

# **KANSAS HIGH DEMAND OCCUPATIONS LIST METHODOLOGY**

## **Labor Market Information Services Unit**

### **Purpose**

The high demand occupations list has been created to answer the question of, which jobs have the highest number of job openings in the state right now and which jobs will have the highest number of openings in the coming years. This is a helpful resource for students and job seekers because it provides information on the amount of employment opportunity in the state for a particular occupation. The jobs on the high demand list have shown up as being in high demand based on more than one source of labor market data. Each job is ranked based on the number of openings currently reported to us by Kansas employers, as well as the projected number of job openings two years into the future and ten years into the future. Many students utilize the high demand list, as well as those workers who are planning to change careers. The high demand list uses projected data as two thirds of the measure in order to ensure the jobs will still be in demand even if job seekers need to go through job training before they can enter the labor force.

There are three sources of data that are combined to form a standardized score for each occupation. Scores for each occupation range from 0 to 30. A score of zero indicates the occupation has average demand among all other occupations in Kansas. A score of 30 indicates the occupation scored a perfect ten out of ten for each of the three sources of data. An occupation that scored nine or less from the combined three data sources is dropped from the list entirely. Each occupation has to score a minimum of ten to be included in the list.

### **Source Data**

The first source of data is the Job Vacancy Survey (JVS). The Job Vacancy Survey is a point-in-time survey administered in the second quarter of each year to employers in the state. The latest release is the 2019 Job Vacancy Survey. The survey includes questions indicating the number of job openings employers intend to fill as well as descriptions of the openings including wage, part-time/full time, and benefits. These occupations are coded according to the Standard Occupational Classification (SOC) system. 2019 survey results came from a selected sample of 3,086 establishments. There are approximately 90,000 employers in the state.

The second source of data comes from the short-term employment projections program. Short-term projections are released each year by the Labor Market Information Services division of the Kansas Department of Labor. Funding comes from the Employment and Training Administration of the U.S. Department of Labor. Short-term projections use quarterly employment data to project the number of jobs two years from the base period. The projected total job openings include openings in growing occupations as well as replacement openings that occur when workers retire or permanently leave an occupation. Total job openings are the input for the high demand occupation list.

The third source of data comes from the long-term projections program. Long-term projections are calculated every other year and project out 10 years from the base year. Similar to the short-term projections, these are released by Labor Market Information Services and funded through the Employment and Training Administration. The number of total job openings over the 10 year period is the input from this program used in the high demand occupations list.

### **Calculation**

Three inputs from the sources above are used to measure demand for occupations in the state. These are total openings from JVS, total openings projected over 2 years, and total openings projected over 10 years. Each of these is scored individually and then combined for a total score.

The distribution of total openings data from each source is positively skewed, so the data is transformed by taking the natural logarithm of total openings for each occupation and source. These logged values are then used to calculate the mean and standard deviation for each source. The log of total openings for each occupation is compared to the mean and occupations are assigned a score based on the number of standard deviations above the mean. Occupations that have a log of openings between the mean and 0.2 standard deviations above the mean are assigned a score of one. Occupations having a log of openings between 0.2 and 0.4 standard deviations receive a score of two. This process is continued using intervals of 0.2 standard deviations. Occupations with a log of openings more than 1.8 standard deviations above the mean receive a score of ten, the highest possible score for an occupation. Any occupation with a log of openings below the mean receives a score of zero.

A total high demand score is calculated for each occupation on the list by adding the demand scores from each source for that occupation. Only occupations that scored at least a ten from the combined three categories are included in the list.

### **High Demand List**

Occupations are ranked based on their high demand score. Many of the occupations receive the same demand score, so occupations are secondarily sorted by annual wage. Additional information is also provided including the typical level of education, related work experience, and on-the-job training that workers need to enter the occupation. Education categories include doctoral or professional degree; master's degree; bachelor's degree; associate degree; postsecondary non-degree award; some college, no degree; high school diploma or equivalent; and no formal educational credential. For some occupations work experience in a related occupation or on-the-job training may be a typical method of entry. Categories for work experience in a related occupation are 5 years or more, less than 5 years, and none. Typical on-the-job training categories are internship/residency, apprenticeship, long-term on-the-job training (more than 12 months), moderate-term on-the-job training (1 to 12 months), and short-term on-the-job training (1 month). More information can be found at

[https://www.bls.gov/emp/ep\\_nem\\_definitions.htm#education](https://www.bls.gov/emp/ep_nem_definitions.htm#education).

### **High Demand High Wage**

One variation of the high demand list is the High Demand High Wage (HDHW) list. The HDHW list starts with the three demand rankings discussed above. Another source of data, median wages, is added to the list. Each occupation on the list is ranked by total score. The highest total score is a 40 and the lowest total score is zero. An occupation that receives a score of 40 has a ten in each of the three demand scores and a ten in the wage score. An occupation that receives a total score of 0 has average or below average job openings from each of the three demand sources and an average or below level of wages.

Median wages for Kansas are pulled from the Occupational Employment Statistics (OES) program. This program collects wage data by occupation through a bi-annual survey of employers in the state. More information on OES can be found at <https://www.bls.gov/oes/>.

The median wage for each occupation is processed in the same way as the openings data discussed above. The natural log is taken of the wage and it is ranked in increments of 0.2 standard deviations above the mean of all the occupations. The four sources for each occupation are added together to get a total HDHW score. The score is weighted  $\frac{3}{4}$  based on demand and  $\frac{1}{4}$  based on wages. Any occupation that did not score at least a total of ten in the demand categories and at least a one in the wage category is dropped from the list. Occupations must have a median wage that is above average to be included on the HDHW list.

The HDHW list was born out of a series of conversations with officials from the Kansas Department of Education and the Kansas Board of Regents who are regular users of the original high demand list. With the original high demand list there are several occupations that routinely show up near the top and throughout the list that require less than a high school diploma and have some of the lowest wages of all the occupations on the list. Examples of these are cashiers; waiters and waitresses; combined food preparation and serving workers; retail sales persons; personal care aides; and laborers and freight, stock, and material movers. These occupations require no training or education and therefore are not the focus of students and other workers who are interested in training to prepare for other careers. The HDHW list filters out those occupations by dropping occupations with a lower than average median wage. The final list of occupations provides information for students and policy makers about the types of education and training opportunities that would be beneficial for in demand jobs in Kansas.