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SPECIAL REPORT:
Analysis of Oklahoma Mining UI Claimants: Post-Downturn Employment and Earnings Changes

Oklahoma’s mining industry has historically been linked to the overall health of the state’s economy. In regard to this link, pertinent questions often ask are in the nature of: ‘what actually happened to mining workers’ employment and their earnings after the most recent cyclic mining downturn?’ This analysis addresses many of these questions by identifying 4,481 Unemployment Insurance (UI) individual claimants filing in the economic downturn during the 1st quarter of 2015, and by tracing their employment and earnings histories over the succeeding six quarters. Pre-downturn mining earnings were also researched for a comparison with post earnings. This special report highlights and summarizes the findings of the original report.

The analysis of the mining UI claimants’ employment over the succeeding six quarters found that the largest minority of claimants did not work in any of the six quarters, the second-largest minority worked all six quarters and the third-largest minority worked five quarters, and the fourth-largest minority worked one of the six quarters. Table 1, below, illustrates this distribution.

<table>
<thead>
<tr>
<th>Number of Quarters</th>
<th>Number of Claimants</th>
<th>Percent of Claimants</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1,472</td>
<td>32.8</td>
</tr>
<tr>
<td>1</td>
<td>485</td>
<td>10.8</td>
</tr>
<tr>
<td>2</td>
<td>375</td>
<td>8.4</td>
</tr>
<tr>
<td>3</td>
<td>357</td>
<td>8.0</td>
</tr>
<tr>
<td>4</td>
<td>390</td>
<td>8.7</td>
</tr>
<tr>
<td>5</td>
<td>559</td>
<td>12.5</td>
</tr>
<tr>
<td>6</td>
<td>843</td>
<td>18.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,481</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note: Mining industry unemployment insurance claimants were determined by their having filed in 1st quarter 2015, the initial quarter of mining’s downturn.

The largest minority of mining UI claimants worked at one job and one industry. However, in five of the six quarters over 5 percent of the mining UI claimants worked at two or more jobs and over 4 percent worked in two or more industries. In all six of the post-downturn quarters, the largest number of employed claimants worked in mining. In four of the post-downturn quarters the second-largest numbers of those employed worked in NAICS 23 Construction, followed by a third-largest number working in NAICS 56 Administrative and Support and Waste Management and Remediation Services, with the fourth-largest number of working UI claimants employed in ‘Mixed Industries without Mining’. The two exceptions to this order were the 1st and 3rd post-downturn quarters, in which the rank order of second through fourth places were rearranged or tied for the latter three industry categories. If more specific and detailed information is desired about the NAICS 2-digit industries in which the mining claimants worked, during each of the six
quarters, this is provided in the complete online published report, which also provides this information by number of quarters actually worked.

Other interesting findings appeared when mining UI claimants’ earnings, identified for six industry categories, were evaluated and compared to past mining earnings in each of the six subsequent quarters and by number of quarters worked. In each of the six quarters, the claimants all had earnings declines. However, the mining claimants employed in the ‘Mining Only’ industry category had the least median earnings declines in four of the six quarters. The quarters where this industry category was not the lowest were the 2nd and 4th quarters of 2015, when ‘Mixed Industries with Mining’ had the smallest median earnings decline. In a similar fashion, in five of the six post-downturn quarters, the one industry category of ‘Mixed Industries without Mining’ also had the largest median earnings declines. An exception to this was the 2nd quarter of 2015 when ‘Mining Only’ had the highest median earnings decline.

Similar and interesting findings appeared when examined by number of quarters worked. In three through six quarters worked, the ‘Mining Only’ again had the lowest median earnings decline. However, of the mining UI claimants that worked one through two quarters, those working in other industry categories had the lower median earnings decline.

Likely, the most interesting findings of this analysis were revealed when an analysis for a typical mining UI claimant employment and earnings was completed. The employment portion this analysis is provided in Table 6 below.

