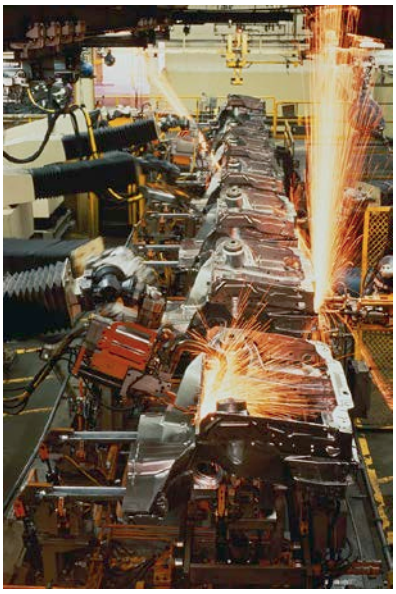


OKLAHOMA
Economic Indicators

October 2016

OKLAHOMA
ECONOMIC INDICATORS

Oklahoma Employment Security Commission
Richard McPherson, Executive Director

Economic Research and Analysis Division
Lynn Gray, Director & Chief Economist

Prepared by
Monty Evans, Senior Economist

Will Rogers Memorial Office Building
Labor Market Information Unit, 4th Floor N
P.O. Box 52003
Oklahoma City, OK 73152-2003
Phone: (405) 557-5369
Fax: (405) 525-0139
E-mail: lmi1@oesc.state.ok.us

October 2016

This publication is issued and is part of the activities of the Oklahoma Employment Security Commission as authorized by the Oklahoma Employment Security Act. An electronic copy has been deposited with the Publishing Clearinghouse of the Oklahoma Department of Libraries.

Equal Opportunity Employer/Program
Auxiliary aids and services are available upon request for individuals with disabilities

TABLE OF CONTENTS

SPECIAL REPORT: STEM Occupations and Employment: A Brief Review for Oklahoma 2
U.S. Real Gross Domestic Product and Quarterly Change 6
Oklahoma's Real Gross Domestic Product and Quarterly Change 8
Industry Share of Oklahoma's Economy. 9
Metropolitan Area Contribution to State Real GDP 10
Leading Index for Oklahoma 11
U.S. and Oklahoma Unemployment Rates 12
Oklahoma Initial Claims for Unemployment Insurance 13
U.S. and Oklahoma Nonfarm Payroll Employment 14
Oklahoma Employment Change by Industry. 15
U.S. and Oklahoma Manufacturing Employment. 16
Purchasing Managers' Index (Manufacturing) 17
Oklahoma Active Rotary Rigs and Cushing, OK WTI Spot Price 19
Oklahoma Active Rotary Rigs and Henry Hub Natural Gas Spot Price. 21
U.S. Total Residential Building Permits. 23
Oklahoma Total Residential Building Permits 24
U.S. and Oklahoma Real Personal Income. 25
Industry Contribution to Oklahoma Personal Income 26
U.S. Adjusted Retail Sales 27
Oklahoma Total Adjusted Retail Sales. 28

SPECIAL REPORT:

STEM Occupations and Employment: A Brief Review for Oklahoma

Introduction

The Economic Research and Analysis Division at the Oklahoma Employment Security Commission (OESC) recently updated our statewide STEM report, *STEM Occupations and Employment*, first produced in 2015. Over 100 STEM Occupations were chosen in this study, including occupational groups from: Chemistry, Computer Science, Engineering, Environmental Science, Life Sciences, Mathematics, and Physics/Astronomy. Because experience and education is needed for the STEM occupations, this study also includes managerial and postsecondary occupations. The data in this report comes from the Occupational Employment Statistics (OES) program, collaboration between the Oklahoma Employment Security Commission (OESC) and the U.S. Bureau of Labor Statistics (BLS) and the Employment Projections Program produced by the Research and Analysis Division of OESC. Below are a few of the findings from this study.

