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Occupational Employment and Wages in Tulsa — May 2021

Workers in the Tulsa, OK Metropolitan Statistical Area had an average (mean) hourly wage of \$24.44 in May 2021, 13 percent below the nationwide average of \$28.01, the U.S. Bureau of Labor Statistics reported today. Regional Commissioner Michael Hirniak noted that, after testing for statistical significance, wages in the local area were lower than their respective national averages in 17 of the 22 major occupational groups, including arts, design, entertainment, sports, and media; computer and mathematical; and building and grounds cleaning and maintenance. Production was the only major occupational group with wages in the local area higher than its respective national average.

When compared to the nationwide distribution, Tulsa area employment was more highly concentrated in 8 of the 22 occupational groups, including production, food preparation and serving related, and office and administrative support. Thirteen groups had employment shares significantly below their national representation, including computer and mathematical, educational instruction and library, and business and financial operations. (See [table A](#).)

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Table A. Occupational employment and wages by major occupational group, United States and the Tulsa metropolitan area, and measures of statistical significance, May 2021

Major occupational group	Percent of total employment		Mean hourly wage		
	United States	Tulsa	United States	Tulsa	Percent difference (1)
Total, all occupations	100.0	100.0	\$28.01	\$24.44*	-13
Management	6.3	5.6*	59.31	52.78*	-11
Business and financial operations	6.4	5.5*	39.72	35.38*	-11
Computer and mathematical	3.3	2.1*	48.01	38.71*	-19
Architecture and engineering	1.7	2.2*	44.10	42.89	-3
Life, physical, and social science	0.9	0.5*	38.81	36.99	-5
Community and social service	1.6	1.1*	25.94	23.59*	-9
Legal	0.8	0.6*	54.38	48.50*	-11
Educational instruction and library	5.8	4.8*	29.88	(2)	(2)
Arts, design, entertainment, sports, and media	1.3	1.0*	31.78	23.27*	-27
Healthcare practitioners and technical	6.2	6.5*	43.80	39.14*	-11
Healthcare support	4.7	3.8*	16.02	14.58*	-9
Protective service	2.4	2.1*	25.68	22.26*	-13
Food preparation and serving related	8.0	9.2*	14.16	12.10*	-15
Building and grounds cleaning and maintenance	2.9	2.6*	16.23	13.84*	-15
Personal care and service	1.8	1.7*	16.17	13.81*	-15
Sales and related	9.4	10.0*	22.15	19.98*	-10
Office and administrative support	13.0	14.0*	20.88	19.03*	-9
Farming, fishing, and forestry	0.3	0.1*	16.70	16.58	-1
Construction and extraction	4.2	4.9*	26.87	23.50*	-13
Installation, maintenance, and repair	4.0	4.6*	25.66	24.37*	-5
Production	6.0	8.0*	20.71	21.58*	4
Transportation and material moving	9.0	9.0	19.88	18.11*	-9

(1) A positive percent difference measures how much the mean wage in the Tulsa, OK Metropolitan Statistical Area is above the national mean wage, while a negative difference reflects a lower wage.

(2) Estimate not released

* The mean hourly wage or percent share of employment is significantly different from the national average of all areas at the 90-percent confidence level.

One occupational group—production—was chosen to illustrate the diversity of data available for any of the 22 major occupational categories. Tulsa had 33,520 jobs in production, accounting for 8.0 percent of local area employment, significantly higher than the 6.0-percent share nationally. The average hourly wage for this occupational group locally was \$21.58, significantly above the national wage of \$20.71.

Some of the larger detailed occupations within the production group included welders, cutters, solderers, and brazers (4,010), first-line supervisors of production and operating workers (3,250) and inspectors, testers, sorters, samplers, and weighers (2,190). Among the higher-paying jobs in this group were petroleum pump system operators, refinery operators, and gaugers, and gas plant operators with mean hourly wages of \$40.19 and \$36.20, respectively. At the lower end of the wage scale were laundry and dry-cleaning workers (\$11.77) and bakers (\$13.19). (Detailed data for the production occupations are presented in [table 1](#); for a complete listing of detailed occupations available go to www.bls.gov/oes/current/oes_46140.htm.)

Location quotients allow us to explore the occupational make-up of a metropolitan area by comparing the composition of jobs in an area relative to the national average. (See [table 1.](#)) For example, a location quotient of 2.0 indicates that an occupation accounts for twice the share of employment in the area than it does nationally. In the Tulsa area, above-average concentrations of employment were found in many of the occupations within the production group. For instance, aircraft structure, surfaces, rigging, and systems assemblers were employed at 10.8 times the national rate in Tulsa, and petroleum pump system operators, refinery operators, and gaugers, at 5.7 times the U.S. average. Electrical, electronic, and electromechanical assemblers, except coil winders, tapers, and finishers had a location quotient of 1.1 in Tulsa, indicating that this particular occupation's local and national employment shares were similar.

These statistics are from the Occupational Employment and Wage Statistics (OEWS) survey, a federal-state cooperative program between BLS and State Workforce Agencies, in this case, the Oklahoma Employment Security Commission.