<table>
<thead>
<tr>
<th>Possibilities</th>
<th>Number of Claimants</th>
<th>Percent of Claimants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining claimants remaining in mining in 3rd quarter 2015</td>
<td>426</td>
<td>45.2</td>
</tr>
<tr>
<td>Mining claimants remaining in mining in 4th quarter 2015</td>
<td>333</td>
<td>35.4</td>
</tr>
<tr>
<td>Mining claimants remaining in mining in 1st quarter 2016</td>
<td>253</td>
<td>26.9</td>
</tr>
<tr>
<td>Mining claimants remaining in mining in 2nd quarter 2016</td>
<td>194</td>
<td>20.6</td>
</tr>
<tr>
<td>Mining claimants remaining in mining in 3rd quarter 2016</td>
<td>166</td>
<td>17.6</td>
</tr>
<tr>
<td>Mining claimants who left mining after 2nd quarter 2015, but eventually returned</td>
<td>111</td>
<td>11.8</td>
</tr>
<tr>
<td>Mining claimants who left mining after 2nd quarter 2015, and only worked in other industries</td>
<td>88</td>
<td>9.3</td>
</tr>
<tr>
<td>Mining claimants who left mining after 2nd quarter 2015, and did not work afterward</td>
<td>239</td>
<td>25.4</td>
</tr>
<tr>
<td>Mining claimants who left mining after 2nd quarter 2015 and never returned to mining again</td>
<td>405</td>
<td>43.0</td>
</tr>
<tr>
<td>Total</td>
<td>942</td>
<td></td>
</tr>
</tbody>
</table>

Note1: Total of Mining unemployment insurance claimants who worked in mining in 2015 2nd Quarter is 942.

Note2: The percent of the 4,481 original mining UI claimants who worked in mining in 2015 2nd Quarter is 21.0% (942), another 20.1% (935) worked in other industries, with 58.2% (2,608) unemployed (see Table 4).

Note3: Percentages do not add to 100.0% due to overlapping categories.

Using and combining the information in Table 6, Table 1 and other tables in the report, the typical mining UI applicant was not employed in the 2nd quarter of 2015 (1,873 cases). However, if he or she was employed, they most likely worked in mining (942 cases). In the 3rd quarter of 2015, if the mining applicants remained working, they again most likely worked in mining (426 cases). After these two quarters of mining employment, the claimant likely left mining (405 cases), working in other industries in some quarters, working in multiple industries and perhaps two or more jobs in other quarters and not employed in part of the quarters during
the four remaining quarters. By the 3rd quarter of 2016, most employed mining claimants worked in other industries (1,432 total cases).

When the latter quarter percentile earnings of these mining UI claimants working in other industries was compared with their ‘Past Mining’ earnings, their median earnings of $7,953, showed a 48.6 percent decline from ‘Past Mining’ earnings.

More Information
A full copy of After the Downturn: An Analysis of Oklahoma Mining UI Claimants Post 1st Quarter 2015, Employment and Earnings is available on the OESC website at:

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.

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, boosted by business investment and consumer spending, continued to grow at a robust pace in the 3rd quarter. Real gross domestic product (GDP) increased at an annual rate of 3.0 percent in the 3rd quarter of 2017, according to the "advance" estimate released by the Bureau of Economic Analysis (BEA). In the 2nd quarter, real GDP increased 3.1 percent. This marks the first time in three years that GDP growth has reached at least 3 percent for two consecutive quarters.

Consumer spending, which accounts for more than two-thirds of U.S. economic activity, slowed to a 2.4 percent rate following a solid 3.3 percent pace in the 2nd quarter. Spending on durable goods was very strong at 8.3 percent, reflecting, in part, hurricane replacement demand for vehicles. Nondurable goods outlays fell to 2.1 percent after a 4.2 percent rate posted in the 2nd quarter. Spending on services, such as health care and insurance, dipped to 1.5 percent in the 3rd quarter, following a 2.3 percent rate in the previous quarter. Personal consumption expenditures (PCE) added 1.62 percentage points to 3rd quarter GDP, after contributing 2.24 percentage points in the 2nd quarter.

Business investment came in at 3.9 percent rate in the 3rd quarter following a sizzling 6.7 percent pace in the previous quarter. Spending on equipment rose 8.6 percent while outlays on structures fell 5.2 percent, the biggest drop in nearly two years. Nonresidential fixed investment contributed 0.49 percentage point to 3rd quarter GDP growth.

