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SPECIAL REPORT:
Oklahoma Industry and Occupational Projections: 2020 to 2030

Introduction
Every other year, the Oklahoma Employment Security Commission produces long-term industry and occupational employment projections with the base year of the projections decade being an even-numbered year. Our goal is not necessarily to predict the exact level of employment ten years in the future, but rather to determine overall trends that can be used for career and policy planning. Employment projections help to facilitate career exploration by high school students and their teachers and parents, college students, career changers, and career development and guidance specialists. Employment projections are also widely used by policymakers and education and training officials to make decisions about education and training policy, funding, and program offerings. Additionally, other state agencies, researchers, and academics use the projections to understand trends in the economy and labor market.

Industry Projections
Total employment is projected to grow from 1,721,170 to 1,900,560 over the 2020–30 decade, an increase of 179,390 jobs. This increase reflects an annual growth rate of 1.0 percent, which is higher than recent projections cycles and accounts for recovery from low base-year employment for 2020 due to the COVID-19 pandemic and its associated recession. Employment in only one of Oklahoma's industry supersectors, government, is anticipated to decline in the coming years, (see Chart 1, above and Table 1, next page).

In the goods-producing industries, employment in natural resources and mining is projected to grow the fastest, adding 12,970 jobs (2.8 percent annually), almost all of which are anticipated to be in oil and gas extraction (6,070 jobs) and support activities for mining (5,770 jobs). Manufacturing employment is projected to add 15,670 jobs (1.1 percent annually). Employment in construction is forecast to add 7,360 jobs (0.9 percent annually) over the 2020-30 decade.
For the services-providing industries, employment in leisure and hospitality is projected to grow the fastest (2.7 percent annually) among all sectors over the 2020–30 decade, adding 53,430 jobs. This growth is largely driven by recovery from the pandemic, as restaurants, hotels, and arts, cultural, and recreational related establishments with low 2020 base-year employment levels see restored demand from the public resuming recreational and in-person activities.

Employment in education and health services is projected to add the second most jobs of all industry supersectors, about 48,300 jobs over 2020–30. Health care and social assistance is projected to increase by 38,880 jobs, with an annual growth rate of 1.2 percent.

Professional & business services employment is expected to add 27,190 jobs (1.4 percent annually) in the 2020-2030 decade. More than half of the job growth in this industry is led by gains in the administrative and support services sector which is projected to add 17,610 jobs (1.9 percent). Technological advancements are expected to support strong employment growth in professional, scientific, and technical services forecast to contribute 10,480 jobs (1.3 percent).

The broad trade, transportation & utilities supersector is forecast to add 12,400 jobs (0.4 percent) between 2020 and 2030. Retail trade (8,110 jobs), wholesale trade (2,130 jobs), and transportation and warehousing (580 jobs) are all projected to add employment during the forecast period. Utilities is forecast to add 1,580 jobs during the forecast period.

Information is forecast to gain 2,750 jobs (1.4 percent annually) over the 2020 to 2030 decade.

The financial activities supersector is projected to add 1,260 jobs (0.2 percent annually) between 2020 and 2030 as gains in real estate and rental & leasing (1,670 jobs) were partially offset by losses in finance & insurance (-420 jobs).

Other services (except government) is expected to add 4,270 jobs for a 0.6 percent annual gain between 2020 and 2030.

Government employment, (excluding casinos, casino hotels, education and hospitals), is projected to decline at an annual rate of 0.3 percent, losing 5,830 jobs during the 2020-2030 period, as gains in local government (4,420 jobs) are more than offset by losses in federal government (-3,880 jobs) and state government (-6,370 jobs).
Occupational Projections

Turning to occupational projections, a solid 215,380 annual total openings are projected from 2020 to 2030, with 17,940 being new jobs created during this period. The remaining 197,440 annual job openings are due to the need to replace workers who retire or leave their occupations for other reasons.

Personal care and service occupations and food preparation and serving related occupations are also projected for the fastest employment growth among all occupational groups (23.6 percent), mainly due to recovery growth following low 2020 base-year employment. Healthcare support occupations are also projected for rapid employment growth (19.6 percent).

Healthcare occupations and those associated with healthcare (including mental health) account for 6 of the 30 fastest growing occupations from 2020 to 2030. Demand for healthcare services, from both aging baby boomers and from people who have chronic conditions, will drive the projected employment growth.

Computer and mathematical occupations are expected to see fast employment growth (14.1 percent) as strong demand is expected for IT security and software development, in part due to increased prevalence of telework spurred by the COVID-19 pandemic.

Advances in, and implementation of, renewable energy technologies are expected to drive employment growth in the occupation with the highest projected growth rate, wind turbine technicians (106.2 percent). Despite the rapid growth projected for this occupation, its small employment level means that only 240 new jobs are projected from 2020 to 2030.

Technological changes facilitating increased automation are expected to result in slower employment growth for office and administrative support occupations (2.0 percent), sales occupations (4.1 percent), and production occupations (7.7 percent), (see Table 2, next page).
### Table 2: Oklahoma Occupational Employment Estimates & Projections, 2020-2030

