Occupational Requirements Survey

The Occupational Requirements Survey (ORS) is an establishment-based survey conducted by the Bureau of Labor Statistics (BLS). The ORS publishes job-related information regarding physical demands; environmental conditions; education, training, and experience; as well as cognitive and mental requirements. This Handbook of Methods corresponds to 2019–23 reference period estimates.

Quick Facts: Occupational Requirements Survey	
Subject areas	Job requirements
Key measures	Cognitive and mental requirements Education, training, and experience Environmental conditions Physical demand
How the data are obtained	Survey of businesses and governments
Classification system	Occupation
Periodicity of data availability	Annual
Geographic detail	National
Scope	Private sector, State and local government
Key products	• News releases • Occupational group profiles • Database query tool • Excel dataset
Program webpage	www.bls.gov/ors

Table of Contents

CONCEPTS 2
DATA SOURCES.....6
DESIGN.....8
CALCULATION.....16
PRESENTATION 28
HISTORY.....30
MORE INFORMATION....35

Concepts

The Occupational Requirement Survey (ORS) provides estimates measuring four types of occupational requirements: physical demands; environmental conditions; education, training, and experience; and cognitive and mental requirements. Survey estimates provide insight into the requirements of work in the U.S. economy.

The ORS is designed to provide information regarding 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 doctoral 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 as well as 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 but paid by another party (contractor) 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 payments (cash, check, direct deposit) from the establishment for services performed and the establishment must pay the employer's portion of Medicare taxes on the worker's wages.

Key concepts and definitions

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 on requirements based on 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. Refer to 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 exhibit 8 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 levels. The scale used to categorize the amount of time a worker performs a physical demand, are exposed to an environmental condition, or the amount of time necessary to complete education, training, and experience requirements. Most physical demands and environmental conditions are measured using duration ranges. 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. Refer to 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 exhibit 8 in the Calculation section.

Environmental conditions. Refer to the various tangible or concrete hazards or difficulties that are in the vicinity of where jobs' critical tasks are performed. The ORS program has refined examples and definitions for collection of environmental conditions over time, and a visual overview of environmental elements is available on the Information for Survey Participants section of the website. For a list of environmental conditions and corresponding estimate types, see exhibit 8 in the Calculation section.

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 while 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 experienced by workers performing critical tasks.

Full-time or part-time status. For the ORS, full-time or part-time status is not determined by the number of hours worked, but is based on the establishment's definition of those terms. This characteristic is collected for the ORS 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.

Industry. Establishments are classified into industries using the 2017 North American Industry Classification System (NAICS). NAICS uses a six-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 services-providing sectors.

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 amount 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; and cognitive and mental requirements necessary to perform critical tasks in support of the critical job function(s). These job demands can include observable behaviors such as keyboarding, driving, and standing. These can also include unobservable behaviors such as learning and applying knowledge, and problem solving.

Modes. In this survey, modes for certain job requirement categories are calculated so that the user may identify the estimate within a category that has the largest weighted number of workers. See the Calculation section for more information. 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 is different from a job because it refers to a profession or trade in general, 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. The ORS further classifies occupations by eight-digit codes based on O*NET's detailed occupational taxonomy referred to “O*NET-SOC 2010 Occupations” when available. Implementing 2018 SOC provides information about the occupational classification in published estimates. Military specific occupations (55-0000) and postal service occupations (43-5050) are out of scope for the ORS.

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-median, 75th, and 90th) are used for estimates with continuous values, such as hours spent sitting, or days of prior work experience required. More detailed 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. The ORS program has refined examples and definitions for collection of physical demands over time, and a visual overview of physical elements is available on the Information for Survey Participants section of the website. For a list of physical demands and corresponding estimate types, see exhibit 8 in the Calculation section.

Respondent. Typically 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.

Tasks list. A task list 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.

Wave. In the context of the ORS, a “wave” represents a collection period of multiple sample groups. For example, the "first wave” included three sample groups, collected in 2015–16, 2016–17, and 2017–18. The "second wave” will include five sample groups, each collected over approximately a one year period, for example the first sample in the "second wave" was collected between August 2018 to July 2019. Once all sample groups in a wave are combined and estimated those estimates are considered final while intermediate releases within a wave are considered preliminary. See the Design and Presentation sections for additional information on second wave sample groups and estimates.