Changes to the Occupational Employment and Wage Statistics (OEWS) Data

With the May 2021 estimates release, the Occupational Employment and Wage Statistics (OEWS) program has implemented a new model-based (MB3) estimation method. For more information, see the May 2021 Survey Methods and Reliability Statement at www.bls.gov/oes/methods_21.pdf and the Monthly Labor Review article at www.bls.gov/opub/mlr/2019/article/model-based-estimates-for-the-occupational-employment-statistics-program.htm. OEWS estimates for the years 2015-19 were recalculated using the new estimation method and are available as research estimates at www.bls.gov/oes/oes-mb3-methods.htm.

The May 2021 OEWS estimates are also the first estimates based entirely on survey data collected using the 2018 Standard Occupational Classification (SOC) system. To improve data quality, the OEWS program aggregates some occupations to the SOC broad occupation level or as OEWS-specific combinations of 2018 SOC detailed occupations.

Technical Note

The Occupational Employment and Wage Statistics (OEWS) survey is a semiannual survey measuring occupational employment and wage rates for wage and salary workers in nonfarm establishments in the United States. The OEWS data available from BLS include cross-industry occupational employment and wage estimates for the nation; over 580 areas, including states and the District of Columbia, metropolitan statistical areas (MSAs), nonmetropolitan areas, and territories; national industry-specific estimates at the NAICS sector, 3-digit, most 4-digit, and selected 5- and 6-digit industry levels, and national estimates by ownership across all industries and for schools and hospitals. OEWS data are available at www.bls.gov/oes/tables.htm.

The OEWS survey is a cooperative effort between BLS and the State Workforce Agencies (SWAs). BLS funds the survey and provides the procedures and technical support, while the State Workforce Agencies collect most of the data. OEWS estimates are constructed from a sample of about 1.1 million establishments. Each year, two semiannual panels of approximately 179,000 to 187,000 sampled establishments are contacted, one panel in May and the other in November. Responses are obtained by Internet or other electronic means, mail, email, telephone, or personal visit. The May 2021 estimates are based on responses from six semiannual panels collected over a 3-year period: May 2021, November 2020, May 2020, November 2019, May 2019, and November 2018. The unweighted sampled employment of 82 million across all six semiannual panels represents approximately 62 percent of total national employment. The overall national response rate for the six panels, based on the 50 states and the District of Columbia, is 67.2 percent based on establishments and 64.5 percent based on weighted sampled employment. The sample in the Tulsa, OK Metropolitan Statistical Area included 3,233 establishments with a response rate of 76 percent. For more information about OEWS concepts and methodology, go to www.bls.gov/oes/current/oes_tec.htm.

A value that is statistically different from another does not necessarily mean that the difference has economic or practical significance. Statistical significance is concerned with the ability to make confident statements about a universe based on a sample. It is entirely possible that a large difference between two values is not significantly different statistically, while a small difference is, since both the size and heterogeneity of the sample affect the relative error of the data being tested.

Metropolitan area definitions

The substate area data published in this release reflect the standards and definitions established by the U.S. Office of Management and Budget.

The **Tulsa, OK Metropolitan Statistical Area** includes Creek, Okmulgee, Osage, Pawnee, Rogers, Tulsa, and Wagoner Counties.

For more information

Answers to frequently asked questions about the OEWS data are available at www.bls.gov/oes/oes_ques.htm. Detailed information about the OEWS program is available at www.bls.gov/oes/oes_doc.htm.

Information in this release will be made available to individuals with sensory impairments upon request. Voice phone: (202) 691-5200; Telecommunications Relay Service: 7-1-1.

Table 1. Employment and wage data for production occupations, Tulsa metropolitan area, May 2021

Occupation ⁽¹⁾	Employment		Mean wages	
	Level ⁽²⁾	Location quotient ⁽³⁾	Hourly	Annual ⁽⁴⁾
Production occupations	33,520	1.3	\$21.58	\$44,890
First-line supervisors of production and operating workers	3,250	1.7	33.34	69,350
Aircraft structure, surfaces, rigging, and systems assemblers	1,060	10.8	22.37	46,540
Electrical, electronic, and electromechanical assemblers, except coil winders, tapers, and finishers	920	1.1	17.88	37,180
Structural metal fabricators and fitters	440	2.4	22.70	47,220
Miscellaneous assemblers and fabricators	4,470	1.1	17.91	37,240
Bakers	840	1.6	13.19	27,430
Butchers and meat cutters	390	0.9	14.54	30,250

(1) For a complete listing of all detailed occupations in the Tulsa, OK Metropolitan Statistical Area, see www.bls.gov/oes/current/oes_46140.htm.

(2) Estimates for detailed occupations may not sum to the totals due to rounding, and because the totals may include occupations that are not shown separately. Estimates do not include self-employed workers.

(3) The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. A location quotient greater than one indicates the occupation has a higher share of employment than average, and a location quotient less than one indicates the occupation is less prevalent in the area than average.

(4) Annual wages have been calculated by multiplying the hourly mean wage by a "year-round, full-time" hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.

