist users in confirming the reliability of ORS estimates, the ORS publishes standard errors. Standard errors provide users with a measure of the precision of an estimate to ensure that it is within an acceptable range for their intended purpose. The standard errors are calculated from collected and imputed data. The ORS program is researching methods for estimating the variance excluding imputed values. Examples on how to build confidence intervals using standard errors are included in the [standard error section](#) of the [ORS website](#).

The ORS derives estimates from sampled jobs within responding establishments. Two types of errors are possible in an estimate based on a sample survey: sampling and nonsampling errors. Sampling errors occur because the sample makes up only a part of the population it represents. The sample used for the survey is one of several possible samples that could have been selected under the sample design, each producing its own estimate. A measure of the variation among sample estimates is the standard error. Nonsampling errors are data errors that stem from any source other than sampling error, such as data collection errors and data processing errors.

Standard errors can be used to measure the precision with which an estimate from a particular sample approximates the expected result of all possible samples. The chances are about 68 out of 100 that an estimate from the survey differs from a complete population figure by less than the standard error. The chances are about 90 out of 100 that this difference is less than 1.6 times the standard error. Statements of comparison appearing in ORS publications are significant at a level of 1.6 standard errors or better. This means that, for differences cited, the estimated difference is more than 1.6 times the standard error of the difference.

The ORS uses balanced repeated replication (BRR) to estimate the standard error. The procedure for BRR starts by first partitioning the sample into variance strata composed of a single sampling stratum or clusters of sampling strata, and then splitting the sample units in each variance stratum evenly into two variance primary sampling units (PSUs). Next, the ORS program chooses half-samples so that each contains exactly one variance PSU from each variance stratum. Choices are not random but are designed to yield a balanced collection of half-samples. By using half-samples, the ORS program can compute a replicate estimate with the same formula for the regular or full-sample estimate, except that the final weights are adjusted. If a unit is in the half-sample, its weight is multiplied by $(2 - k)$; if not, its weight is multiplied by k . For all ORS publications, $k = 0.5$, so the multipliers are 1.5 and 0.5.

The BRR estimate of the standard error with R half samples is

$$SE(\hat{Y}) = \sqrt{\frac{1}{(R(1-k)^2)} \sum_{r=1}^R (\hat{Y}_r - \hat{Y})^2}$$

where

the summation is over all replicates of half-samples $r = 1, \dots, R$,

\hat{Y}_r is the r th replicate estimate, and

\hat{Y} is the full-sample estimate.

Quality assurance

The ORS program uses a variety of quality assurance programs to mitigate collection and processing errors by using data collection reinterviews, observed interviews, computer edits of the data, and systematic professional review of the data. These programs also serve as a training device to provide feedback to field economists, or data collectors, on errors and the sources of errors that can be remedied by improved collection instructions or computer-processing edits. Field economists receive extensive training to maintain high standards in data collection.

Once estimates of occupational requirements are produced, the estimates are validated. The focus of the validation is to compare the estimates with expectations for them. Although not a time series, the validation accounts for the economic events each year that might have an impact on collection and estimates, such as the COVID-19 pandemic. Expectations are based on prior year estimates and similar estimates from other sources of data, such as the Occupational Information Network ([O*NET](#)). In addition, ORS estimates between similar occupations are compared, both for reasonableness and for when occupations are newly published.

The ORS program investigates estimates that deviate from their expectations to ensure that the underlying data are consistent with ORS collection procedures and that the calculation is consistent with ORS statistical procedures.

Before publishing any estimate, the ORS program reviews it to make sure that it meets specified statistical reliability and confidentiality requirements. See data review and estimation tabs on the [research section](#) of the [ORS website](#). Estimates that are consistent with these procedures are designated as fit for use and released in BLS publications.

Presentation

The [Occupational Requirements Survey \(ORS\) website](#) provides access to the ORS estimates through the [news releases](#), [database query tool](#), [Excel dataset](#), [factsheets](#), and [occupational profiles](#).

ORS users may include the following:

- Jobseekers
- Researchers
- Insurance companies
- Advocacy organizations
- Data users within nonprofits
- Employment agencies
- State and federal agencies
- Disability community
- Vocational rehabilitation experts
- Human resource professionals
- Medical professionals
- Actuaries

ORS data are used for a variety of purposes:

- Assisting the Social Security Administration (SSA) in its disability adjudication process
- Using data for new opportunities in research, such as in academia or government
- Tracking the nature of work
- Benchmarking job descriptions or developing targeted recruiting plans
- Helping insurance companies assess risk management
- Assisting temporary-help firms to properly match an employee to job openings

Preliminary and final estimates

The 2018 reference year (first wave) estimates are considered final and include data collected between September 2015 and July 2018 from three samples.