<table>
<thead>
<tr>
<th>Aggregate Occupational Group</th>
<th>2020</th>
<th>2030</th>
<th>Numeric Change</th>
<th>Percent Change</th>
<th>Annual Total Openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total, All Occupations</td>
<td>1,721</td>
<td>1,900</td>
<td>179,390</td>
<td>10.4</td>
<td>215,380</td>
</tr>
<tr>
<td>Management, Business, and Financial Occupations¹</td>
<td>93,600</td>
<td>211,480</td>
<td>18,930</td>
<td>20.2</td>
<td>18,490</td>
</tr>
<tr>
<td>Computer, Engineering, and Science²</td>
<td>75,990</td>
<td>85,900</td>
<td>9,910</td>
<td>13.0</td>
<td>7,030</td>
</tr>
<tr>
<td>Education, Legal, Community Service, Arts, and Media³</td>
<td>162,170</td>
<td>176,540</td>
<td>14,380</td>
<td>8.9</td>
<td>16,290</td>
</tr>
<tr>
<td>Healthcare Practitioners and Technical⁴</td>
<td>117,430</td>
<td>134,530</td>
<td>17,100</td>
<td>14.6</td>
<td>8,840</td>
</tr>
<tr>
<td>Service Occupations⁵</td>
<td>351,160</td>
<td>418,970</td>
<td>67,820</td>
<td>19.3</td>
<td>63,020</td>
</tr>
<tr>
<td>Sales and Related Occupations</td>
<td>167,820</td>
<td>174,650</td>
<td>6,830</td>
<td>4.1</td>
<td>23,240</td>
</tr>
<tr>
<td>Office and Administrative Support Occupations</td>
<td>229,790</td>
<td>234,370</td>
<td>4,580</td>
<td>2.0</td>
<td>25,730</td>
</tr>
<tr>
<td>Farming, Fishing, and Forestry Occupations</td>
<td>8,060</td>
<td>8,670</td>
<td>610</td>
<td>7.5</td>
<td>1,360</td>
</tr>
<tr>
<td>Construction and Extraction Occupations</td>
<td>91,370</td>
<td>101,900</td>
<td>10,530</td>
<td>11.5</td>
<td>10,770</td>
</tr>
<tr>
<td>Installation, Maintenance, and Repair Occupations</td>
<td>81,090</td>
<td>90,360</td>
<td>9,270</td>
<td>11.4</td>
<td>8,980</td>
</tr>
<tr>
<td>Production Occupations</td>
<td>105,080</td>
<td>113,130</td>
<td>8,040</td>
<td>7.7</td>
<td>12,580</td>
</tr>
<tr>
<td>Transportation and Material Moving Occupations</td>
<td>138,670</td>
<td>150,070</td>
<td>11,400</td>
<td>8.2</td>
<td>19,040</td>
</tr>
</tbody>
</table>

Notes:

¹Major occupational groups 11-0000 through 13-0000 in the 2010 Standard Occupational Classification (SOC).
²Major occupational groups 15-0000 through 19-0000 in the 2010 Standard Occupational Classification (SOC).
³Major occupational groups 21-0000 through 27-0000 in the 2010 Standard Occupational Classification (SOC).
⁴Major occupational group 29-0000 in the 2010 Standard Occupational Classification (SOC).
⁵Major occupational groups 31-0000 through 39-0000 in the 2010 Standard Occupational Classification (SOC).

Source: Employment Projections program, Oklahoma Employment Security Commission, Economic Research & Analysis Division

### More Information

Detailed interactive forecast tables and charts are available at:

[Industry and Occupational Employment Projections (oklahoma.gov)](https://www.oklahoma.gov)

There you will find interactive industry and occupational projections data for the 2020-2030 period as well as the 2021-2023 short-term industry and occupational projections and 2018-2028 long-term projections for Oklahoma’s metropolitan and non-metropolitan areas.
Definition & Importance
Gross Domestic Product (GDP)—the output of goods and services produced by labor and property located in the United States—is the broadest measure of economic activity. It is also the measure that is most indicative of whether the economy is in recession. In the post-World War II period, there has been no recession in which GDP did not decrease in at least two quarters, (the exceptions being during the recessions of 1960-61 and 2001).

The Bureau of Economic Analysis (BEA), U.S. Department of Commerce releases GDP data on a quarterly basis, usually during the fourth week of the month. Data are for the prior quarter, so data released in April are for the 1st quarter. Each quarter’s data are revised in each of the following two months after the initial release. Each revision is based on more complete economic data.

Background
There are four major components to GDP:

1. **Personal consumption expenditures**: Individuals purchase durable goods (such as furniture and cars), nondurable goods (such as clothing and food) and services (such as banking, education, and transportation).

2. **Investment**: Private housing purchases are classified as residential investment. Businesses invest in nonresidential structures, durable equipment, and computer software. Inventories at all stages of production are counted as investment. Only inventory changes, not levels, are added to GDP.

3. **Net exports**: Equal the sum of exports less imports. Exports are the purchases by foreigners of goods and services produced in the United States. Imports represent domestic purchases of foreign-produced goods and services and are deducted from the calculation of GDP.

4. **Government**: Government purchases of goods and services are the compensation of government employees and purchases from businesses and abroad. Data show the portion
attributed to consumption and investment. Government outlays for transfer payments or interest payments are not included in GDP.

The four major categories of GDP—personal consumption expenditures, investment, net exports and government—all reveal important information about the economy and should be monitored separately. This allows one to determine the strengths and weaknesses of the economy.

**Current Developments**

The U.S. economy shrank from April through June for a second straight quarter, raising concerns that the economy may be sliding into a recession. Real gross domestic product (GDP) decreased at an annual rate of 0.9 percent in the 2nd quarter of 2022, according to the "advance" estimate released by the Bureau of Economic Analysis (BEA). In the 1st quarter, real GDP decreased 1.6 percent.

Consumer spending, which accounts for more than two-thirds of U.S. economic activity, slowed to a 1.0 percent rate, following a 1.8 percent pace in the previous quarter, as consumers purchased fewer goods. Spending on services, such as food services and accommodations and health care, climbed 4.1 percent, was partly offset by a 4.4 percent decline in goods, as outlays on durable goods decreased 2.6 percent, while spending on nondurable goods, such as food and beverages, declined 5.5 percent. Personal consumption expenditures (PCE) added 0.70 percentage point to 2nd quarter GDP growth, down from 1.24 percentage points in the 1st quarter.

Business investment declined 0.1 percent in the 2nd quarter, held back by spending on structures, after a 10.0 percent increase in the 1st quarter. Spending on structures, which are tied to the oil and gas sector and commercial real estate, plunged 11.7 percent, while outlays on equipment slumped 2.7 percent in the 1st quarter. Spending on intellectual property products, such as computer software, grew at an 9.2 percent rate. Nonresidential fixed investment trimmed 0.01 percentage point from 2nd quarter GDP, after adding 1.26 percentage points in the previous quarter.