In order to meet strong consumer demand, businesses accumulated inventories at a $35.8 billion pace in the 3rd quarter. The change in private inventories added 0.73 percentage point to 3rd quarter GDP growth.

Investment in homebuilding contracted for the second straight quarter, dropping to a 6.0 percent rate, after tumbling 7.3 percent in the 2nd quarter. Residential investment shaved 0.24 percentage point from 3rd quarter growth.

Exports rose 2.3 percent while imports, which subtract from the GDP, fell to a 0.8 percent pace. The narrowing trade gap added 0.41 percentage point to GDP growth in the 3rd quarter.

Government spending fell for the third consecutive quarter, dropping 0.1 percent. Federal government outlays advanced 1.1 percent boosted by national defense spending which increased 2.3 percent and was partially offset by non-defense spending which shrunk 0.5 percent. Spending by state and local governments declined 0.9 percent in the 3rd quarter. Government consumption expenditures and investment subtracted 0.02 percentage point from 3rd quarter GDP growth.
Definition & Importance
The U.S. Bureau of Economic Analysis (BEA) recently released prototype statistics of quarterly gross domestic product (GDP) by state for 2005–2013. These new 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
Growth of U.S. 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—increased in 43 states and the District of Columbia in the 1st quarter of 2017, according to the Bureau of Economic Analysis (BEA). Real GDP by state growth ranged from 3.9 percent in Texas to -4.0 percent in Nebraska.

Real estate and rental and leasing; mining; and durable-goods manufacturing were the leading contributors to U.S. economic growth in the 1st quarter, according to the BEA. The BEA also noted that overall growth in real GDP slowed in the 1st quarter from the 4th quarter of 2016, with finance and insurance, retail trade, and agriculture, forestry, fishing, and hunting leading the deceleration in real GDP.

In the 1st quarter of 2017, Oklahoma’s real GDP expanded for a second consecutive quarter after contracting for four consecutive quarters. Oklahoma’s real GDP grew at a 1.9 percent rate in the 1st quarter of 2017, ranking the state 11th among all other states and the District of Columbia. Statewide GDP was at a level of $175.6 billion (in constant 2009 dollars) in the 1st quarter, up $809 million from 4th quarter’s revised level of $174.8 billion.
Based on overall U.S. real GDP growth by state, real estate and rental and leasing grew 2.7 percent nationally in the 1st quarter of 2017. This industry contributed to growth in 44 states and the District of Columbia including Oklahoma where it added 0.53 percentage point to the state’s real GDP growth.

Mining grew 21.6 percent nationally and contributed to growth in 48 states in the 1st quarter of 2017. In Oklahoma, mining was the leading contributor to GDP growth in the 1st quarter, adding 1.64 percentage points to statewide growth.

Durable-goods manufacturing grew 4.4 percent nationally in the 1st quarter of 2017. This industry contributed to growth in 47 states and the District of Columbia and added 0.51 percentage point to real GDP growth in Oklahoma.

Finance and insurance declined 2.1 percent nationally, subtracting from growth in 45 states and the District of Columbia. However, finance and insurance added 0.08 percentage point to 1st quarter GDP growth in Oklahoma.

Retail trade declined 3.6 percent nationally and subtracted from growth in every state in the 1st quarter of 2017. In Oklahoma, retail trade subtracted 0.50 percentage point from GDP growth.

Agriculture, forestry, fishing, and hunting declined 39.8 percent nationally. This industry subtracted from growth in 39 states and was the leading decelerator of growth in Oklahoma subtracting 1.10 percentage points from 1st quarter GDP growth in 2017.
Definition & Importance
Metropolitan Statistical Areas (MSAs) 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.

Nationally, metropolitan statistical areas represent approximately 90 percent of total GDP. In Oklahoma, the three MSAs of Oklahoma City, Tulsa and Lawton accounted for roughly 75 percent of total state GDP in 2010.

Current Developments
Real gross domestic product (GDP) increased in 267 out of 382 metropolitan areas in 2016, according to the U.S. Bureau of Economic Analysis (BEA). Real GDP for U.S. metropolitan areas grew 1.7 percent in 2016, led by growth in professional and business services; information services; and finance, insurance, real estate, rental, and leasing.