The 2019 reference year (second wave) estimates include data collected between September 2018 and August 2019, which is the first of five samples. The 2020 reference year (second wave) estimates include data from two samples collected between September 2018 and July 2020. The 2021 reference year (second wave) estimates include data from three sample collected between September 2018 and July 2021. The 2019 to 2022 reference year estimates are considered preliminary as data from each sample will be added to the previously collected data to produce the latest reference year estimates.

Second wave estimates are considered final when the 2023 reference year estimates are published. These estimates will include data from the five samples collected as part of the second wave.

Accessing data

Preliminary estimates in each wave will be replaced with the latest estimates each year until the final set is published. The 2018 reference year estimates are considered final for the first wave and will remain accessible on the [ORS website](#) indefinitely.

Current and historical data are available through the [database query tool](#) which include the following search options:

- **Top picks** is a listing of occupational requirements selected by the ORS program to provide users with an overview of most requested statistics.
- **Data finder** allows users to conveniently search multiple datasets all at once. Users can extract specific data by searching by keyword or by filtering through multiple topics, measures, and attributes.
- **One-screen data search** allows users to select individual or multiple series from a simple, one-screen form.
- **Multi-screen data search** allows users to choose data using a form-based query application that spans several screens.

Users can download text files through the [time series page](#), which also includes a description of these files and the structure of ORS series.

In addition, [occupation group profiles](#) providing an overview of job requirements for a specific occupation are available.

Limitations

Although the occupational requirements estimates may have many uses, it is important to consider the survey limitations. Estimates are subject to sampling error, which may cause deviations from the results that would be obtained if the actual requirements for jobs in all establishments could be used. Nonsampling error is present in surveys as well. (See the [Calculation](#) section for more information.) The ORS program advises against making comparisons with previously published ORS estimates, as each set of estimates reflect changes in employment (weighting), sample size, as well as collection and estimation procedures. ORS estimates are not a time series and instead reflect job requirements for the published reference period.

Corrections policy

In the event that BLS identifies estimation, collection, or processing errors that result in statistically significant different estimates, the ORS program will identify the incorrect estimates and provide a notice to users on the [BLS errata page](#) regarding whether the error will be suppressed or corrected.

History

Timeline Events:

October 2012: Occupational Requirements Survey (ORS) established as a test survey.

November 2012: Phase one test: Initial proof of concept.

January 2013: Phase two test: Collection protocol testing.

April 2013: Phase three test: Broad scale testing.

November–December 2013: Observation test conducted concurrently with other fiscal year 2014 tests:⁵

- ORS-only efficiency innovations test
- Central Office Collection elements test
- National Compensation Survey (NCS)/ORS joint collection test
- New data element tests

February 2014: Alternative modes test.

October 2014–September 2015: Preproduction testing (collection, review, estimation, and validation).

June 2015: Job observations pilot test.

September 2015–July 2016: First sample in the first wave collected.

May 2016–July 2017: Second sample in first wave collected.

December 2016: Published 2016 reference year estimates from one sample in the first wave.

June 2017–September 2017: Job observations test.

August 2017–July 2018: Third sample in the first wave collected.

- Narrowed the scope of collection. Initially field economists collected job requirements based on how workers generally performed job tasks. The survey scope was narrowed to include job requirements based on workers performing critical tasks in support of critical job functions.
- Tested the revised cognitive and mental requirements

November 2017: Published 2017 reference year estimates which combined data from two samples in the first wave.

February 2018–August 2018: [Job observation test](#).

September 2018–August 2019: Collected first sample in the second wave. See Exhibit 8.

- Second wave includes five samples
- Updated occupational selection process from modeled occupational frame for private industry
- Survey measurement changes to include cognitive and mental requirements as well as low posture (crawling, crouching, kneeling, stooping) requirements

February 2019: Published 2018 reference year estimates which combined data from three samples in the first wave.

August 2019–July 2020: Second sample in the second wave collected.

May 2020: Published 2019 reference year estimates to include cognitive and mental requirements.