Business inventories tumbled in the 2nd quarter, as businesses slowed their restocking of shelves by $106.9 billion. The change in private inventories subtracted 2.01 percentage point from GDP growth in the 2nd quarter, following a 0.35 percentage point deduction in the 1st quarter.

Housing construction plunged in the 2nd quarter, as higher borrowing rates appear to be cooling the housing market. Residential housing investment shrank at a 14.0 percent annual rate. Residential fixed investment subtracted 0.71 percentage point from 2nd quarter GDP.

The trade deficit fell after hitting a record high in the 1st quarter, as exports surged 18.0 percent, while imports rose just 3.1 percent. The narrowing of trade deficit added 1.43 percentage points to 2nd quarter GDP. The record trade gap in 1st quarter was largely responsible for the decline in GDP, subtracting 3.23 percentage points.

Government consumption expenditures declined again in the 2nd quarter, reflecting decreases in government pandemic assistance payments. Federal government spending sank 3.2 percent in the 2nd quarter, as national defense spending rose 2.5 percent, while nondefense spending fell 10.5 percent. Consumption outlays by state and local governments declined 1.2 percent in the 2nd quarter. Government consumption expenditures and investment subtracted 0.33 percentage point from 2nd quarter GDP, after subtracting 0.51 in the 1st quarter.
Definition & Importance
The U.S. Bureau of Economic Analysis (BEA) produces statistics of quarterly gross domestic product (GDP) by state dating back to 2005. These statistics provide a more complete picture of economic growth across states that can be used with other regional data to gain a better understanding of regional economies as they evolve from quarter to quarter. The new data provide a fuller description of the accelerations, decelerations, and turning points in economic growth at the state level, including key information about changes in the distribution of industrial infrastructure across states.

Current Developments
Real gross domestic product (GDP) by state—a measure of nationwide growth calculated as the sum of GDP of all states and the District of Columbia—decreased in 46 states and the District of Columbia in the 1st quarter of 2022, as real GDP for the nation decreased at an annual rate of 1.6 percent, according to the Bureau of Economic Analysis (BEA). The percent change in real GDP in the 1st quarter ranged from 1.2 percent in New Hampshire to –9.7 percent in Wyoming.

Oklahoma’s real GDP declined 3.7 percent in the 1st quarter of 2022, following an 8.1 percent pace in the 4th quarter, ranking Oklahoma 43rd among all other states and the District of Columbia. Statewide GDP was at a level of 197.0 billion (in constant 2012 dollars) in the 1st quarter, down $1.8 billion from the 4th quarter level of $198.8 billion.
Real GDP decreased in 8 of the 21 industry groups that the BEA prepares quarterly state estimates. Nondurable goods manufacturing, retail trade, and finance and insurance decreased 17.0, 10.2, and 7.1 percent, respectively, for the nation and were the leading contributors to the decrease in real GDP. These three industries contributed decreases in all 50 states and the District of Columbia. In Oklahoma, nondurable goods manufacturing, retail trade, and finance and insurance subtracted -0.88, -0.52, and -0.22 percentage point, respectively, from 1st quarter GDP.

Mining, quarrying, and oil and gas extraction contributed decreases in 49 states, including Oklahoma. This industry was the leading contributor to the decreases in 10 states, including Wyoming, Alaska, North Dakota, West Virginia, and New Mexico—the 5 states with the largest decreases in real GDP. In Oklahoma, mining, quarrying, and oil and gas extraction was the leading contributor to the decrease in 1st quarter GDP, subtracting 2.09 percentage points.

Government and government enterprises was the leading contributor to the increases in New Hampshire and Massachusetts—the states with the largest and third-largest increases in real GDP, respectively. In Oklahoma, government and government enterprises added 0.38 percentage points to the state’s GDP in the 1st quarter of 2022.

Agriculture, forestry, fishing, and hunting was the leading contributor to the increase in Vermont—the state with the second-largest increase. In Oklahoma, agriculture, forestry, fishing, and hunting subtracted 0.55 percentage point from 1st quarter GDP.

Utilities was the leading contributor to the increase in Michigan—the only other state with an increase. Utilities was also the leading contributor to 1st quarter GDP in Oklahoma, adding 0.49 percentage point.
Definition & Importance
Metropolitan Statistical Areas (MSA) are county-based definitions developed by the Office of Management and Budget for federal statistical purposes. A metropolitan area is defined as a geographic area consisting of a large population nucleus together with adjacent communities having a high degree of economic and social integration with the nucleus.

GDP by metropolitan area is the sub-state counterpart of the Nation's gross domestic product (GDP), the BEA’s featured and most comprehensive measure of U.S. economic activity. GDP by metropolitan area is derived as the sum of the GDP originating in all the industries in the metropolitan area. Nationally, metropolitan statistical areas represent approximately 90 percent of total GDP. In Oklahoma, the four MSAs of Oklahoma City, Tulsa, Lawton, and Enid accounted for 71.8 percent of total state GDP in 2019.

Current Developments
Real gross domestic product (GDP) declined in 351 out of 384 metropolitan areas in 2020, according to the U.S. Bureau of Economic Analysis (BEA). The percent change in real GDP by metropolitan area ranged from 5.2 percent in Sierra Vista-Douglas, AZ to -20.4 percent in Kahului-Wailuku-Lahaina, HI. Real GDP for U.S. metropolitan areas decreased 3.5 percent in 2020, as every major industry group, (with the exception of information and finance, insurance, real estate, rental, and leasing), saw declines over the year.