Natural resources & mining declined 5.3 percent in 2016 and subtracted from GDP growth in 169 metropolitan areas including three of the four MSAs in Oklahoma, (Enid MSA being the exception), where this industry shaved 2.24 from statewide metropolitan area GDP growth.

In 2016, all four of Oklahoma’s metropolitan areas experienced negative growth. Tulsa MSA’s real GDP contracted at a rate of 3.3 percent to $57.5 billion and ranked 362nd (out of 382 metro areas). Oklahoma City MSA shrank 2.2 percent to $65.7 billion and ranked 354th. Enid MSA fell 1.2 percent to $3.1 billion and ranked 315th. Lawton MSA declined 0.7 percent to $4.4 billion in 2015 and ranked 304th among U.S. metro areas.
Definition & Importance
The Federal Reserve Bank of Philadelphia produces leading indexes for each of the 50 states. The indexes are calculated monthly and are usually released a week after the release of the coincident indexes. The Bank issues a release each month describing the current and future economic situation of the 50 states with special coverage of the Third District: Pennsylvania, New Jersey, and Delaware.

The leading index for each state predicts the six-month growth rate of the state’s coincident index. In addition to the coincident index, the models include other variables that lead the economy: state-level residential housing permits (1 to 4 units), state initial unemployment insurance claims, delivery times from the Institute for Supply Management (ISM) manufacturing survey, and the interest rate spread between the 10-year Treasury bond and the 3-month Treasury bill.

Current Developments
Oklahoma’s leading index, a six-month forecast of the state’s coincident index, turned up to a 1.95 percent pace in September, remaining in positive territory. The leading index dipped to an upwardly revised 0.38 percent in August after falling to an upwardly-revised 1.16 percent in July. The index level for June was revised down to 2.12 percent from the previous estimate of 2.33 percent, according to the latest figures from the Federal Reserve Bank of Philadelphia.

From November 2015 through May 2016 Oklahoma’s leading index was in negative territory for six out of seven readings. However, the state’s economy has turned around. Since June 2016, the leading index returned to positive readings for the past 16 months. Overall, Oklahoma’s leading index for September suggests expansion in the state’s economy into the 1st quarter of 2018.
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 17-year low in October but that was largely due to a surge in the number of people exiting the labor force. In October, the unemployment rate edged down by 0.1 percentage point to 4.1 percent, according to the Bureau of Labor Statistics (BLS). The labor force participation rate—the share of working-age Americans who are employed or looking for work—decreased by 0.4 percentage point to 62.7 percent in October.

In September, Oklahoma’s seasonally adjusted unemployment rate was unchanged from the previous month at 4.5 percent. Over the year, Oklahoma’s seasonally adjusted unemployment rate has declined by 0.5 percentage point compared to September 2016.

Jobless rates declined in 76 of Oklahoma’s 77 counties and held steady in one county in September. McIntosh County had the state’s highest unemployment rate at 7.6 percent while Grant County had the lowest unemployment rate at 2.6 percent.
Definition & Importance

Initial unemployment claims are compiled weekly by the U.S. Department of Labor, Employment and Training Administration and show the number of individuals who filed for unemployment insurance benefits for the first time. This particular variable is useful because it gives a timely assessment of the overall economy.

Initial claims are a leading indicator because they point to changes in labor market conditions. An increasing trend signals that layoffs are occurring. Conversely, a decreasing trend suggests an improving labor market. The four-week moving average of initial claims smooths out weekly volatility and gives a better perspective on the underlying trend.

Current Developments

The number of Americans filing for state unemployment benefits increased in the last week of October, as claims from hurricane-affected areas have now leveled except for Puerto Rico where claims jumped by more than 1,000. In the week ending October 28, the advance figure for seasonally adjusted initial claims was 229,000, a decrease of 5,000 from the previous week’s revised level, according to the Department of Labor. The less volatile 4-week moving average was 232,500, a decrease of 7,250 from the previous week’s revised average—the lowest level for this average since April 7, 1973 when it was 232,250.