Last Modified Date: September 29, 2020

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, and email, 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.
    - For private industry establishments, field economists first attempt to collect data from a list of sampled occupations. These occupations are listed in priority order, with any pre-determined occupations listed first. The ORS program identified the pre-determined occupations as a priority for collection because they are less prevalent in the national economy.
    - If these pre-determined occupations are not present within the private industry establishment, the field economist will collect job data by using probability sampling of occupations. Probability sampling means that occupations with a greater number of employees associated with a job are more likely to be selected.
- 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 and the Calculation section.
- Examine whether workers in the sampled job work full- or part-time based on the sampled establishments definition of work status. The usual work schedule for each sampled job is also collected and includes the daily and weekly hours and annual number of weeks workers' in the sampled job 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 relationship between job requirements necessary to perform critical tasks in support of the critical job function(s).

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 published 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.

Last Modified Date: September 21, 2020

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 50,000 establishments, collected over a 5-year period (2018–23). Private industry establishments will account for 85 percent (42,500) of the total and state and local government establishments account for the remaining 15 percent (7,500). Approximately one-fifth of the total sample size will be independently sampled each year with private industry and state and local government establishments being sampled in proportion to their representation in the full 5-year sample.

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. Strata are formed by the cross-classification of the predicted presence and absence of pre-determined occupations in establishments, 4 Census regions (Midwest, Northeast, Southeast, and West), and aggregate industry (education services, financial activities goods-producing, health care and social assistance, and service-providing), leading to 40 strata. For the purposes of sample selection, pre-determined occupations are one of the 200 6-digit SOCs with the lowest employment across all ownerships based on the May 2017 Occupational Employment Statistics (OES) estimates.

Exhibit 1. List of pre-determined occupations

SOC code	Occupation
See footnotes at end of table.	
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
17-2161	Nuclear engineers

Exhibit 1. List of pre-determined occupations

SOC code	Occupation
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
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

Exhibit 1. List of pre-determined occupations

SOC code	Occupation
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
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
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

Exhibit 1. List of pre-determined occupations

SOC code	Occupation
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
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
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

Exhibit 1. List of pre-determined occupations

SOC code	Occupation
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
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
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

Exhibit 1. List of pre-determined occupations

SOC code	Occupation
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: Pre-determined 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: Bureau of Labor Statistics, Occupational Requirements Survey.

Each sampled establishment has an assigned 6-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 principle 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.

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 of four 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 Statistics (OES) program. This frame informs the selection of occupations within establishments by joining industry information from the QCEW with occupational information from the OES. A modeled occupational frame is not available for state and local government establishments due to data constraints.

Field economists are given a prioritized list of 6-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, according to the criteria on exhibit 2, based on assigned employment at the time the sample was drawn and the projected number of occupations at the establishment from the modeled occupational frame. These occupations are listed in priority order, with any pre-determined occupations listed first. Field economists determine whether any of the pre-determined 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 will collect 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.

Exhibit 2. Number of sampled jobs based on establishment employment

Number of employees	Number of sampled jobs
See footnotes at end of table.	
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 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 6-digit level of detail and by the O*NET system at the 8-digit level.

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 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 (for further information, see the National Compensation Survey: Guide for Evaluating Your Firm's Jobs and Pay). The purpose of this step is to ensure that

the job requirements of all workers in an occupation are the same aside from any individual accommodation. That is, the ORS does not evaluate the range of job requirements based on differences in job tasks and functions. 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, taking into account work performed and the skills, 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.

Some occupations, such as those listed in the exhibit below, cannot be "leveled" because points cannot be determined for all four factors. Thus, a level cannot be determined.

Exhibit 3. Jobs that cannot be classified by work level

SOC 2018	Occupation title
See footnotes at end of table.	
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
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.

Last Modified Date: September 29, 2020

Calculation

The Occupational Requirements Survey (ORS) calculates categorical and continuous estimates of job requirements by occupation and occupational group. Categorical estimates measure 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 exhibit 8 at the end of this section for a full list of published occupational requirements as well as a list corresponding estimate types. This section includes the formulas used to calculate the ORS estimates.

Estimation formulas

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

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

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:

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

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 *p*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 *p* 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 - *p*) percent of all final sampled job weights.

It is possible that there is no specific sampled job *ig* for which both of these 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 *p* percent of the total weighted sampled job employment. In that situation, the *p*th percentile is the average of Q_{ig} and the value of the sampled job with the next lowest value.