In 2020, none of Oklahoma’s four metropolitan areas experienced positive GDP growth. Enid MSA’s GDP fell 5.0 percent in 2020 to a level of $2.99 billion, ranking it 306th among 384 metro areas. Lawton MSA GDP declined 2.0 percent in 2020 to a level of $4.55 billion, and ranked 134th among U.S. metro areas. Oklahoma City MSA dropped 5.4 percent to $77.3 billion and ranked 333rd, lifted by professional, scientific, and technical services. Tulsa MSA’s GDP fell 5.0 percent to a level of $51.9 billion and ranked 309th in 2020, boosted by mining, quarrying, and oil and gas extraction.
**Definition & Importance**

The Federal Reserve Bank of Philadelphia produces a monthly coincident index for each of the 50 states. The indexes are released a few days after the Bureau of Labor Statistics (BLS) releases the employment data for the states. The Bank issues a release each month describing recent trends in the state indexes, with special coverage of the three states in the Third District: Pennsylvania, New Jersey, and Delaware.

The coincident indexes combine four state-level indicators to summarize current economic conditions in a single statistic. The four state-level variables in each coincident index are nonfarm payroll employment, average hours worked in manufacturing by production workers, the unemployment rate, and wage and salary disbursements deflated by the consumer price index (U.S. city average). The trend for each state’s index is set to the trend of its gross domestic product (GDP), so long-term growth in the state’s index matches long-term growth in its GDP.

**Current Developments**

The Federal Reserve Bank of Philadelphia has released the coincident indexes for the 50 states for June 2022. Over the past three months, the indexes increased in 48 states, including Oklahoma, and decreased in two states, for a three-month diffusion index of 92. Additionally, in the past month, the indexes increased in 44 states, decreased in five states, and remained stable in one, for a one-month diffusion index of 78. For comparison purposes, the Philadelphia Fed has also developed a similar coincident index for the entire United States. The Philadelphia Fed’s U.S. index increased 0.9 percent over the past three months and 0.3 percent in June.

In the three months to June, the coincident index for Oklahoma rose 0.4 percent. The level of payroll employment rose over the past three months but remained slightly lower than that of February 2020. The unemployment rate rose significantly during the three-month period. However, average hours worked in manufacturing increased. Overall, Oklahoma’s economic activity as measured by the coincident index has risen 5.3 percent over the past 12 months.
**Definition & Importance**

The Bureau of Labor Statistics Local Area Unemployment Statistics (LAUS) program produces monthly estimates of total employment and unemployment from a national survey of 60,000 households. The unemployment rate measures the percentage of people who are without work and is calculated by dividing the estimated number of unemployed people by the civilian labor force. The result expresses unemployment as a percentage of the labor force.

The unemployment rate is a lagging indicator of economic activity. During a recession, many people leave the labor force entirely. As a result, the jobless rate may not increase as much as expected. This means that the jobless rate may continue to increase in the early stages of recovery because more people are returning to the labor force as they believe they will be able to find work. The civilian unemployment rate tends towards greater stability than payroll employment on a monthly basis and reveals the degree to which labor resources are utilized in the economy.

**Current Developments**

The U.S. unemployment rate fell to a pre-pandemic low in July, but largely due to people exiting the labor force. In July, the unemployment rate edged down to 3.5 percent, and the number of unemployed persons edged down to 5.7 million, according to the Bureau of Labor Statistics (BLS). The BLS noted that these measures have returned to their levels in February 2020, prior to the coronavirus (COVID-19) pandemic.

Oklahoma’s seasonally adjusted unemployment rate edged up to 2.9 percent in June. Over the year, Oklahoma’s seasonally adjusted unemployment rate was 1.3 percentage points lower than June 2021.

In June, Latimer County posted Oklahoma’s highest county unemployment rate of 8.0 percent, while Cimarron County reported the lowest county unemployment rate of 1.6 percent. Unemployment rates in June were lower than a year earlier in 75 of Oklahoma’s 77 counties, higher in 1 county, and unchanged in 1 county.
Definition & Importance
Nonfarm payroll employment data is produced by the Current Employment Statistics (CES) program of the Bureau of Labor Statistics (BLS). The CES Survey is a monthly survey of approximately 145,000 businesses and government agencies representing approximately 697,000 worksites throughout the United States. The CES program has provided estimates of employment, hours, and earnings data by industry for the nation as a whole, all States, and most major metropolitan areas since 1939. In order to account for the size disparity between U.S. and Oklahoma employment levels, we have indexed the data with January 2001 as the start value.

Payroll employment is one of the most current and reliable indicators of economic conditions and recessionary trends. Increases in nonfarm payrolls translate into earnings that workers will spend on goods and services in the economy. The greater the increases in employment, the faster the total economic growth.

Current Developments
U.S. job growth unexpectedly surged in July, extending a streak of solid hiring and lifting the level of employment back to its pre-pandemic level. Total nonfarm payroll employment rose by 528,000 in July, larger than the average monthly gain over the prior 4 months (+388,000), according to the Bureau of Labor Statistics (BLS). Job growth was widespread in July, led by gains in leisure and hospitality (96,000 jobs), professional and business services (89,000 jobs), and health care (70,000 jobs). BLS also noted that total nonfarm employment has increased by 22.0 million since reaching a low in April 2020 and has returned to its pre-pandemic level.

Oklahoma’s seasonally adjusted nonfarm employment grew by 9,500 jobs (0.6 percent) in June, to a level of 1,688,600 while May’s estimate was downwardly revised to 1,679,100. In June, seven of Oklahoma’s supersectors added jobs as education and health services (4,000 jobs) posted the largest monthly gain followed by leisure and hospitality (1,900 jobs). Other services (-800 jobs) followed by construction and professional and business services (-300 jobs each posted the largest over-the-month job losses in June.
Definition & Importance
Employment growth by industry identifies the types of jobs being created in the state. Conversely, industries with a declining employment trend indicate those which are becoming less important in the state’s economy. There may also be industries which behave more cyclically, growing during expansion and decreasing in times of economic slowdown or contraction. These changes are crucial in that they help to recognize the types of jobs being lost by individuals. Anticipating what will happen in recovery helps identify whether those jobs will return or what types of new jobs will be created. Consequently, key information for planning re-employment, retraining, and other workforce and economic development programs is contained within these data. For this analysis, we are using CES non-seasonally adjusted annual averages to compare year-over-year employment changes.