Statewide initial claims for jobless benefits remained at low levels in October. For the file week ending October 28, initial claims for unemployment insurance benefits was at a level of 1,303, down 104 from the previous week and down 193 over the month. For the same file week ending October 28, the less volatile 4-week moving average fell 48 from the previous week to 1,424.
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 140,000 nonfarm businesses and government agencies representing approximately 440,000 individual worksites. 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 of 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. payroll growth jumped in October, rebounding after the disruptions caused by the hurricanes last month. Total nonfarm payroll employment added 261,000 jobs in October according to the Bureau of Labor Statistics (BLS). Employment in food services and drinking places increased sharply, mostly offsetting a decline in September that largely reflected the impact of Hurricanes Irma and Harvey. Job gains also occurred in professional and business services (50,000 jobs), manufacturing (24,000 jobs), and health care (22,000 jobs).

Oklahoma nonfarm employment shed a seasonally-adjusted 2,600 jobs (-0.2 percent) in September to a level of 1,666,200 as August’s estimate was downwardly revised to 1,668,800. Five of Oklahoma’s 11 supersectors added jobs over the month as trade, transportation, and utilities (+2,000 jobs) posted the largest monthly gain. Professional and business services reported the largest over-the-month job loss (-2,700 jobs).
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
Statewide annual average employment growth slumped in 2016, as mounting energy and manufacturing sector layoffs weighed on overall job growth. Total nonfarm employment lost a non-seasonally adjusted 16,100 jobs for a -1.0 percent growth rate, (compared to 2015, when 11,400 jobs were added at a 0.7 percent growth rate).

In 2016, six out of Oklahoma’s 11 statewide supersectors recorded job losses. Mining & logging led all other supersectors shedding 10,400 jobs with most of the job losses occurring in support activities for mining. Manufacturing lost 8,500 jobs with the largest losses coming from machinery and fabricated metal manufacturing. Professional and business services dropped 3,600 jobs in 2016.

The largest annual average over-the-year job gains were seen in leisure & hospitality which added a non-seasonally adjusted 2,400 jobs (1.5 percent). Education & health services employment gained 2,300 jobs. Government added 2,400 jobs with most of the gains coming from local and federal government. State government employment dropped 200 jobs in 2016.
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. During the 2007-09 recession, employment in manufacturing declined sharply. Although manufacturing plunged in 2008 and early 2009 along with the rest of the economy, it is on the rebound today while other key economic sectors, such as construction, still suffer. 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 surged in October while August and September data were revised upwards. Manufacturing employment rose by 24,000 in October, according to the Bureau of Labor Statistics (BLS). Job gains were seen in computer and electronic products (5,000 jobs) chemicals (4,000 jobs), and fabricated metals (4,000 jobs). The BLS also noted that manufacturing has added 156,000 jobs from an employment low in November 2016.

Statewide manufacturing employment added a seasonally-adjusted 500 jobs (0.4 percent) in September. Most of the monthly job gains in September came from non-durable goods manufacturing which added a seasonally-adjusted 300 jobs.

Over the year, statewide manufacturing employment expanded to a seasonally-adjusted 3,500 jobs (2.7 percent) with durable goods manufacturing providing all of the job growth.
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. 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, as measured by the ISM manufacturing index, continued to expand in October although at a slower pace after reaching a 13-year high in September. The October PMI® registered 58.7 percent, a decrease of 2.1 percentage points from the September reading of 60.8 percent, according to the latest Manufacturing ISM Report On Business®. Of the 18 manufacturing industries surveyed, 16 reported growth in October.

New orders were at 63.4 in October, for only a 1.2 percent dip from September’s 4-year high at 64.6. The Employment Index was also strong, at 59.8 and only 5 tenths lower from the 6-1/2 year high in the last report. The Production Index registered 61 percent, a 1.2 percentage point decrease compared to the September reading of 62.2 percent. Pulling down the composite index were inventories of raw materials which contracted for the month in what likely reflects delivery delays due to hurricane effects.
The Creighton University Mid-America Business Conditions Index, a leading economic indicator for a nine-state region stretching from North Dakota to Arkansas, climbed to a healthy reading according to the latest monthly survey results. The Business Conditions Index, which ranges between 0 and 100, rose to 58.8 in October, its highest reading in four months and up from 58.2 in September. This is the 11th straight month the index has remained above growth neutral, continuing to point to positive growth for the region over the next three to six months.