Duration

Duration corresponds with the amount of time that workers perform physical demands or the length of exposure to environmental conditions. Exhibit 4 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 exhibit 9 at the end of this section for a list of job requirements with associated duration levels.

Exhibit 4. Duration levels and amount of the workday associated with each level

Duration level	Presence of the requirement in the workday
See footnotes at end of table.	
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 level. In addition, estimates of some physical demands use averages (means) and percentiles to convey duration, such as sitting and standing. For example, the ORS measures sitting in hours, as well as 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. The ORS also calculates average (mean) and percentile estimates for education, training, and experience requirements.

For some estimates the ORS identifies the mode, which is the estimate (such as duration level) with the largest weighted number of workers.

Specific vocational preparation (SVP)

Although the ORS calculates most job requirement estimates from establishment responses about the 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 5.)

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 non-degree credentials.

Exhibit 5. Preparation time necessary for each specific vocational level

Specific vocational preparation (SVP) level	Preparation time
See footnotes at end of table.	
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
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 indicate whether jobs are considered sedentary, light work, medium work, heavy work, and very heavy work. Exhibits 6 and 7 provide the conditions necessary for estimates to reflect the strength levels.

The highest strength level satisfied is the level that represents that sampled job. For example, if a job requires workers to lift or carry 11–25 pounds occasionally, then it is classified as light work. However, if that same job were to require lifting or carrying that same weight frequently, then it is classified as medium work.

Exhibit 6. Determining strength level based on duration of lifting or carrying

Strength level	Duration of lifting or carrying			
	Seldom	Occasionally	Frequently	Constantly
See footnotes at end of table.				
Light work	11–25 pounds	11–25 pounds	1–10 pounds	Negligible weight[1]
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] Negligible weight includes anything lifted or carried weighing less than 1 pound.
Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

As noted, there are special cases for strength. The following table outlines the special cases. In instances where field economists are unable to 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.

Exhibit 7. Determining strength level based on sitting or standing

Strength level	Description
See footnotes at end of table.	
Unknown	If it is unknown how often lifting or carrying occur or none of the conditions in exhibit 5 are met and standing or sitting are unknown. The estimate is treated as item of nonresponse.
Sedentary	If none of the conditions in table 3 are met and standing occurs less than or equal to 1/3 of the workday.
Light work	If none of the conditions in table 3 are met and does not meet the special conditions for unknown or sedentary.

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

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 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.

Benchmarking, weighting, and imputation

The ORS program addresses establishment refusals, item nonresponse, and out of business and out of scope units. Benchmarking compares the ORS sample to the Quarterly Census of Employment and Wages (QCEW) data, using it as a universe. After benchmarking, the ORS program adjusts the weights of the responding establishments and imputes missing data values during the estimation process in order 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 of the occupational requirements data needed to include the data in estimation.

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 occupation characteristics. The ORS benchmark process uses the Quarterly Census of Employment and Wages (QCEW) Longitudinal Database and a file of units reporting to the Railroad Retirement Board, the Occupational Employment Statistics (OES) survey, and the Current Employment Statistics (CES) survey. The QCEW and the railroad information and OES survey provide historical employment data, but since these sources do not have current employment data, the ORS uses CES to make an adjustment to employment. The benchmark process updates the initial establishment 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 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 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 250–499 workers during estimation. Applied at the establishment level, this adjustment is a nonresponse adjustment factor (NRAF), and it is calculated using the following formula:

where,

$\sum A$ = weighted employment of all usable establishments in the nonresponse cell, and

$\sum B$ = weighted employment of all viable but not usable establishments in the nonresponse cell.

If there are no responding establishments to reweight within the industry and/or employment 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.

Situations also arise in which the ORS program adjusts weights for sampled job nonresponse, which is a situation in which 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.

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 is a situation in which 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 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 a number of 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 entails 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:

where,

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

$NRAF = \frac{\sum A + \sum B}{\sum A}$ is the rth replicate estimate, and

$$SE\left(\hat{Y}\right) = \sqrt{\frac{1}{(R(1-k)^2}\sum_{r=1}^{R}(\hat{Y}_r - \hat{Y})^2}$$ 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. Expectations are based prior year estimates as well as similar estimates from other sources of data, such as the Occupational Information Network (O*NET.) In addition, ORS estimates between similar occupations are compared.