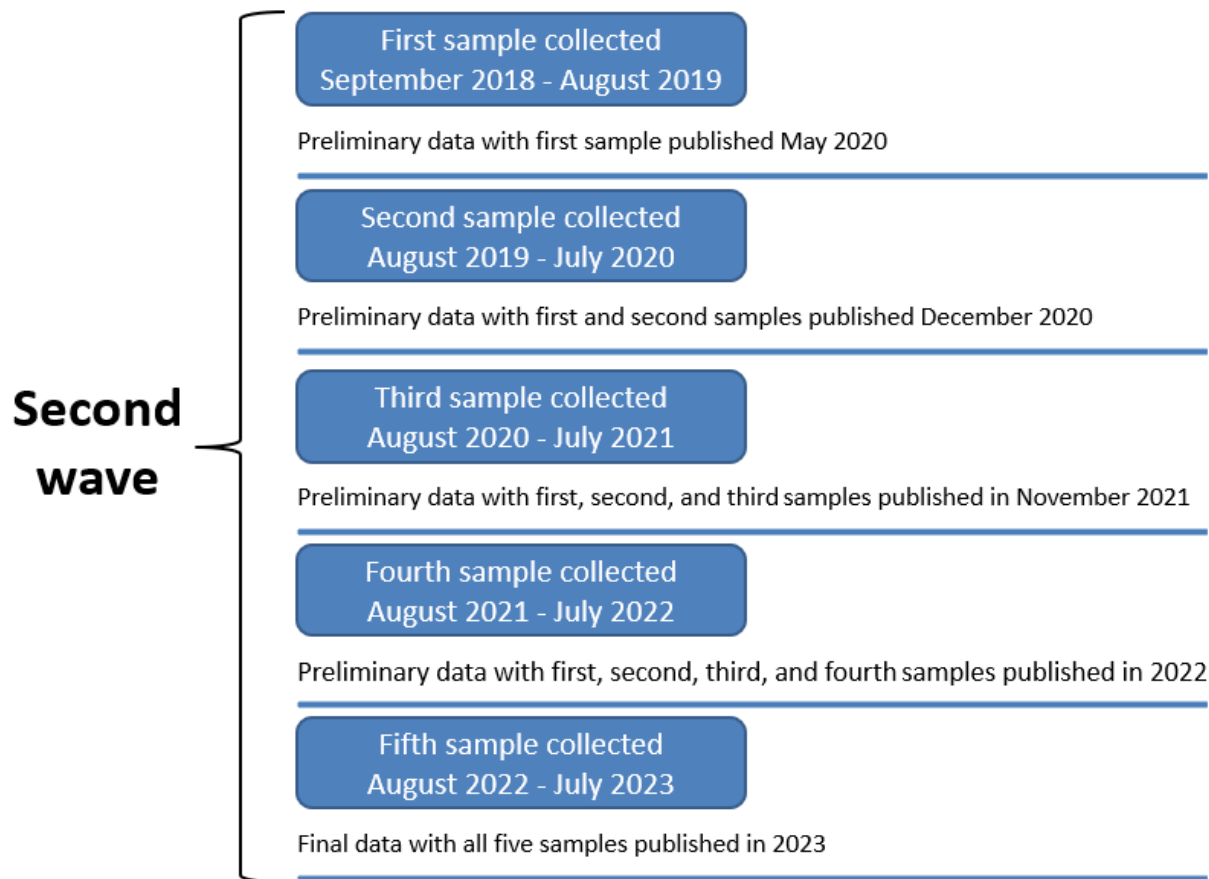
August 2020–July 2021: Collected third sample in the second wave.

December 2020: Published 2020 reference year estimates.

August 2021–July 2022: Collected fourth sample in the second wave.

November 2021: Published 2021 reference year estimates.

Exhibit 8. Structure of the second wave



Background

The Social Security Administration (SSA) and Bureau of Labor Statistics (BLS) sign annual interagency agreements for BLS to produce estimates on occupational requirements. These estimates will assist the SSA in making accurate disability determinations and decisions. SSA also intends to use ORS estimates, along with information from other occupational sources, to create the Occupational Information System (OIS).

During the developmental stages of the ORS, BLS identified the existing infrastructure available to coordinate with the ORS, which had the capability to manage and implement a new survey to meet data needs. The infrastructure included systems and processes to support all the steps of the survey. In addition, field economists who work on the NCS were already familiar with collecting data elements like those captured by the ORS. For example, the NCS program classifies each job selected using the [Standard Occupational Classification](#) (SOC) system, collects worker characteristics (such as bargaining status and part-time or full-time workers), and determines industry classification using the [North American Industry Classification System](#) (NAICS) for sampled establishments. In addition, BLS is collecting and publishing information on the knowledge required to perform the job, job controls provided, the complexity of tasks, the contacts made by workers, and the physical environment where the work is performed.⁶ After the initial assessment of whether BLS could collect job requirements, BLS began testing the collection of these requirements.