“Both the national and our regional indices indicate the manufacturing sector is expanding at a very healthy pace and that this expansion will spill over into the broader national and regional economies in the next three to six months. For the first time in years, we are not tracking consistent growth in the durable goods sector,” said Ernie Goss, Ph.D., director of Creighton University’s Economic Forecasting Group.

After falling below growth neutral for July, Oklahoma’s Business Conditions Index rose above the 50.0 threshold for the last three months. The overall index from a monthly survey of supply managers climbed to a robust 63.0 from 62.7 in October. Components of the overall October index from a survey of supply managers in the state were new orders at 65.2, production or sales at 70.8, delivery lead time at 60.9, inventories at 59.2, and employment at 58.9.

“Expansions among energy firms, and manufacturing companies linked to energy are driving the state’s economy forward at a current brisk pace. Food processors and machine manufacturers are growing at a solid pace,” 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 traded in the domestic spot market at Cushing, Oklahoma.

Background
Oklahoma produces a substantial amount of oil. Oklahoma ranked 5th in the nation in crude oil production in 2015 (at 157,770,000 barrels), excluding federal offshore areas. Crude oil wells and gathering pipeline systems are concentrated in central Oklahoma. Two of the 100 largest oil fields in the United States are found in Oklahoma.

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, which have a combined distillation capacity of over 500 thousand barrels per day—roughly 3 percent of the total U.S. refining capacity.

**Current Developments**

Oklahoma driller, Continental Resources Inc., recently announced an agreement with Atlantic Trading and Marketing to sell 1.005 million barrels of unrefined oil from its Bakken oil fields in North Dakota. The trader will buy the crude from storage in Cushing, ship it in a pipeline to a Texas port and then export the crude to China.

Following the removal of restrictions on exporting U.S. crude oil in December 2015, total volumes of crude oil exports and the number of destinations for those exports both increased. The United States exported crude oil to 27 countries in the first half of 2017 compared with 19 countries in the first half of 2016, according to the Energy Information Administration (EIA).

The EIA also noted that Canada remained the largest recipient of U.S. crude oil exports at 307,000 b/d, but imported an average of 63,000 b/d less compared with the first half of 2016. However, China has increased its crude imports from the United States by 178,000 b/d and became the second largest importer of U.S. crude oil, averaging 186,000 b/d in the first half of the year.

August statewide total crude production was at a level of 14,561,000 barrels (bbl), 800,000 bbl (5.8 percent) more than the upwardly-revised July production level of 13,761,000 bbl. Over the year, statewide crude production was up 1,416,000 bbl, (10.8 percent), from the August 2016 level of 13,145,000 bbl.

Domestic benchmark crude prices continued to improve in October with West Texas Intermediate (WTI-Cushing) beginning the month at $50.59/barrel (b), and finishing the month at $54.11/b, for a gain of $3.52/b over the month.

The number of rigs drilling for oil and natural gas in the U.S. declined by four (4) rigs to 909 for the week ending October 27, 2017, according to Houston oilfield services company Baker Hughes Inc. Of that total, 737 rigs drilled for oil and 172 explored for natural gas. Compared to a year ago, the nation’s rig count increased 352 from 557 rigs reported on October 28, 2016.

Oklahoma’s rig count for the week ending October 27, 2017 was down one (1) rig from the previous week for a total of 125 active rigs, according to Baker Hughes. Oil-directed rigs accounted for approximately 92 percent of total rig activity (115 active rigs). Over the year, Oklahoma’s rig count was up 52 from 73 rigs reported on October 28, 2016.
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 is one of the top natural gas producers in the nation, ranking 3rd among all states in U.S. gross production in 2015 at 2,499,599 million cubic feet (7.6 percent of U.S. gross production). More than a dozen of the 100 largest natural gas fields in the country are found in Oklahoma and proven reserves of conventional natural gas have been increasing in recent years.

Most natural gas in Oklahoma is consumed by the electricity generation and industrial sectors. About three-fifths of Oklahoma households use natural gas as their primary energy source for home heating. Nevertheless, only about one-third of Oklahoma’s natural gas output is
consumed within the state. The remaining supply is sent via pipeline to neighboring states, the majority to Kansas, including the natural gas trading hubs in Texas and Kansas.