Chart 1

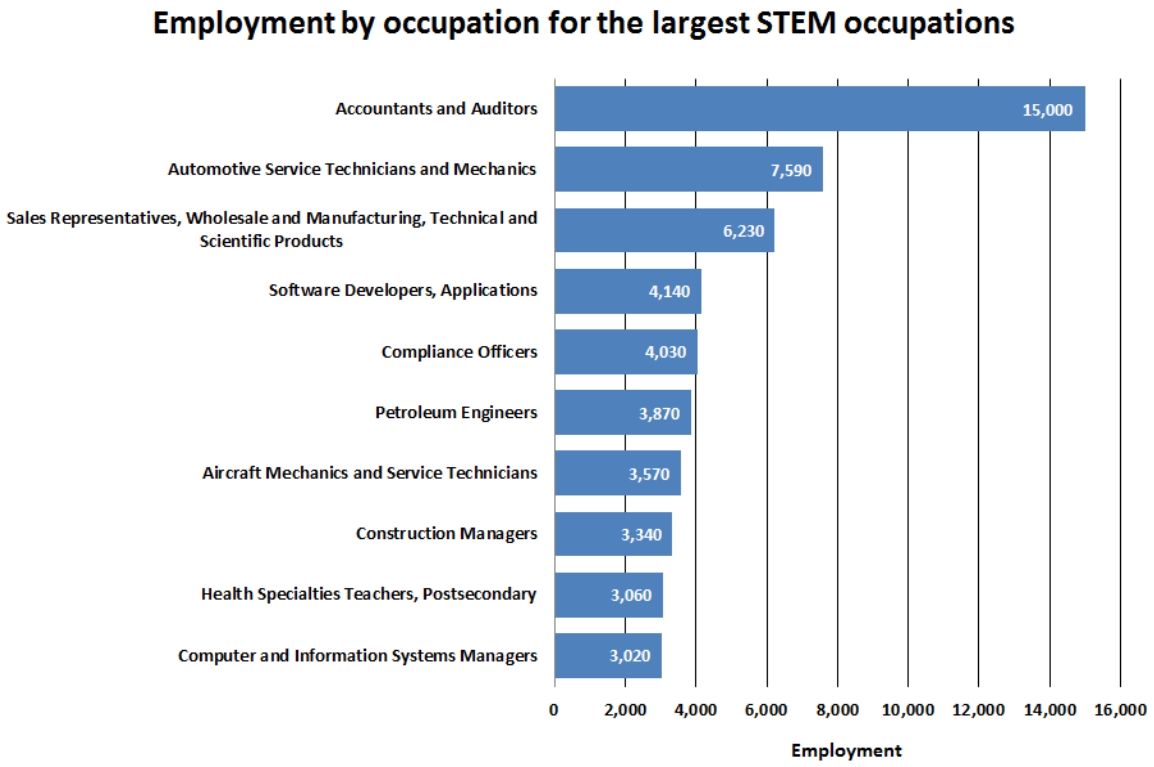
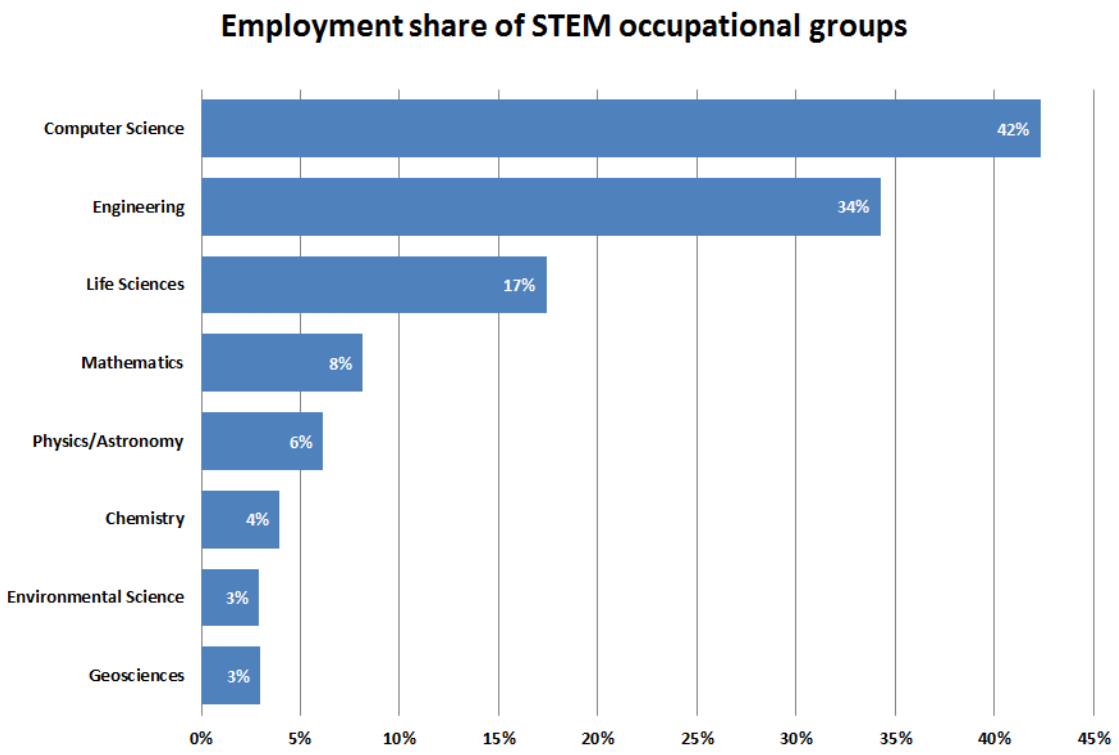


Chart 1, above, shows the top ten of Oklahoma's employment-based STEM occupations in 2015. Accountants and Auditors top the list with approximately 15,000 jobs. Automotive Service Technicians and Mechanics, Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products, Software Developers, Applications, and Compliance Officers were listed as the top five of the largest occupations.

Chart 2



Oklahoma had a total of approximately 125,590 STEM jobs in 2015, accounting for nearly 8 percent of total state employment, (see Chart 2, above). Computer Science had the largest share of jobs for STEM occupations with 53,170 jobs, and 42 percent of the total STEM employment followed by Engineering with 34 percent of the STEM employment with 43,040 jobs. The third largest STEM occupational group was Life Sciences with 17 percent of the STEM occupations with 21,890 jobs. Other STEM employment shares include: Mathematics with 10,210 jobs, Physics/Astronomy with 7,710 jobs, Chemistry with 4,950 jobs, Geosciences with 3,700 jobs, and Environmental Science with 3,640 jobs.

Chart 3 on the following page depicts the highest- and lowest-paying STEM occupations in Oklahoma in 2015. The STEM jobs' average annual wage was $70,162; however, Oklahoma's average annual wages for all occupations was $41,820.

The top paying STEM occupation for 2015 was Physicists at $154,380. The lowest paying STEM occupation at $22,750 was Dietetic Technicians.

The top five highest paid STEM occupations in Oklahoma in 2015 included: Petroleum Engineers, Architectural and Engineering Managers, Geoscientists, Except Hydrologists and Geographers, and Mining and Geological Engineers, Including Mining Safety Engineers. The lowest average annual wage STEM occupations for Oklahoma included: Dietetic Technicians, Environmental Engineering Technicians, Agricultural and Food Science Technicians, Biological Technicians, and Automotive Service Technicians and Mechanics, (see Chart 3, next page).