Preproduction testing

BLS established ORS as a test survey in fiscal year 2013. In fiscal years 2013 and 2014, several feasibility tests were performed to assess the viability of collecting data on occupational requirements using the platform used by the NCS. Test objectives were successfully met, and the findings from these tests suggested that the collection of the ORS data was viable.

As a result of fiscal year 2013 testing, areas were identified where further testing was needed before moving to full-scale production. In fiscal year 2014, five feasibility tests were completed to refine ORS methodology tested in previous phases. These tests provided evidence that the NCS platform could be adapted to ORS data collection.

Testing activities in fiscal years 2013 and 2014 laid the foundation for the preproduction test conducted in fiscal year 2015. The preproduction test was designed as a relatively large-scale, nationally representative test of ORS data collection. The sampling, data collection, procedures, and review were designed to mimic what would occur during ORS production. Results from the ORS preproduction test demonstrated that data on occupational requirements could be collected using the processes established by BLS.

Detailed information on completed tests and other testing activities can be found on the [ORS research page](#).

More information

The [Occupational Requirements Survey \(ORS\) website](#) contains [information for survey participants](#), which provides general information about the purpose of the ORS, survey respondent resources, visual aids for environmental conditions and physical requirements, collection manuals, and [Office of Management and Budget](#) approved collection forms.

ORS estimates and publications are available through the following links:

- [Beyond the Numbers](#)
- [Database query tool](#)
- [Excel dataset](#)
- [Factsheets](#)
- [Monthly Labor Review](#)
- [News releases](#)
- [Occupation and occupational group profiles](#)
- [The Economics Daily](#)

Additional information is available on the ORS website:

- [Collection forms](#)
- [Collection manuals](#)
- [Research articles](#)

Contact us

Email: Use the [online form](#) to submit an inquiry by email

Telephone: (202) 691-6199 (Monday through Friday, 8:30 a.m. – 4:30 p.m. Eastern Time)

Services for individuals with a sensory impairment

Information voice phone: (202) 691-5200

Telecommunications Relay Service: 7-1-1

Write us at

U.S. Bureau of Labor Statistics
Occupational Requirements Survey
Suite 4160
2 Massachusetts Ave., N.E.
Washington DC 20212-0001

Appendix A. List of occupational requirements by availability of estimate type

Occupational requirement	Potential estimate for occupational requirement?			
	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile ^[1]
Cognitive and mental requirements				
Ability to pause work	Yes	Yes	No	No
Control of workload	Yes	Yes	No	No
Machinery, equipment, or software	Yes	Yes	No	No
Numerical performance targets	Yes	Yes	No	No
People	Yes	Yes	No	No
Self-paced	Yes	Yes	No	No
Other external source	Yes	Yes	No	No
Interaction with the general public	Yes	Yes	No	No
People skills	Yes	Yes	No	No
Telework available	Yes	Yes	No	No
Problem solving	Yes	Yes	No	No
Verbal interactions	Yes	Yes	No	No
Work around crowds	Yes	Yes	No	No
Work pace	Yes	Yes	No	No
Varies	Yes	Yes	No	No
Consistent, generally slow	Yes	Yes	No	No
Consistent, generally fast	Yes	Yes	No	No
Work review	Yes	Yes	No	No
Frequency of work being checked	Yes	Yes	No	No
Presence of supervisor	Yes	Yes	No	No
Supervising duties	Yes	Yes	No	No
Education, training, and experience requirements				

Appendix A. List of occupational requirements by availability of estimate type

Occupational requirement	Potential estimate for occupational requirement?			
	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile ^[1]
Credentials	Yes	Yes	No	No
Certification	Yes	Yes	Yes	Yes
License	Yes	Yes	Yes	Yes
Educational certificate	Yes	Yes	Yes	Yes
Minimum formal education	Yes	Yes	No	No
No formal education required	Yes	Yes	No	No
High school	Yes	Yes	No	No
Vocational high school	Yes	Yes	No	No
Associate's	Yes	Yes	No	No
Vocational associate's	Yes	Yes	No	No
Bachelor's	Yes	Yes	No	No
Master's	Yes	Yes	No	No
Professional	Yes	Yes	No	No
Doctorate	Yes	Yes	No	No
Literacy, if no formal education	Yes	Yes	No	No
On-the-job training	Yes	Yes	Yes	Yes
Prior work experience	Yes	Yes	Yes	Yes
Specific vocational preparation, SVP	Yes	Yes	No	No
Environmental conditions				
Extreme cold (non-weather related)	Yes	Yes	No	No
Extreme heat (non-weather related)	Yes	Yes	No	No
Hazardous contaminants	Yes	Yes	No	No
Use of personal protective equipment	Yes	Yes	No	No