Current Developments
Oklahoma’s annual average nonfarm employment added jobs in 2021, following a dip in 2020 as business closures due to the COVID-19 pandemic pulled employment down. Total nonfarm employment added a non-seasonally adjusted 14,900 jobs (0.9 percent) in 2021. For comparison, 77,500 jobs were lost for a 4.5 percent decline in the previous year.

In 2021, six of 11 of Oklahoma’s supersectors reported job gains. Leisure and hospitality saw the largest job gain adding 8,500 jobs (5.4 percent), as accommodation and food services accounted for most of the job gains (7,700 jobs). Trade, transportation, and utilities gained 8,300 jobs (2.7 percent), as retail trade added 4,900 jobs over the year. Professional and business services employment grew by 5,000 jobs (6.3 percent) as employment services gained 4,200 jobs. Other sectors were financial activities (1,300 jobs), and education and health services (1,100 jobs).

Mining and logging shed 4,000 jobs (-12.7 percent) during the 2020-2021 period as support activities for mining lost 2,500 jobs. Manufacturing employment declined by 2,400 jobs (-1.8 percent) with durable goods manufacturing accounting for all the job losses. Construction lost 1,700 jobs (-2.2 percent); government declined by 1,100 jobs (-0.3 percent); and information shed 500 jobs.
Definition & Importance
Manufacturing employment data is also produced by the Bureau of Labor Statistics' Current Employment Statistics (CES) program. Manufacturing and production are still important parts of both the U.S. and Oklahoma economies. According to the 2020 County Business Patterns, the manufacturing sector was the 5th-largest employer, employing 12.0 million workers in the United States—and the top 10 average annual employee payroll at $61,653. In Oklahoma, manufacturing accounts for one of the largest shares of private output and employment in the state. In addition, many manufacturing jobs are among the highest paying jobs in the state. In order to account for the size disparity between the U.S. and Oklahoma employment levels, we have indexed the data with January 2001 as the starting value.

Current Developments
U.S. manufacturing employment continued to add jobs in July, restoring manufacturing payrolls to just above pre-pandemic levels. Manufacturing employment increased by 30,000 in July, according to the Bureau of Labor Statistics (BLS). Employment in manufacturing is 41,000 above its February 2020 level.

Oklahoma manufacturing employment added a seasonally adjusted 900 jobs (0.7 percent) over the month in June to a level of 133,400. Durable goods manufacturing gained 500 jobs (0.6 percent) while non-durable goods manufacturing added 400 jobs (0.9 percent).

Over the year, statewide manufacturing employment added a seasonally adjusted 4,300 jobs (3.3 percent) compared to June 2021, as durable goods manufacturing gained 2,700 jobs (3.2 percent) and non-durable goods manufacturing added 1,600 jobs (3.6 percent).
Definition & Importance
Economists consider the Institute for Supply Management’s Purchasing Managers’ Index (PMI™) a key economic indicator. The Institute for Supply Management (ISM®) surveys more than 300 manufacturing firms on employment, production, new orders, supplier deliveries, and inventories. The ISM® manufacturing index is constructed so that any level at 50 or above signifies growth in the manufacturing sector, which accounts for about 12 percent of the U.S. economy. A level above 43 or so, but below 50, indicates that the U.S. economy is still growing even though the manufacturing sector is contracting. Any level below 43 indicates that the economy is in recession.

For the region, since 1994, the Creighton Economic Forecasting Group at Creighton University has conducted a monthly survey of supply managers in nine states (including Arkansas, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, and South Dakota), to produce leading economic indicators for the Mid-America economy using the same methodology as the national survey by the ISM®.

Current Developments
U.S. factory activity slowed in July, as supply constraints appear to be easing and a measure of prices paid for inputs by factories fell to a two-year low, suggesting inflation may have peaked. The July Manufacturing PMI® registered 52.8 percent, down 0.2 percentage point from the reading of 53 percent in June, according to the latest ISM Manufacturing Report On Business®. This is the lowest Manufacturing PMI® reading since June 2020, when it registered 52.4 percent.

The survey’s forward-looking measure of new orders dropped for a second month in July to 48.0, from a reading of 49.2 in June. The gauge of factory employment rose to a reading of 49.9 from 47.3 in June, remaining in contraction territory for the third consecutive month. Prices continued to ease in July, as the gauge of prices paid by manufacturers plunged to 60.0, the lowest level since August 2020, from 78.5 in June. The measure of supplier deliveries dropped to 55.2 from 57.3 in June. A reading above 50 indicates slower deliveries to factories. The ISM’s measure of factory inventories increased to 57.3 in July, a 38-year high.
The Creighton University Mid-America Business Conditions Index, a leading economic indicator for the nine-state region stretching from Minnesota to Arkansas, rose above growth neutral for the 25th straight month. The June Business Conditions Index, which uses the identical methodology as the national ISM and ranges between 0 and 100 with 50.0 representing growth neutral, rose to a solid 59.8 from June’s 58.6.

“Creighton’s monthly survey results indicate the region continues to add manufacturing activity at a solid pace, but with significant inflationary pressures ahead. Supply chain disruptions eased further in July, according to supply managers,” said Ernie Goss, Ph.D., director of Creighton University’s Economic Forecasting Group and the Jack A. MacAllister Chair in Regional Economics in the Heider College of Business.

Oklahoma’s Business Conditions Index declined in July to a level indicating still healthy growth. The July index decreased to 63.2 from 63.7 in June. Components of the overall July index were: new orders at 53.7, production or sales at 59.7, delivery lead time at 74.3, inventories at 63.3 and employment at 64.8.