Occupation (1)	Employment		Mean wages	
	Level (2)	Location quotient (3)	Hourly	Annual (4)
Slaughterers and meat packers	80	0.3	13.13	27,300
Food and tobacco roasting, baking, and drying machine operators and tenders	220	3.6	16.53	34,370
Food batchmakers	270	0.6	14.92	31,040
Food cooking machine operators and tenders	80	1.1	12.25	25,480
Food processing workers, all other	90	0.7	15.95	33,170
Extruding and drawing machine setters, operators, and tenders, metal and plastic	150	0.8	19.17	39,880
Rolling machine setters, operators, and tenders, metal and plastic	50	0.6	18.67	38,840
Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	630	1.2	19.30	40,150
Drilling and boring machine tool setters, operators, and tenders, metal and plastic	60	3.1	22.03	45,820
Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic	270	1.3	17.89	37,220
Lathe and turning machine tool setters, operators, and tenders, metal and plastic	190	3.2	22.73	47,280
Milling and planing machine setters, operators, and tenders, metal and plastic	90	2.0	20.84	43,360
Machinists	1,930	2.0	23.18	48,220
Foundry mold and coremakers	130	3.2	13.40	27,870
Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	360	0.7	16.33	33,970
Multiple machine tool setters, operators, and tenders, metal and plastic	360	0.9	18.80	39,100
Tool and die makers	50	0.3	29.47	61,300
Welders, cutters, solderers, and brazers	4,010	3.4	23.14	48,140
Welding, soldering, and brazing machine setters, operators, and tenders	80	0.9	15.67	32,600
Heat treating equipment setters, operators, and tenders, metal and plastic	90	2.1	19.08	39,680
Plating machine setters, operators, and tenders, metal and plastic	160	1.7	19.44	40,430
Tool grinders, filers, and sharpeners	60	3.1	20.00	41,600
Prepress technicians and workers	60	0.8	17.54	36,480
Printing press operators	310	0.7	16.53	34,370
Print binding and finishing workers	120	1.0	15.73	32,720
Laundry and dry-cleaning workers	600	1.3	11.77	24,480
Sewing machine operators	110	0.3	16.46	34,230
Tailors, dressmakers, and custom sewers	40	0.8	17.33	36,040
Extruding and forming machine setters, operators, and tenders, synthetic and glass fibers	80	1.9	14.54	30,250
Upholsterers	30	0.4	16.98	35,310
Cabinetmakers and bench carpenters	510	1.9	18.42	38,310
Sawing machine setters, operators, and tenders, wood	40	0.3	16.78	34,910
Woodworking machine setters, operators, and tenders, except sawing	40	0.2	14.71	30,600
Power plant operators	60	0.7	44.93	93,460
Stationary engineers and boiler operators	60	0.6	32.15	66,870
Water and wastewater treatment plant and system operators	550	1.5	19.90	41,400
Gas plant operators	230	5.1	36.20	75,300
Petroleum pump system operators, refinery operators, and gaugers	580	5.7	40.19	83,590
Plant and system operators, all other	30	0.8	21.41	44,530
Chemical equipment operators and tenders	210	0.7	24.56	51,090
Separating, filtering, clarifying, precipitating, and still machine setters, operators, and tenders	100	0.7	24.88	51,760
Crushing, grinding, and polishing machine setters, operators, and tenders	180	1.9	20.06	41,720
Grinding and polishing workers, hand	120	2.5	17.33	36,040
Mixing and blending machine setters, operators, and tenders	170	0.5	20.55	42,750
Cutting and slicing machine setters, operators, and tenders	170	1.1	17.01	35,380
Extruding, forming, pressing, and compacting machine setters, operators, and tenders	110	0.7	18.49	38,470
Furnace, kiln, oven, drier, and kettle operators and tenders	160	3.7	21.17	44,030

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(4) Annual wages have been calculated by multiplying the hourly mean wage by a "year-round, full-time" hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.

Occupation (1)	Employment		Mean wages	
	Level (2)	Location quotient (3)	Hourly	Annual (4)
Inspectors, testers, sorters, samplers, and weighers	2,190	1.3	21.62	44,980
Jewelers and precious stone and metal workers	30	0.4	22.06	45,880
Dental laboratory technicians	90	0.9	23.36	48,580
Ophthalmic laboratory technicians	110	1.9	14.72	30,610
Packaging and filling machine operators and tenders	460	0.4	16.58	34,490
Painting, coating, and decorating workers	60	1.6	20.79	43,240
Coating, painting, and spraying machine setters, operators, and tenders	960	2.2	20.27	42,170
Computer numerically controlled tool operators	1,570	3.4	21.34	44,400
Computer numerically controlled tool programmers	130	1.7	27.41	57,010
Adhesive bonding machine operators and tenders	170	4.6	26.05	54,190
Cleaning, washing, and metal pickling equipment operators and tenders	60	1.5	13.80	28,700
Molders, shapers, and casters, except metal and plastic	150	1.4	20.41	42,460
Paper goods machine setters, operators, and tenders	420	1.6	22.74	47,290
Helpers--production workers	770	1.3	16.38	34,070
Production workers, all other	200	0.3	18.76	39,030

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