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

Exhibit 8. List of occupational requirements by availability of estimate type

Occupational requirement	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile [1]
See footnotes at end of table.				
Cognitive and mental requirements				
Ability to pause work	✓	✓	–	–
Control of workload				
Machinery, equipment, or software	✓	✓	–	–
Numerical performance targets	✓	✓	–	–
People	✓	✓	–	–

Exhibit 8. List of occupational requirements by availability of estimate type

Occupational requirement	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile [1]
Interpersonal skills	✓	✓	–	–
Telework available	✓	✓	–	–
Problem solving	✓	✓	–	–
Verbal interactions	✓	✓	–	–
Work around crowds	✓	✓	–	–
Work pace	✓	✓	–	–
Varying	✓	✓	–	–
Consistent, generally slow	✓	✓	–	–
Consistent, generally fast	✓	✓	–	–
Work review	✓	✓	–	–
Frequency of work being checked	✓	✓	–	–
Presence of supervisor	✓	✓	–	–
Supervising duties	✓	✓	–	–
Education, training, and experience requirements				
Credentials	✓	✓	–	–
Certification	✓	✓	✓	✓
License	✓	✓	✓	✓
Educational certification	✓	✓	✓	✓
Minimum formal education				
Type of formal education	✓	✓	–	–
Literacy, if no formal education	✓	✓	–	–
On-the-job training	✓	✓	✓	✓
Prior work experience	✓	✓	✓	✓
Specific vocational preparation, SVP	✓	✓	–	–
Environmental conditions				
Extreme cold (non-weather related)	✓	✓	–	–
Extreme heat (non-weather related)	✓	✓	–	–
Hazardous contaminants	✓	✓	–	–
Heavy vibration	✓	✓	–	–
Heights	✓	✓	–	–
Humidity	✓	✓	–	–
Proximity to moving mechanical parts	✓	✓	–	–
Outdoors	✓	✓	–	–
Noise intensity level				
Quiet	✓	✓	–	–
Moderate	✓	✓	–	–
Loud	✓	✓	–	–
Use of personal protective equipment	✓	✓	–	–
Wetness (non-weather related)	✓	✓	–	–
Physical demands				
Climbing				
Structural ramps or stairs	✓	✓	–	–
Work-related ramps or stairs	✓	✓	–	–
Ladders, ropes, or scaffolds	✓	✓	–	–

Exhibit 8. List of occupational requirements by availability of estimate type

Occupational requirement	Categorical		Continuous	
	Percentage	Mode	Mean	Percentile [1]
Driving	✓	✓	–	–
Fine manipulation	✓	✓	–	–
One or both	✓	✓	–	–
Foot and leg controls	✓	✓	–	–
One or both	✓	✓	–	–
Gross manipulation	✓	✓	–	–
One or both	✓	✓	–	–
Hearing				
In person speech	✓	✓	–	–
Other remote speech	✓	✓	–	–
Other sounds	✓	✓	–	–
Telephone	✓	✓	–	–
Keyboarding	✓	✓	–	–
Lifting and carrying	✓	✓	–	–
Most weight lifted or carried	–	–	✓	✓
Low posture	✓	✓	–	–
Crawling[4]	✓	✓	–	–
Crouching[4]	✓	✓	–	–
Stooping[4]	✓	✓	–	–
Kneeling[4]	✓	✓	–	–
Pushing and pulling				
With foot or leg	✓	✓	–	–
One or both	✓	✓	–	–
With hand or arm	✓	✓	–	–
One or both	✓	✓	–	–
Reaching				
Reaching at or below the shoulder	✓	✓	–	–
One or both	✓	✓	–	–
Reaching overhead	✓	✓	–	–
One or both	✓	✓	–	–
Sitting[2] or standing[3]				
Sitting	–	–	✓	✓
Standing	–	–	✓	✓
Choice of sitting or standing	✓	✓	–	–
Strength level				
Sedentary	✓	✓	–	–
Light	✓	✓	–	–
Medium	✓	✓	–	–
Heavy	✓	✓	–	–
Very heavy	✓	✓	–	–
Vision	a			
Far	✓	✓	–	–
Near	✓	✓	–	–
Peripheral	✓	✓	–	–