“Durable goods manufacturers, including metal producers, are reporting solid growth, but with current employment (SA) below pre-pandemic levels. Non-durable goods producers, including food processors, are reporting solid growth with current employment (SA) exceeding pre-pandemic levels,” said Goss.
Definition & Importance
Crude oil is an important commodity in the global market. Prices fluctuate depending on supply and demand conditions in the world. Since oil is such an important part of the economy, it can also help determine the direction of inflation. In the U.S. consumer prices have moderated whenever oil prices have fallen but have accelerated when oil prices have risen. The U.S. Energy Information Administration (EIA) provides weekly information on petroleum inventories in the U.S., whether produced here or abroad.

The Baker Hughes rig count is an important indicator for the energy industry and Oklahoma. When drilling rigs are active, they consume products and services produced by the oil service industry. The active rig count acts as a leading indicator of demand for products used in drilling, completing, producing, and processing hydrocarbons.

West Texas Intermediate (WTI-Cushing) is a light crude oil produced in Texas and southern Oklahoma which serves as a reference or "marker" for pricing a number of other crude streams and which is set in the domestic spot market at Cushing, Oklahoma.

Background
The discovery of oil transformed Oklahoma's economy. By the time Oklahoma became a state in 1907, it was the largest oil producer in the nation. Excluding federal offshore areas, Oklahoma was the 6th-largest crude oil producer among the states in 2021, accounting for over 4 percent of the nation's crude oil production (at 143,052,000 barrels). Crude oil wells and gathering pipeline systems are concentrated in central Oklahoma. One of the 100 largest oil fields in the United States, the Sho-Vel-Tum field, in eastern Stephens and western Carter Counties has continuously produced crude oil since its discovery in 1905.

The city of Cushing, in central Oklahoma, is a major crude oil trading hub connecting Gulf Coast producers to Midwest refining markets. In addition to Oklahoma crude oil, the Cushing hub receives supply from several major pipelines that originate in Texas. Traditionally, the Cushing Hub has pushed Gulf Coast and Mid-Continent crude oil supply north to Midwest refining markets. However, production from those regions is in decline, and an underused crude oil pipeline system...
has been reversed to deliver rapidly expanding heavy crude oil supply produced in Alberta, Canada to Cushing, where it can access Gulf Coast refining markets. For this reason, Cushing is the designated delivery point for the New York Mercantile Exchange (NYMEX) crude oil futures contracts. Crude oil supplies from Cushing that are not delivered to the Midwest are fed to Oklahoma’s five refineries. As of January 2021, those refineries had a combined distillation capacity of more than 522,000 barrels per day—roughly 3.0 percent of the total U.S. refining capacity.

**Current Developments**

According to the July 2022 *Short-Term Energy Outlook* (STEO), the U.S. Energy Information Administration (EIA) reported that the spot price of international benchmark Brent crude oil averaged $71 per barrel (bbl) in 2021. EIA forecasts that Brent price will average $104/bbl in 2022 and $94/bbl in 2023. EIA reported that domestic benchmark West Texas Intermediate (WTI-Cushing) averaged $68.21/bbl in 2021 and forecasts it will average $98.79/bbl in 2022 and $89.75/bbl in 2023. U.S. crude oil production in EIA’s forecast averages 11.9 million bbl/d in 2022 and 12.8 million bbl/d in 2023, which would set a record for most U.S. crude oil production in a year. The current record is 12.3 million bbl/d, set in 2019.

Crude production in Oklahoma climbed over the month in May—the most recently reported monthly data point. Statewide field production of crude oil was at a preliminary level of 13,188,000 bbl in May, 712,000 bbl (5.7 percent) more than the downwardly revised April level of 12,476,000 bbl, according to data reported by the EIA. Compared to a year ago, Oklahoma crude production was up 689,000 bbl (5.5 percent) from the May 2021 production level of 12,499,000 bbl.

West Texas Intermediate (WTI) crude oil for delivery at Cushing, Oklahoma, averaged $101.62/bbl in July, dropping $13.22/bbl from June’s average of $114.84/bbl. Rising crude oil prices have contributed to an increasing number of active oil rigs and rising crude oil production.

According to oil field services company Baker Hughes, oil-directed rig activity in the United States, which reflect crude oil drilling, was up 6 at 605 for the week ending July 29, 2022, while the nation’s total rig count was up 9 to a level of 767. Compared to a year ago, the nation’s total rig count was 279 more than 488 rigs reported on July 30, 2021.

For the week ending July 29, 2022, the state’s total active rig count was at a level of 64, and up 4 rig from a month earlier, according to Baker Hughes. Oil-directed rigs accounted for 94 percent of total rig activity in July. Oklahoma’s active rig count was up 34 from 30 active rigs reported operating on July 30, 2021.
Definition & Importance

The U.S. Energy Information Administration (EIA) provides weekly information on natural gas stocks in underground storage for the U.S., and three regions of the country. The level of inventories helps determine prices for natural gas products. Natural gas product prices are determined by supply and demand—like any other good or service. During periods of strong economic growth, one would expect demand to be robust. If inventories are low, this will lead to increases in natural gas prices. If inventories are high and rising in a period of strong demand, prices may not need to increase at all, or as much. However, during a period of sluggish economic activity, demand for natural gas may not be as strong. If inventories are rising, this may push down oil prices.

The Henry Hub in Erath, Louisiana is a key benchmark location for natural gas pricing throughout the United States. The Henry Hub is the largest centralized point for natural gas spot and futures trading in the United States. The New York Mercantile Exchange (NYMEX) uses the Henry Hub as the point of delivery for its natural gas futures contract. Henry Hub “spot gas” represents natural gas sales contracted for next day delivery and title transfer at the Henry Hub. The settlement prices at the Henry Hub are used as benchmarks for the entire North American natural gas market. Approximately 49 percent of U.S. wellhead production either occurs near the Henry Hub or passes close to the Henry Hub as it moves to downstream consumption markets.

Background

Oklahoma's proved natural gas reserves are the 3rd-largest in the nation, after Texas and Pennsylvania. The state has 8 percent of the nation's total proved reserves and contains all or part of 14 of the 100 largest U.S. natural gas fields, as measured by proved reserves. Annual natural gas production was at an all-time high of almost 3.2 trillion cubic feet in 2019.