**Current Developments**

According to the most recent *Short-Term Energy Outlook* (STEO), the U.S. Energy Information Administration (EIA) forecasts that average household expenditures for all major home heating fuels will rise this winter because of expected colder weather and higher energy costs. Average increases vary by fuel, with natural gas expenditures forecast to rise by 12 percent, home heating oil by 17 percent, electricity by 8 percent, and propane by 18 percent. Most of the increase reflects expected colder weather rather than higher energy costs.

The EIA also expects U.S. dry natural gas production to average 73.6 billion cubic feet per day (Bcf/d) in 2017, a 0.8 Bcf/d increase from the 2016 level, while natural gas production in 2018 is forecast to be 4.9 Bcf/d higher than the 2017 level.

Oklahoma natural gas gross production was at a level of 217,629 MMcf in August, an increase of 4,405 MMcf, (2.1 percent), from the upwardly-revised July production level of 213,224 MMcf. Over the year, Oklahoma natural gas production was 6,411 MMcf, (3.0 percent), more than 211,218 MMcf produced in August 2016.

In October, the Henry Hub natural gas spot price began the month at $2.94 per million British thermal units (MMBtu) and was at $2.95 MMBtu as of October 27, 2017.

According to oil services company Baker Hughes, for the week ending Friday, October 27, the U.S. natural gas rig count decreased by five (5) to 172 rigs. The U.S. natural gas rig count is 58 units more than the 114 rigs operating on October 28, 2016.

Oklahoma’s natural gas-directed drilling rig count stood at ten (10) for the week ending October 27, 2017, unchanged from the previous week. Over the year, the number of statewide rotary rigs exploring for natural gas was up five (5) units from five (5) reported for the week ended October 28, 2016.
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 outsiz e impact on the economy. Each home built creates an average of three jobs for a year and about $90,000 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. homebuilding continued to slide in September, as residential permitting activity fell to its lowest level in four months. Privately-owned housing units authorized by building permits in September were at a seasonally adjusted annual rate of 1,215,000, 4.5 percent below the revised August rate of 1,272,000 and 4.3 percent below the September 2016 rate of 1,270,000, according to the U.S. Census Bureau and the Department of Housing and Urban Development.

Permits for single-family homes, which accounts for the largest share of the housing market, rose 2.4 percent to an 819,000 rate and 9.3 percent over the year while permits for multi-family units fell 16.1 percent to a 396,000 rate and -24.0 percent over the year.

The National Association of Home Builders/Wells Fargo builder sentiment index rose 4 points to 68 in October, the highest reading since May.
Definition & Importance
The data services of the Federal Reserve Bank of St. Louis produces series that are seasonally adjusted 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
After three consecutive months of decline, statewide applications for residential construction turned around in September. Total residential building permitting in September was at a seasonally-adjusted level of 797, or 24 permits (3.1 percent) more than the upwardly revised level of 773 but 56 permits (-6.6 percent) less than the September 2016 estimate of 853 units, according to figures from the Federal Reserve Bank of St. Louis.

In September, building permits for single-family homes were at a seasonally-adjusted level of 717, or 2.3 percent more than August’s level of 734 permits. Multi-family permitting rose to a seasonally-adjusted level of 80 units in September, up from the August level of 40 units. Single-family permitting accounted for a seasonally adjusted 89.9 percent of total residential permitting activity in August while the more volatile multi-family permitting accounted for 10.1 percent.

Over the year, single-family permits were down 90, (-11.1 percent), from September 2016 while multi-family permitting was up 34 (73 percent) from the previous year’s non-seasonally adjusted level of 46 units.
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
Americans increased their spending for the largest gain in more than eight years in September, led by automobile sales. Personal income increased $66.9 billion (0.4 percent) in September according to estimates by the Bureau of Economic Analysis (BEA). Disposable personal income (DPI) increased $53.0 billion (0.4 percent) and personal consumption expenditures (PCE) increased $136.0 billion (1.0 percent). The increase in personal income in September primarily reflected increases in wages and salaries and nonfarm proprietors’ income.

Spending on durable goods, such as automobiles and appliances, surged 2.1 percent in September, tied to vehicle replacement following Hurricanes Harvey and Irma. Outlays on nondurable goods, such as gasoline and clothing, jumped 1.5 percent. Household spending on services, such as doctor’s visits and utilities, increased 0.5 percent in September.