[1] Percentile estimates are calculated at the 10th, 25th, 50th (median), 75th, and 90th.
[2] Sitting estimates includes requirements for sitting or laying down for critical tasks.
[3] Standing estimates include requirements for standing or walking for critical tasks.
[4] Estimates include required, not required, and choice to perform critical tasks in a particular low posture.
Note: ✓ = Potential estimate for occupational requirement and dash (–) = Indicates no estimate for this occupational requirement.
Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Exhibit 9. List of physical and environmental occupational requirements with associated duration

Occupational requirement	Duration levels [1]	Percentiles
See footnotes at end of table.		
Education, training, and experience		
Credentials	–	✓ [2]
Certification	–	✓ [2]
License	–	✓ [2]
Educational certificate	–	✓ [2]
Prior work experience	–	✓ [3]
On-the-job training	–	✓ [2]
Environmental conditions		
Extreme cold [4]	✓	–
Extreme heat [4]	✓	–
Hazardous contaminants	✓	–
Heavy vibrations	✓	–
Outdoors	✓	–
Proximity to moving mechanical parts	✓	–
Wetness [4]	✓	–
Physical requirements		
Climbing		
Ladders, ropes, or scaffolds	✓	–
Work related ramps or stairs	✓	–
Fine manipulation	✓	–
Foot or leg controls	✓	–
Gross manipulation	✓	–
Keyboarding	✓	–
Lifting or carrying	✓	✓ [5]
Low postures	✓	–
Reaching		
Reaching overhead	✓	–
Reaching at or below the shoulder	✓	–
Pushing or pulling		–
With hands or arms	✓	–
With feet or legs	✓	–
Sitting [6]	–	✓ [7]
Standing [8]	–	✓ [7]
Speaking	✓	–

[1] Duration levels correspond to seldom, occasionally, frequently, constantly
[2] Estimates provided as number of associated days.
[3] Estimates provided as number of associated hours.

[4] Nonweather related exposure.
[5] Estimates provided as number of associated pounds.
[6] Sitting estimates include time spent sitting or laying down.
[7] Estimates provides as percentage of the workday and number of the hours in the workday.
[8] Standing estimates include time spent standing or walking.
Note: ✓ = Potential estimate for occupational requirement and dash (–) = Indicates no estimate for this occupational requirement.
Source: U.S. Bureau of Labor Statistics, Occupational Requirements Survey.

Last Modified Date: September 29, 2020

Presentation

The Occupational Requirement Survey (ORS) website provides access to the ORS estimates through the news releases, database query tool, Excel dataset, factsheets, and occupation and occupational group profiles.

ORS users may include:

- Jobseekers
- Researchers
- Insurance companies
- Advocacy organizations
- Data users with in 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 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 sample groups.

The 2019 reference year (second wave) estimates include data collected between September 2018 and August 2019, which is the first of five sample groups. The 2019 to 2022 reference year estimates are considered preliminary as data from each sample group will be added to the previously collected data in order 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 sample groups 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:

- **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 data sets 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.

Text files can be downloaded 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 which 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

Last Modified Date: September 29, 2020

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: Observations test conducted concurrently with other fiscal year 2014 tests:[1]

- 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–August 2016: First sample group in the first wave collected

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

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

June 2017–September 2017: Job observations test

September 2017–July 2018: Third sample group 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 sample groups in the first wave

February 2018–August 2018: Job observation test

September 2018–August 2019: Collected first sample group in the second wave

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

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

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

August 2019–July 2020: Second sample group in the second wave collection

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 its existing infrastructure was already available to coordinate with the ORS. That framework had the capability to manage and implement a new survey to meet data needs as well as 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 similar to those captured by the ORS. For example, the NCS program classifies each job selected using the Standard Occupational Classification System (SOC), 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, the 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.[2] 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 FY 2013. In FY 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.

In FY 2013, testing was conducted in three phases:

- The main objective of phase 1 was to ensure that BLS field economists knew how to describe the survey and find respondents for the ORS data elements. BLS also created and tested an initial set of data collection protocols and collection aides.

- In phase 2, BLS expanded the number of field economists that could describe and collect ORS data while obtaining additional information not included in phase 1. Phase 2 testing also evaluated the effectiveness of collection tools.
- The primary goal of phase 3 was to test whether field economists could collect ORS data elements and relevant information across the country in a uniform and efficient manner. Also during phase 3, BLS tested the feasibility of collecting both ORS and NCS elements, adding more ways to conduct ORS interviews, including new data capture systems and review procedures, and establishing the Central Office Collection (COC). Some companies have special arrangements with BLS regarding the manner in which data should be collected for their individual establishments. Therefore, a COC may require permission and coordination from headquarters in order to proceed with collecting data.