Most natural gas in Oklahoma is consumed by the electricity generation and industrial sectors. About half of Oklahoma households use natural gas as their primary energy source for home heating. Nevertheless, only about one-seventh of Oklahoma’s natural gas output is consumed
within the state. The remaining supply is sent via pipeline to northern and eastern markets through Kansas, Texas, and Arkansas.

**Current Developments**

In the July 2022 *Short-Term Energy Outlook* (STEO), the U.S. Energy Information Administration (EIA) reported that the spot price of natural gas at Henry Hub averaged $6.07 per million British thermal units (MMBtu) in the 1st half of 2022. The average price increased in each month from January through May, when it reached $8.14/MMBtu before declining to $7.70/MMBtu in June. EIA expects the Henry Hub spot price will average $5.97/MMBtu in 2H22 and average $4.76/MMBtu in 2023.

Oklahoma natural gas production rose for the third month in a row in May. Statewide natural gas gross withdrawals were at a preliminary level of 236,098 million cubic feet (MMcf) in May, up 13,191 MMcf (5.9 percent) from the previous month’s upwardly revised level of 222,907 MMcf. Over the year, statewide natural gas production was up 12,726 MMcf (5.7 percent) from the May 2021 level of 223,372 MMcf.

According to Baker Hughes, for the week ending July 29, 2022, the national natural gas rig count was at 157, a gain of 2 rigs over the week and up 54 rigs over the year.

Oklahoma drillers reported 4 active natural gas-directed rigs for the week ending July 29, 2022, up 1 rig over the month, according to Baker Hughes.
Definition & Importance
The U.S. Census Bureau and the Department of Housing and Urban Development jointly provide monthly national and regional data on the number of new housing units authorized by building permits; authorized, but not started; started; under construction; and completed. The data are for new, privately-owned housing units (single and multifamily), excluding "HUD-code" manufactured homes. Because permits precede construction, they are considered a leading indicator for the residential construction industry and the overall economy. Most of the construction begins the same month the permit is issued. The remainder usually begins construction during the following three months; therefore, we also use a three-month moving average.

While home construction represents a small portion of the housing market, it has an outsized impact on the economy. Each home built creates an average of three jobs for a year and about $130,000 in taxes, according to the National Association of Home Builders. Overall, homebuilding fell to its lowest levels in 50 years in 2009, when builders began work on just 554,000 homes.

Current Developments
U.S. applications to build, a sign of future residential construction activity, fell again in June, suggesting the housing market may be slowing amid soaring prices, shortages of materials, and rising mortgage rates. Privately-owned housing units authorized by building permits in June were at a seasonally adjusted annual rate of 1,685,000, 0.6 percent below the revised May rate of 1,695,000, but 1.4 percent above the June 2021 rate of 1,661,000, according to the U.S. Census Bureau and the U.S. Department of Housing and Urban Development.

Permits for single-family homes plunged 8.0 percent to a rate of 1.66 million units in June. Building permits for multi-family housing projects dropped 13.1 percent to a rate of 666,000 units.

Builder confidence for July dropped its lowest level since May 2020. The National Association of Home Builders/Wells Fargo Housing Market Index (HMI) dropped 12 points to 55 from 67 in June.
**Definition & Importance**

The data services of the Federal Reserve Bank of St. Louis produce a seasonally adjusted series including monthly state level data on the number of new housing units authorized by building permits. These adjustments are made using the X-12 Procedure of SAS to remove the seasonal component of the series so that non-seasonal trends can be analyzed. This procedure is based on the U.S. Bureau of the Census X-12-ARIMA Seasonal Adjustment Program.

**Current Developments**

Statewide applications for new residential construction surged to the highest level nearly 6 years in June, boosted by permits for apartments Total residential permitting in June was at a seasonally adjusted level of 1,519, up 187 (14.0 percent) from the May level of 1,332, and up 288 (23.4 percent) from the June 2021 level of 1,230 permits, according to figures from the U.S. Census Bureau and the Federal Reserve Bank of St. Louis.

In June, permitting for single family homes was at a level of 931 units, down 91 (-8.9 percent), from a level of 1,022 in May. Multi-family permitting was at a seasonally adjusted level of 587 in June, up 277 (89.4 percent), from the previous month’s level of 310 permits. Single-family permitting accounted for 61.3 percent of total residential permitting activity in June while the more volatile multi-family permitting accounted for 38.7 percent.

Statewide residential construction in 2021 rose to the highest level since 2006. Oklahoma total residential permitting for 2021 was at a revised seasonally adjusted level of 15,202 permits. This is 1,536 permits (11.2 percent) more than the 13,665 total permits issued during 2020.
Definition & Importance
Personal income is a broad measure of economic activity and one for which relatively current data are available. Personal income includes earnings, property income such as dividends, interest, and rent and transfer payments, such as retirement, unemployment insurance, and various other benefit payments. It is a measure of income that is available for spending and is seen as an indicator of the economic well-being of the residents of a state. Earnings and wages make up the largest portion of personal income.

To show the vastly different levels of total personal income for the U.S. and Oklahoma on the same chart, these data have been converted to index numbers. This chart shows a comparison of Oklahoma and U.S. growth in real personal income with 1st quarter 2000 as the base year.

Current Developments
U.S. consumer spending rose in June, as annual inflation hit a 4-year high eroding household income and moderating demand. Personal income increased $133.5 billion (0.6 percent) in June, according to estimates released by the Bureau of Economic Analysis (BEA). Disposable personal income (DPI) increased $120.4 billion (0.7 percent) and personal consumption expenditures (PCE) increased $181.1 billion (1.1 percent). Decreased 0.3 percent in June and real PCE increased 0.1 percent; goods increased 0.1 percent and services increased 0.1 percent. The PCE price index increased 1.0 percent, over the year the PCE price index increased 6.8 percent—the largest advance since January 1982. Excluding food and energy, the PCE price index increased 0.6 percent.