Chart 3

Highest- and lowest-paying STEM occupations

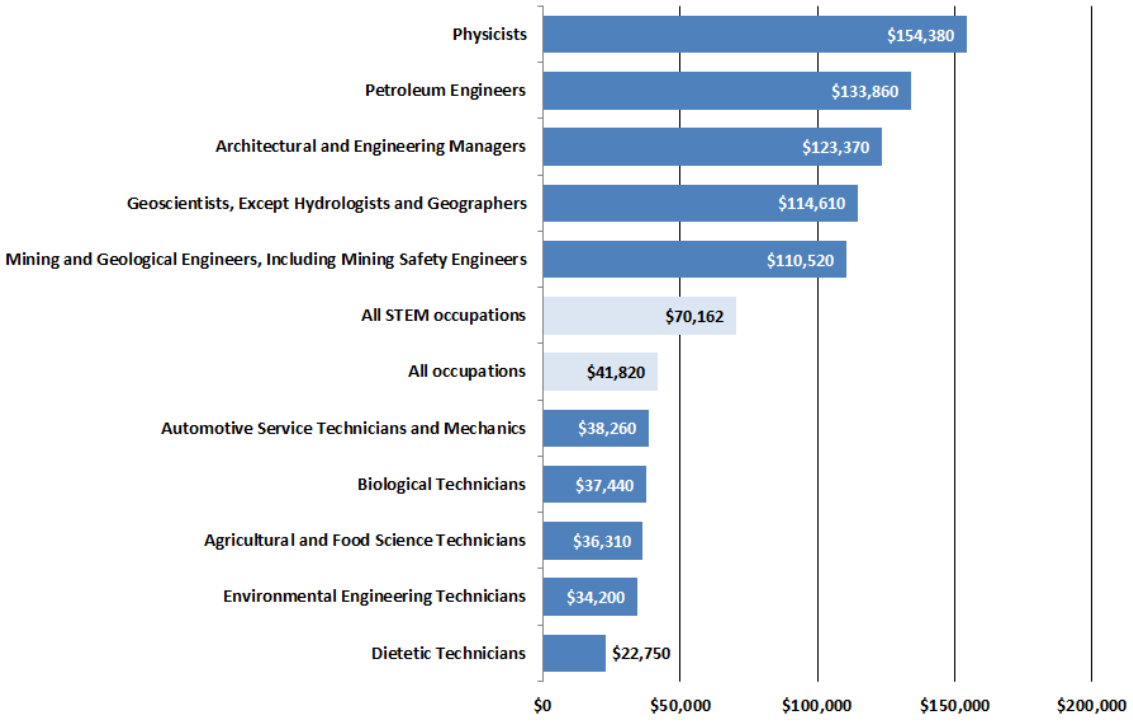


Chart 4

The highest location quotients for STEM occupations by employment level

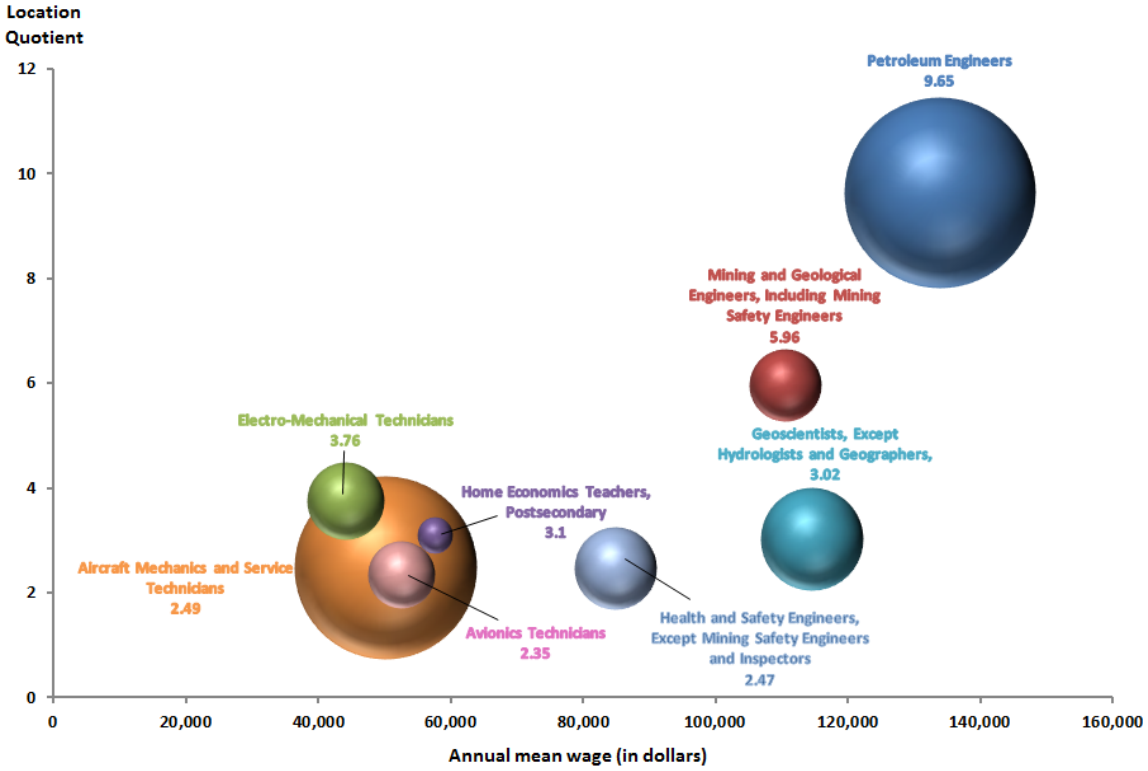
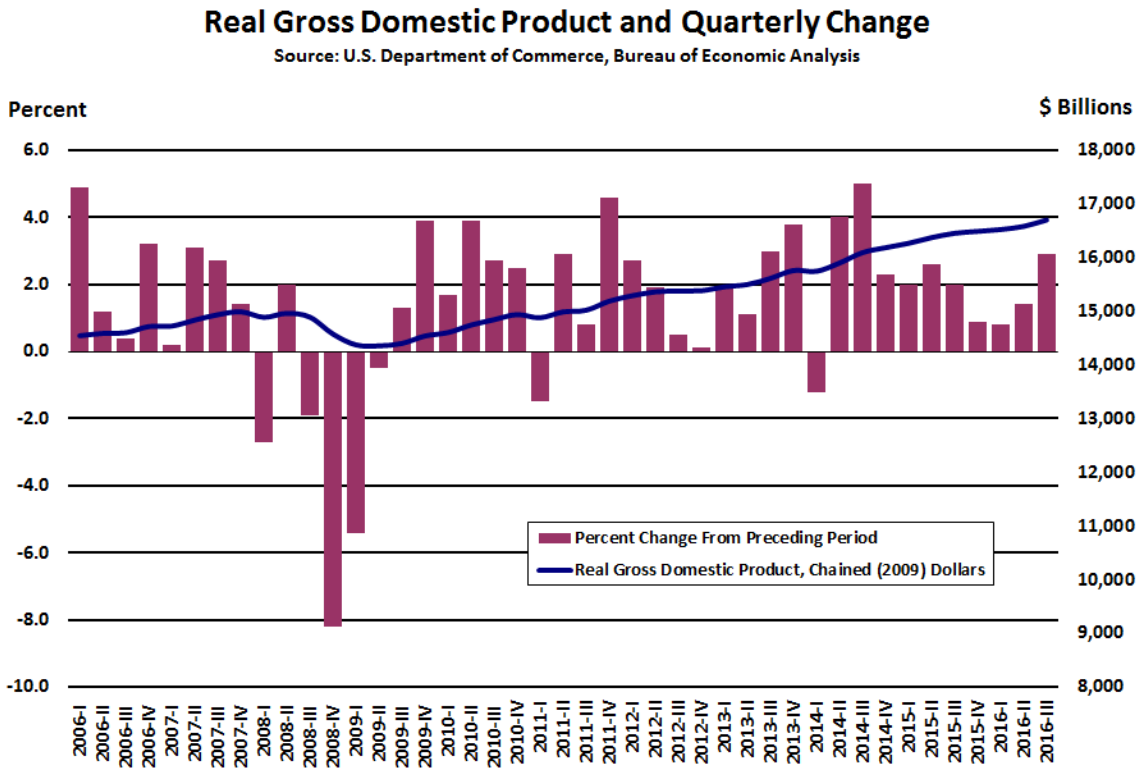


Chart 4, on the previous page, displays the highest eight STEM occupation location quotients in Oklahoma. Most of the occupations with the highest location quotients are technicians or engineers. The STEM occupations' location quotients are calculated as a ratio comparing the STEM occupation employment concentration of Oklahoma to the nation. A location quotient less than 1.0 suggests that the STEM occupational employment is less concentrated in Oklahoma compared to the U.S., while location quotients larger than 1.0 suggests that STEM occupational employment is more concentrated in Oklahoma compared to the U.S.

More Information

A copy of the full *STEM Occupations and Employment* report is available on the OESC website at:

https://www.ok.gov/oesc_web/documents/lmistem2015.pdf



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 grew at its strongest pace in two years during the July-September quarter, as growth in exports and inventory investment offset weaker consumer spending. Real gross domestic product (GDP) increased at an annual rate of 2.9 percent in the 3rd quarter of 2016, according to the "advance" estimate released by the Bureau of Economic Analysis (BEA). In the 2nd quarter, real GDP increased 1.4 percent.

Consumer spending, which accounts for more than two-thirds of U.S. economic activity, grew at a solid 2.1 percent rate in the 3rd quarter, yet slower than the brisk 4.1 percent pace in the previous quarter. Spending on durable goods, such as automobiles, surged at a 9.5 percent rate while spending on nondurable goods, such as clothing, slipped -1.4 percent. Spending on services, such as transportation grew 2.1 percent in the 3rd quarter. Personal consumption expenditures (PCE) was the largest contributor to 3rd quarter GDP growth, adding 1.47 percentage points.