Inflation, as measured by the PCE Price Index, remained tame in September posting a slight 0.1 percent increase for a 1.3 percent rate over the past year—well below the Fed's 2 percent target.

The personal saving rate, personal saving as a percentage of disposable personal income, dropped to 3.1 percent of after-tax income, down from 3.6 percent in August.
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 grew 0.7 percent on average in the 2nd quarter of 2017, after increasing 1.4 percent in the 1st quarter, according to estimates by the U.S. Bureau of Economic Analysis (BEA). Growth rates ranged from 0.1 percent in Iowa and Nebraska to 1.3 percent in Nevada.

Oklahoma’s personal income matched the state average at a 0.7 percent rate, to a level of $169.4 billion, ranking the state 27th among all states in the 2nd quarter of 2017.

Earnings increased 0.8 percent in the 2nd quarter of 2017, after increasing 1.5 percent in the 1st quarter. Earnings growth ranged from 1.6 percent in Nevada to -0.1 percent in Nebraska, and was the leading contributor to growth in personal income in most states. Oklahoma’s net earnings grew 0.8 percent and contributed 0.55 percentage point to personal income growth in the 2nd quarter of 2017.

In Oklahoma, earnings in professional and business services was the leading contributor to earnings growth in the 2nd quarter of 2017, adding 0.10 percentage point to personal income growth. Growth in durable goods manufacturing contributed 0.09 percentage point to earnings along with transportation and warehousing contributing 0.09 percentage point.

Farm earnings declined for the nation and in every state in the 2nd quarter of 2017 and was the leading contributor to slow earnings growth in many states including Nebraska, Iowa and North Dakota. In Oklahoma, farm earnings was also the leading contributor to slower income growth, subtracting 0.07 percentage point in the 2nd quarter.
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
Monthly retail sales surged in September for the biggest gain in 2 ½ years, boosted by auto, gasoline, and building materials sales in the wake of Hurricanes Harvey and Irma. Advance estimates of U.S. retail and food services sales for September 2017, adjusted for seasonal variation and holiday and trading-day differences, but not for price changes, were $483.9 billion, an increase of 1.6 percent from the previous month, and 4.4 percent above September 2016, according to the U.S. Census Bureau. Total sales for the July 2017 through September 2017 period were up 3.9 percent from the same period a year ago. The July 2017 to August 2017 percent change was revised upward from -0.2 percent to -0.1 percent.

Automobile sales jumped 3.6 percent in September, reflecting replacement demand following Hurricanes Harvey and Irma. Excluding autos, retail sales rose 1.0 percent. Gasoline sales shot up 5.8 percent, reflecting the spike in pump prices after the disruption at Gulf Coast refineries hampered production following Harvey. Excluding both autos and gasoline, retail sales still managed a 0.5 percent gain.

The less volatile “core” sales which are used to calculate gross domestic product, and strips out automobiles, gasoline, building materials, and food services sales registered a 0.4 percent last month after holding steady in August.
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 expenditures bounced back in September but were mostly due to higher prices at the pump. Total adjusted retail trade for September was at a level of $3.41 billion, a 3.8 percent gain from August’s downwardly-revised level of $3.28 billion. Over the year, total adjusted retail sales were up 3.6 percent from the September 2016 level of $3.29 billion. Excluding gasoline sales, total retail sales for September increased 0.4 percent over the month.

Total durable goods sales rose 0.3 percent in September with gains in auto accessories & repair (1.3 percent); computer, electronics & music store sales (1.0 percent); used merchandise (0.7 percent); miscellaneous durable goods (0.4 percent); and furniture (0.4 percent). The only declining durable goods category was lumber, building materials & hardware (-0.8 percent).

Nondurable goods purchases jumped 5.1 percent in September as the volatile estimated gasoline sales category soared 35.5 percent over the month. In September, other advancing nondurable categories were apparel (1.0 percent); eating & drinking places (0.7 percent); general merchandise stores (0.6 percent); liquor stores (0.4 percent); and miscellaneous nondurables (0.3 percent). Declining nondurable goods categories for September included drugstores (-0.2 percent) and food stores (-0.1 percent).