In June, spending on services such as health care, and housing and utilities increased 0.1 percent. Outlays for goods such as gasoline and other energy goods, and motor vehicles increased 0.1 percent.

With inflation wiping out compensation gains, consumers are tapping into savings to fund their spending. The personal savings rate—personal saving as a percentage of disposable personal income—declined to 5.1 percent, the lowest rate since 2009, from 5.5 percent a month earlier.
Definition & Importance
Quarterly estimates of state personal income are seasonally adjusted at annual rates by the Bureau of Economic Analysis (BEA). Quarterly personal income estimates are revised on a regular schedule to reflect more complete information than the data that were available when the estimates were initially prepared and to incorporate updated seasonal factors.

Current Developments
State personal income—a measure of nationwide income calculated as the sum of personal income of all states and the District of Columbia—increased 4.8 percent at an annual rate in the 1st quarter of 2022 after increasing 3.6 percent in the 4th quarter of 2021, according to estimates released today by the U.S. Bureau of Economic Analysis (BEA). The percent change in personal income across all states ranged from 8.5 percent in South Dakota to 1.3 percent in Hawaii.

Oklahoma’s personal income increased at a 3.2 percent rate in the 1st quarter of 2021, to a level of $214.7 billion, ranking the state 42nd among all states. For the 4th quarter of 2021, Oklahoma’s personal income was revised upward to $213.0 billion (10.8 percent) from the previous estimate of $211.3 billion (8.2 percent).

Earnings increased in 23 of the 24 industries for which BEA prepares quarterly estimates. Professional, scientific, and technical services; construction; and administrative and support and waste management and remediation services were the leading contributors to the overall growth in earnings. The percent change in earnings across all states ranged from 13.5 percent in North Dakota to 3.0 percent in Hawaii. In Oklahoma, earnings grew 6.9 percent in the 1st quarter of 2022.

In South Dakota, North Dakota, Iowa, and Idaho, the states with the largest increases in personal income, an increase in farm earnings was the leading contributor to the increase in personal income in the 1st quarter. In Oklahoma, farm earnings added 0.16 percentage point from total earnings in the 1st quarter of 2022.
Definition & Importance
Retail sales measure the total receipts at stores that sell merchandise and related services to final consumers. Sales are by retail and food services stores. Data are collected from the Monthly Retail Trade Survey conducted by the U.S. Bureau of the Census. Essentially, retail sales cover the durables and nondurables portions of consumer spending. Consumer spending accounts for roughly two-thirds of the U.S. GDP and is therefore essential to Oklahoma’s economy. Retail sales account for around one-half of consumer spending and economic recovery calls for consumption growth.

Current Developments
U.S. retail spending increased in June amid a surge in inflation, as rising costs for food and gasoline helped drive the over-the-month increase. Advance estimates of U.S. retail and food services sales for June 2022, adjusted for seasonal variation and holiday and trading-day differences, but not for price changes, were $680.6 billion, an increase of 1.0 percent from the previous month, and 8.4 percent above June 2021, according to the U.S. Census Bureau. Total sales for the April 2022 through June 2022 period were up 8.1 percent from the same period a year ago. The April 2022 to May 2022 percent change was revised from down 0.3 percent to down 0.1 percent.

Sales at auto dealerships rose 0.8 percent in June, after plunging 3.0 percent in May. Receipts at service stations climbed 3.6 percent, as prices at the pump briefly topped $5 a gallon. Excluding the volatile automobile and gasoline categories, retail sales rose 0.7 percent in June.

Sales at bars and restaurants increased 1.0 percent in June and furniture and home store sales were up 1.4 percent. However, some brick-and-mortar sales fell over the month, with general merchandise off 0.2 percent due to a 2.6 percent decline in department stores, while online sales rose 2.2 percent.

The less volatile “core” or retail-control group sales which are used to calculate gross domestic product, and strips out automobiles, gasoline, building materials, and food services sales was up 0.8 percent in June, while May was revised lower declining 0.3 percent rather than 0.0 previously reported.
Definition & Importance
The Center for Economic and Management Research (CEMR) Price College of Business, at the University of Oklahoma produces the Oklahoma Monthly Retail Sales Series containing monthly estimates of retail sales for Oklahoma, the Oklahoma City, Tulsa, and Lawton Metropolitan Statistical Areas and 48 selected cities in Oklahoma. The series is based on sales tax collection data provided by the Business Tax Division, Oklahoma Tax Commission (OTC). In order to take out monthly volatility, we have used a six-month moving average.

Current Developments
Statewide retail spending soared in June, as rising pump prices took a larger bite out of Oklahoman’s wallets. Total adjusted retail trade in June was at a level of $4.64 billion, up 8.0 percent from the previous month’s revised level of $4.43 billion. Over the year, total adjusted retail trade was up 12.9 percent from the June 2021 level of $4.11 billion. Excluding estimated gasoline sales, total retail sales for June increased 0.3 percent over the month.

In June, total durable goods outlays increased 0.9 percent, as four of six durable goods categories reported growing receipts over the month. Furniture (2.0 percent); used merchandise (1.5 percent); lumber & hardware (1.4 percent); and computer, electronics & music stores (1.1 percent) reported gains over the month. Declining durable goods categories in June were auto accessories & repair (-0.2 percent) and miscellaneous durable goods (-0.04 percent).

Non-durable goods expenditures jumped 10.5 percent in June, as the volatile estimated gasoline sales rose sharply, skyrocketing 59.4 percent over the month and accounting for a quarter of total non-durable goods sales. Other advancing non-durable goods categories in June were apparel (1.4 percent); eating & drinking places (0.5 percent); and miscellaneous non-durable goods (0.1 percent). Declining non-durable goods categories in June were drug stores (-1.4 percent); liquor stores (-0.4 percent); food stores (-0.2 percent); and general merchandise stores (-0.2 percent).
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