Appendix A. List of occupational requirements by availability of estimate type

Occupational requirement	Potential estimate for occupational requirement?			
	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile ^[1]
Heavy vibrations	Yes	Yes	No	No
Heights	Yes	Yes	No	No
Use of personal protective equipment	Yes	Yes	No	No
Humidity	Yes	Yes	No	No
Proximity to moving mechanical parts	Yes	Yes	No	No
Use of personal protective equipment	Yes	Yes	No	No
Outdoors ^[2]	Yes	Yes	No	No
Noise intensity level	Yes	Yes	No	No
Quiet	Yes	Yes	No	No
Moderate	Yes	Yes	No	No
Loud	Yes	Yes	No	No
Very loud	Yes	Yes	No	No
Use of personal protective equipment	Yes	Yes	No	No
Wetness (non-weather related)	Yes	Yes	No	No
Physical demands				
Climbing	Yes	Yes	No	No
Structural ramps or stairs	Yes	Yes	No	No
Work-related ramps or stairs	Yes	Yes	No	No
Ladders, ropes, or scaffolds	Yes	Yes	No	No
Driving	Yes	Yes	No	No
Hearing	Yes	Yes	No	No
In person speech	Yes	Yes	No	No
Telephone	Yes	Yes	No	No

Appendix A. List of occupational requirements by availability of estimate type

Occupational requirement	Potential estimate for occupational requirement?			
	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile ^[1]
Other remote speech	Yes	Yes	No	No
Other sounds	Yes	Yes	No	No
Lifting or carrying	Yes	Yes	No	No
Maximum weight lifted or carried	No	No	Yes	Yes
Manipulation				
Fine manipulation	Yes	Yes	No	No
One or both hands	Yes	Yes	No	No
Keyboarding	Yes	Yes	No	No
Foot or leg controls	Yes	Yes	No	No
One or both	Yes	Yes	No	No
Gross manipulation	Yes	Yes	No	No
One or both hands	Yes	Yes	No	No
Postures				
Sitting ^[3]	Yes	No	Yes	Yes
Standing ^[4]	Yes	No	Yes	Yes
Choice of sitting or standing	Yes	Yes	No	No
Low postures	Yes	Yes	No	No
Crawling ^[5]	Yes	Yes	No	No
Crouching ^[5]	Yes	Yes	No	No
Kneeling ^[5]	Yes	Yes	No	No
Stooping ^[5]	Yes	Yes	No	No
Pushing or pulling	Yes	Yes	No	No
With feet or legs	Yes	Yes	No	No

Appendix A. List of occupational requirements by availability of estimate type

Occupational requirement	Potential estimate for occupational requirement?			
	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile ^[1]
One or both	Yes	Yes	No	No
With hands or arms	Yes	Yes	No	No
One or both	Yes	Yes	No	No
Reaching	Yes	Yes	No	No
Reaching at or below the shoulder	Yes	Yes	No	No
One or both hands	Yes	Yes	No	No
Reaching overhead	Yes	Yes	No	No
One or both hands	Yes	Yes	No	No
Speaking	Yes	Yes	No	No
Strength level	Yes	Yes	No	No
Sedentary	Yes	Yes	No	No
Light	Yes	Yes	No	No
Medium	Yes	Yes	No	No
Heavy	Yes	Yes	No	No
Very heavy	Yes	Yes	No	No
Vision	Yes	Yes	No	No
Far	Yes	Yes	No	No
Near	Yes	Yes	No	No
Peripheral	Yes	Yes	No	No

Footnotes:

[1] Percentile estimates are calculated at the 10th, 25th, 50th (median), 75th, and 90th.

[2] All weather related exposure is captured in exposure to the outdoors.

[3] Sitting estimates includes time spent sitting, lying down, and when workers have the choice between sitting and standing.

[4] Standing estimates includes time spent standing, walking, and in low postures.