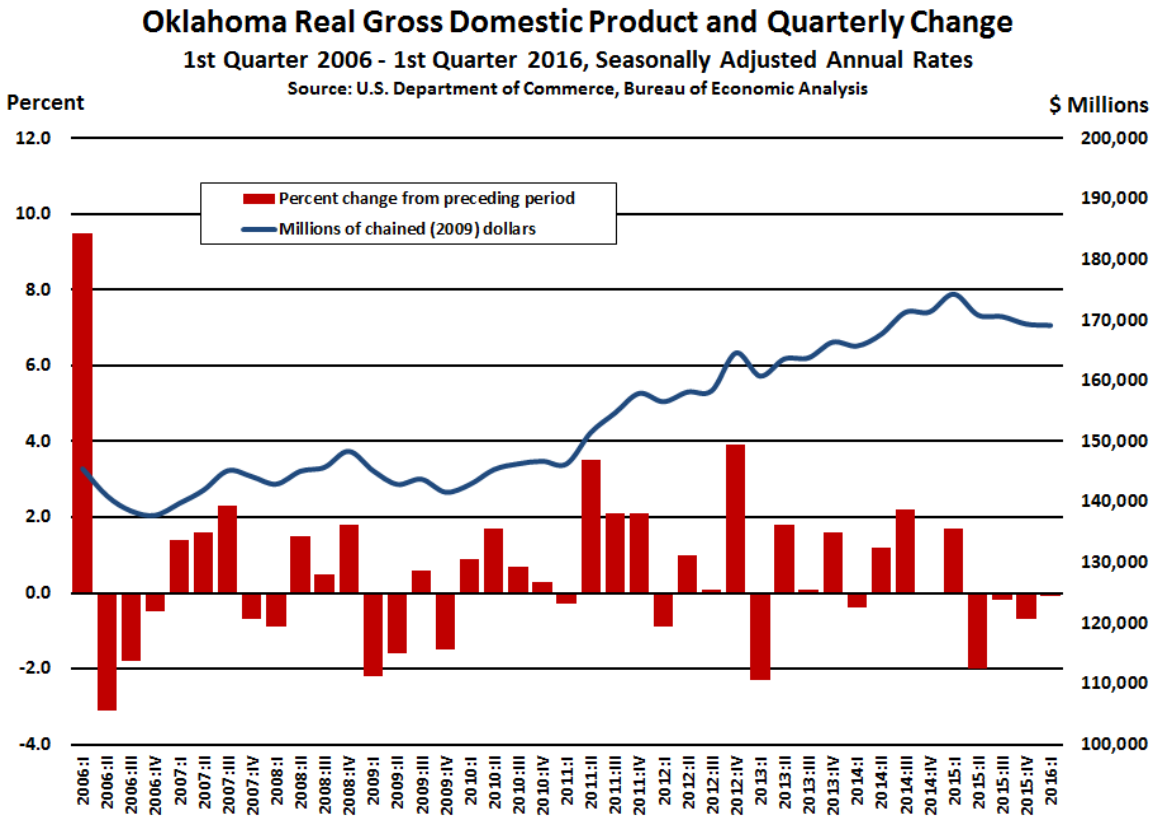
Business investment, which has been hurt by cutbacks in the energy industry, grew for a second consecutive quarter. Nonresidential fixed investment grew at a 1.2 percent rate during the 3rd quarter adding 0.15 percentage point to GDP growth.

Businesses also increased spending to restock inventories after running down stockpiles in the previous quarter. Businesses accumulated inventories at a $12.6 billion rate in the 3rd quarter. The change in private inventories, a drag on output in the five previous quarters, contributed 0.61 percentage point to overall GDP growth in the 3rd quarter.

Spending on home building and improvements fell for the second straight quarter. Residential fixed investment declined at a 6.2 percent rate after a drop of 7.7 percent in the 1st quarter.. Residential fixed investment subtracted 0.24 percentage point from 2nd quarter GDP growth. Until this spring, residential investment had been a driver of economic growth since 2014.

Exports, which add to GDP, increased at a 10.0 percent rate in the 3rd quarter, the best gain in nearly three years. Imports, which subtract from domestic output, increased at a 2.3 percent rate. A narrowing trade deficit contributed 0.83 percentage point to overall growth in the 3rd quarter.

Government spending bounced back last quarter, with stronger federal spending offsetting a decline at the state and local level. Federal government expenditures advanced at an annualized 2.5 percent rate, boosted by a 2.1 percent rise in national defense spending and a 3.0 percent increase in non-defense spending. State and local government spending slumped 0.7 percent in the 3rd quarter. Government consumption expenditures added 0.09 percentage points to GDP growth in the 3rd quarter.



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.

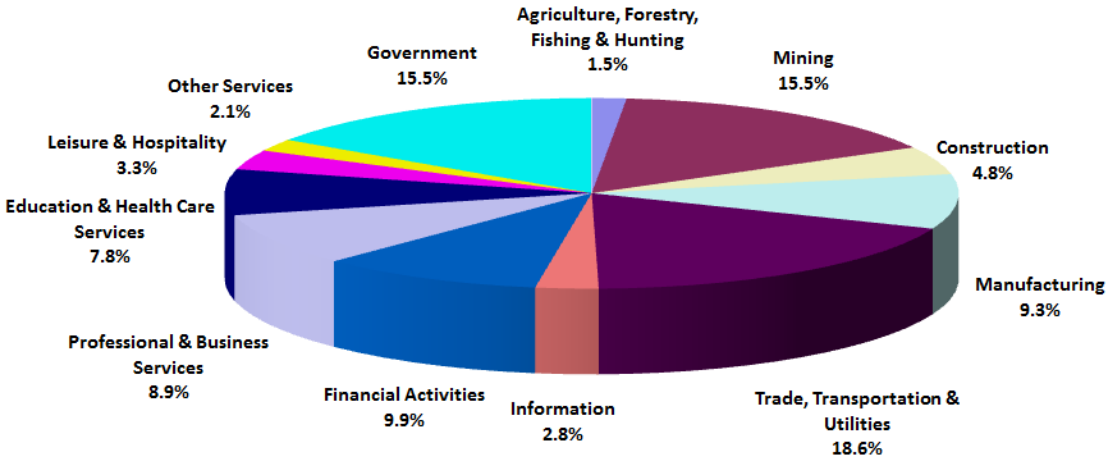
Current Developments

Growth of U.S. real GDP by state—a measure of nationwide growth calculated as the sum of GDP of all states and the District of Columbia—slowed to an annual rate of 1.2 percent in the 1st quarter of 2016 after increasing 1.7 percent in the preceding quarter. Real gross domestic product (GDP) increased in 37 states and the District of Columbia in the 1st quarter of 2016, according to the Bureau of Economic Analysis (BEA). Real GDP by state growth, at an annual rate ranged from 3.9 percent in Arkansas to -11.4 percent in North Dakota. Construction; health care and social assistance; and retail trade were the leading contributors to U.S. economic growth in the 1st quarter.