Test objectives were successfully met in these phases, and the findings from these tests suggested that the collection of the ORS data was viable.

As a result of FY 2013 testing, areas were identified where further testing was needed before moving to full- scale production. In FY 2014, five feasibility tests were completed to refine ORS methodology tested in previous phases:

1. The ORS-only efficiency innovations test refined the methods to develop more efficient approaches for data collection as identified during FY 2013testing.
2. The NCS/ORS joint collection test determined how to best collect occupational requirements data elements and NCS data elements from the same establishment.
3. The new data element tests determined the new cognitive and mental requirements work data elements and evaluated the use of occupational task lists as developed by the Department of Labor, Employment and Training Administration (ETA), and Occupational Information Network (O*NET) program during data collection.
4. The Central Office Collection (COC) test determined how best to collect occupational requirements data elements from large firms and state governments.
5. The alternative modes test determined how to collect occupational requirements data elements efficiently (such as via phone, email, or fax) when a personal visit is not possible.

These tests provided evidence that the NCS platform could be adapted to ORS data collection and demonstrated the effectiveness of the revised materials and procedures.

Testing activities in FY 2013 and 2014 laid the foundation for the preproduction test conducted in FY 2015. Unlike the earlier tests, which were small-scale, testing a subset of data elements or the viability of different collection methods, 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. The results from the ORS preproduction test demonstrated that data on occupational requirements could be collected using the processes established by BLS. As a result of the preproduction test, some changes and refinements to several of the elements were made before the implementation of a move to production.

Detailed information on completed tests and other testing activities can be found on ORS research page.

Change in scope of collection

Initially, BLS and SSA agreed to define the scope of collection as how work is "generally performed" in each establishment. This meant BLS collected requirements related to all aspects of work, including job functions that were incidental or not specific to one job and were unrelated to the primary hiring and pay factors of jobs.

Historically, SSA relied upon information from the Department of Labor's Dictionary of Occupational Titles (DOT) and its companion the Selected Characteristics of Occupations (SCO). The data from these publications appear to show a narrower scope for data collection. DOT data appears to show that analysts only rated work requirements that pertained to the hiring and pay factors of jobs.

Beginning with collection of the third sample group in the first wave, BLS took steps to revise current procedures to align more closely with a narrower scope of work that pertains to the hiring and pay factors of the job. The revised scope of work is limited to only tasks related to the "critical job function" (i.e., the reason the job exists). These tasks must be expected and usual, now defined as "critical."

In addition, the ORS program reviewed the measurements of duration for applicable job requirements, which included point measurements, respondent-determined ranges, and SSA-defined ranges. BLS determined that measurement of duration only in the SSA-defined ranges would more accurately reflect duration of job demands and incorporated this change during the first wave.

By adjusting the parameters of what work is included to only that of the critical functions of jobs and specifying duration ranges, the BLS expects to more accurately capture job requirements while still identifying changes in the way work is performed in the modern economy.

Cognitive and mental requirements

Estimates for the second wave, beginning with preliminary 2019 reference year estimates, include cognitive and mental requirements. Cognitive and mental requirements were initially included in estimates for the first wave (2016 and 2017 reference year estimates) but were discontinued while the ORS program refined concepts, conducted testing, developed procedures, trained staff, and updated the estimation system. The ORS program conducted feasibility testing to assess measures of cognitive and mental requirements that are understandable to employers and can be used to generate useful estimates, resulting in better defined estimate categories that can be used to measure work pace, ability to pause work, presence of supervisor, and many additional categories. (See the calculation section for a full listing of cognitive and mental estimate types.)

NOTES

[1] The fiscal year (FY) for the Bureau of Labor Statistics and federal agencies spans from October 1st through September 30th.

[2] 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.

Last Modified Date: September 29, 2020

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:

- Beyond the Numbers,
- Database query tool,
- Excel dataset,
- Factsheets,
- News release,
- Occupation and occupational group profiles, and
- The Economics Daily.

Additional information about ORS is available at:

- 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

The Federal Relay Service: 1-800-877-8339

Write us at

Bureau of Labor Statistics
Occupational Requirements Surveys
2 Massachusetts Ave., N.E. - Suite 4160
Washington, D.C. 20212-0001

Last Modified Date: September 29, 2020