Appendix A. List of occupational requirements by availability of estimate type

Occupational requirement	Potential estimate for occupational requirement?			
	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile ^[1]

^[5] Estimates include required, not required, and choice to perform critical tasks in a particular low posture.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Appendix B. List of occupational requirements with associated duration

Occupational requirement	Potential estimate for occupational requirement?	
	Duration levels ^[1]	Percentile
Education, training, and experience requirements		
Credentials		
Certification	No	Yes ^[2]
License	No	Yes ^[2]
Educational certificate	No	Yes ^[2]
On-the-job training	No	Yes ^[2]
Prior work experience	No	Yes ^[2]
Environmental conditions		
Extreme cold (non-weather related)	Yes	No
Extreme heat (non-weather related)	Yes	No
Hazardous contaminants	Yes	No
Heavy vibrations	Yes	No
Heights	Yes	No
Humidity	Yes	No
Proximity to moving mechanical parts	Yes	No
Outdoors	Yes	No
Wetness (non-weather related)	Yes	No
Physical demands		
Climbing		

Appendix B. List of occupational requirements with associated duration

Occupational requirement	Potential estimate for occupational requirement?	
	Duration levels ^[1]	Percentile
Work-related ramps or stairs	Yes	No
Ladders, ropes, or scaffolds	Yes	No
Fine manipulation	Yes	No
Foot or leg controls	Yes	No
Gross manipulation	Yes	No
Keyboarding	Yes	No
Lifting or carrying	Yes	No
Maximum weight lifted or carried	No	Yes ^[3]
Low postures	Yes	No
Pushing or pulling		
With feet or legs	Yes	No
With hands or arms	Yes	No
Reaching		
Reaching at or below the shoulder	Yes	No
Reaching overhead	Yes	No
Sitting ^[4]	No	Yes ^[5]
Standing ^[6]	No	Yes ^[5]
Speaking	Yes	No

Footnotes:

^[1] Duration levels correspond to seldom, occasionally, frequently, constantly

^[2] Estimates provided as number of associated days.

^[3] Estimates provided as number of associated pounds.

^[4] Sitting estimates include time spent sitting or lying down.

^[5] Estimates provides as percentage of the workday and number of the hours in the workday.

^[6] Standing estimates include time spent standing, walking, or in low postures.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Appendix C. Definition of additive codes

Additive code	Additive relationship
000	Estimate is not additive. The category code provides the relationship with other requirements. ^[1]
0XX	Estimates sum to 100 percent and no additional relationships exist.
AXX	Estimates sum to 100 percent and additional relationships exist.
BXX	Estimates do not sum to 100 percent but sum to related estimates.
CXX	Estimates do not sum to 100 percent but sum to related estimates and correspond to the sum of the B estimates.
DXX/EXX/FXX/GXX	Estimates sum to 100 percent and are related to other estimates with the same category code that sum to 100 percent (denoted by AXX).
HXX/IXX/JXX/KXX	Estimates sum to 100 percent and are related to other estimates with the same category code.
LXX/NXX/PXX	Estimates do not sum to 100 percent but sum to related A estimates.
MXX/OXX/QXX	Estimates do not sum to 100 percent but sum to related estimates and correspond to the L, N, and P estimates.
XXX	Estimates are not additive, but a relationship exists.
YXX	Estimates sum to average workday.
ZXX	Estimates sum to 100 percent of the workday.

Footnote:

^[1] Examples of non-additive estimates include percentile distributions.

Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

¹ The Quarterly Census of Employment and Wages chapter in the [Handbook of Methods](#) provides information about the data sources, design, methodology, and availability of data.

² The Occupational Employment and Wages Statistics chapter in the [Handbook of Methods](#) provides information about the data sources, design, methodology, and availability of data.

³ Establishments that are also part of an active National Compensation Survey (NCS) sample, job selection does not occur. Instead, field economists used the NCS sampled jobs.

⁴ For further information, see the [National Compensation Survey: Guide for Evaluating Your Firm's Jobs and Pay](#).

⁵ The fiscal year for the Bureau of Labor Statistics and other federal agencies spans from October 1 through September 30.

⁶ This information is published as part of the Modeled Wage Estimates. The job characteristics include work levels, which show the difference in average hourly wages based on a range of skills, knowledge, and duties within an occupation. Information about determining work levels is available through the [National Compensation Survey: Guide for Evaluating Your Firm's Jobs and Pay](#) and the Modeled Wage Estimates [questions and answers](#).