In the 1st quarter of 2016, Oklahoma's real GDP contracted for the fourth consecutive quarter, slipping -0.5 percent and ranking the state 39th among all other states and the District of Columbia. Statewide GDP was at a level of $176.8 billion (in constant 2009 dollars) in the 4th quarter, down $2.48 billion from 3nd quarter's level of $179.3 billion.

It also appears that Oklahoma's economy did not perform as well as previously thought. The state's real GDP growth in 2nd quarter 2015 was slashed from -2.4 percent to -7.7 percent while 3rd quarter 2015 growth was revised downward from 1.0 percent to -0.6 percent.

Industry Share of Oklahoma's Economy, 1st Quarter 2016
(by percentage of Gross Domestic Product)
Source: U.S. Department of Commerce, Bureau of Economic Analysis



Based on overall U.S. real GDP growth by state, construction grew 9.0 percent in the 1st quarter of 2016—the eighth consecutive quarter of growth for this industry. Construction contributed to growth in 47 states and the District of Columbia including Oklahoma where it added 0.7 percentage point to the state's real GDP growth.

Health care and social assistance grew 3.8 percent in the 1st quarter. This industry contributed to growth in every state and the District of Columbia. In Oklahoma, health care and social assistance added 0.21 percentage point to GDP growth.

Retail trade grew 4.8 percent in the 1st quarter. This industry contributed to growth in 47 states and the District of Columbia and added 0.22 percentage point to real GDP in Oklahoma.

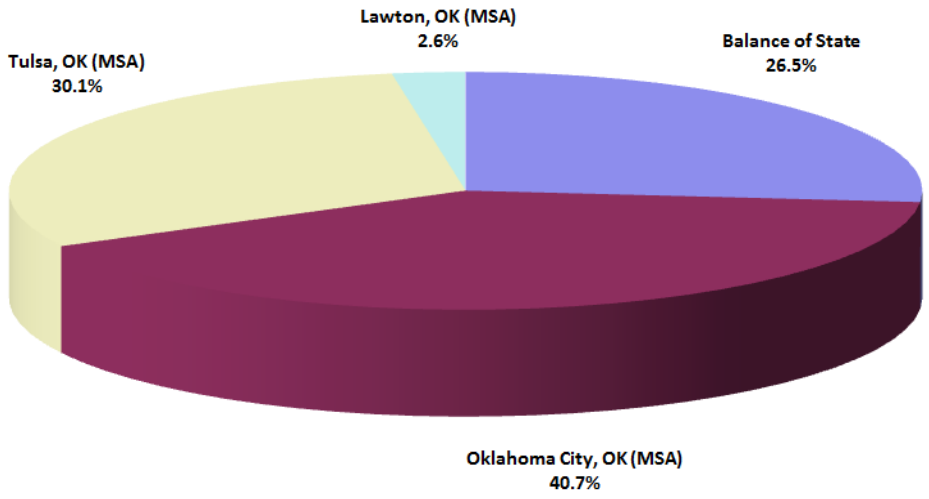
Although agriculture, forestry, fishing, and hunting was not a significant contributor to real GDP growth for the nation, it had an important impact on economic growth in several states including Oklahoma. This industry contributed 0.83 percentage points to real GDP growth in Oklahoma—the largest contributor to the state's GDP growth in the 1st quarter.

Mining declined 11.1 percent for the nation in the 1st quarter. Mining subtracted 0.73 percentage point from real GDP growth in Oklahoma and was the largest drag on the state's GDP growth in the 1st quarter

Transportation and warehousing declined 8.8 percent for the nation in the 1st quarter. This industry subtracted from real GDP growth in all states and the District of Columbia including Oklahoma where it subtracted 0.53 percentage point from real GDP growth.

Metropolitan Area Contribution to State Real Gross Domestic Product 2015

Source: U.S. Department of Commerce, Bureau of Economic Analysis



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.

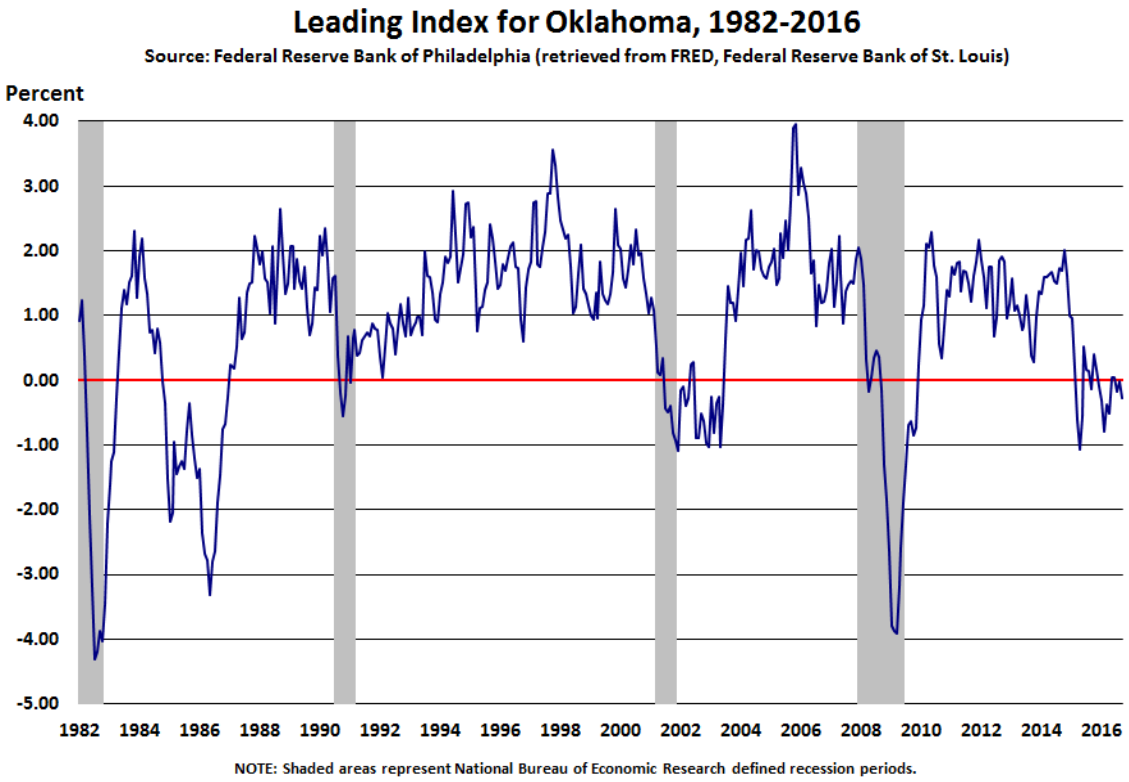
Nationally, metropolitan statistical areas represent approximately 90 percent of total GDP. In Oklahoma, the three MSAs of Oklahoma City, Tulsa and Lawton accounted for roughly 75 percent of total state GDP in 2010.

Current Developments

Real gross domestic product (GDP) increased in 292 metropolitan areas in 2015, led by growth in professional and business services; wholesale and retail trade; and finance, insurance, real estate, rental and leasing, according to the U.S. Bureau of Economic Analysis (BEA). Collectively, real GDP for U. S. metropolitan areas increased 2.5 percent in 2015 after increasing 2.3 percent in 2014.

Only one of three Oklahoma metropolitan areas outpaced the U.S. metropolitan area real GDP growth in 2015. Oklahoma City MSA's real GDP grew at a rate of 2.8 percent to $69.7 billion and ranked 108th (out of 382 metro areas). Tulsa MSA grew at a 0.7 percent pace to $51.6 billion and ranked 256th. Lawton MSA grew 0.6 percent to $4.4 billion in 2015 and ranked 264th among U.S. metro areas.

Natural resources & mining drove Oklahoma City MSA's growth in 2015, adding 3.78 percentage points to real GDP. Trade (0.44 percentage point), non-durable goods manufacturing (0.36 percentage point), and construction (0.28 percentage point) helped contribute to Tulsa MSA's GDP growth. Professional and business services was the primary driver of Lawton MSA's growth, adding 1.00 percentage point).



Definition & Importance

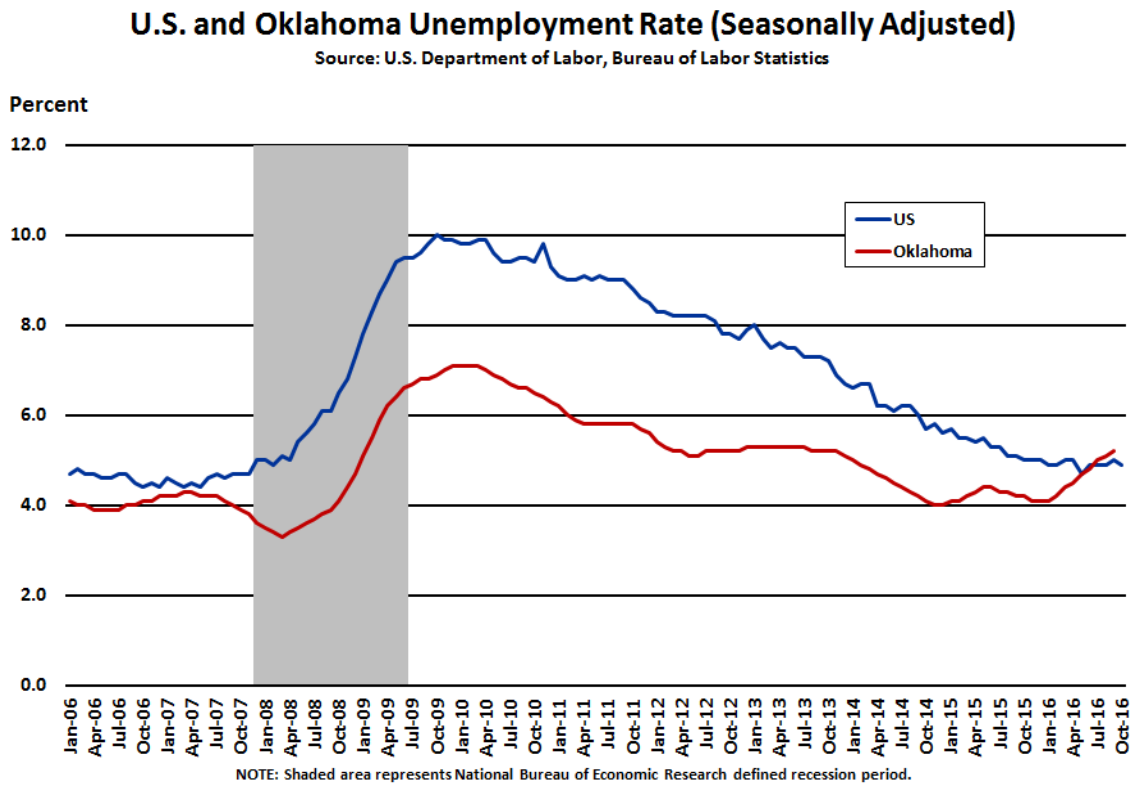
The Federal Reserve Bank of Philadelphia produces leading indexes for each of the 50 states. The indexes are calculated monthly and are usually released a week after the release of the coincident indexes. The Bank issues a release each month describing the current and future economic situation of the 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, fell back into negative territory in September. After climbing to a revised 0.05 percent in May, (down from a previous 0.27 percent reading), and 0.05 percent in June (down from the previous 0.27 percent estimate), the state's leading index slipped to -0.17 in July (from the previous 0.09 estimate) and a revised -0.02 percent in August (from the previous 0.19 estimate). Oklahoma's leading index fell again in September to -0.28, according to the latest figures from the Federal Reserve Bank of Philadelphia.

Oklahoma's leading index has been in the negative range for eight of the past ten months. Overall, Oklahoma's leading index for September suggests contraction in the state's economy through the 1st quarter of 2017.



Definition & Importance

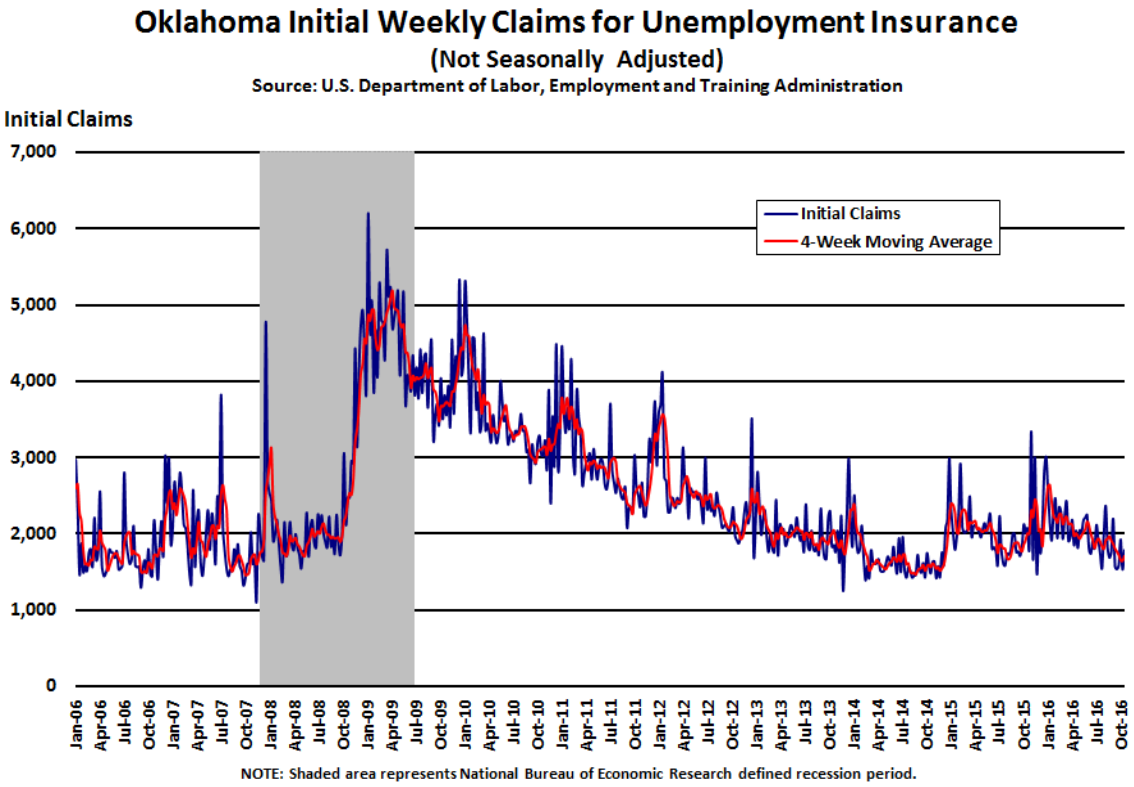
The Bureau of Labor Statistics Local Area Unemployment Statistics (LAUS) program produces monthly estimates of total employment and unemployment from a national survey of 60,000 households. The unemployment rate measures the percentage of people who are without work and is calculated by dividing the 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 in October but that's mostly because many of those out of work stopped searching for jobs and were no longer counted in the labor force. The unemployment rate dropped to 4.9 percent in October, 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—moved down to 62.8 percent in October, losing 0.1 percentage point from the previous month.

Oklahoma's seasonally-adjusted unemployment rate rose for the eighth consecutive month in September rising 0.1 percentage point to 5.2 percent. Over the year, the state's seasonally-adjusted unemployment rate was 1.0 percentage point more than 4.2 percent reported in September 2015. Stephens County once again posted Oklahoma's highest county unemployment rate at 10.4 percent followed by McIntosh County (9.8 percent) and Latimer County (9.7 percent). Cimarron County reported the lowest county unemployment rate at 2.8 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.

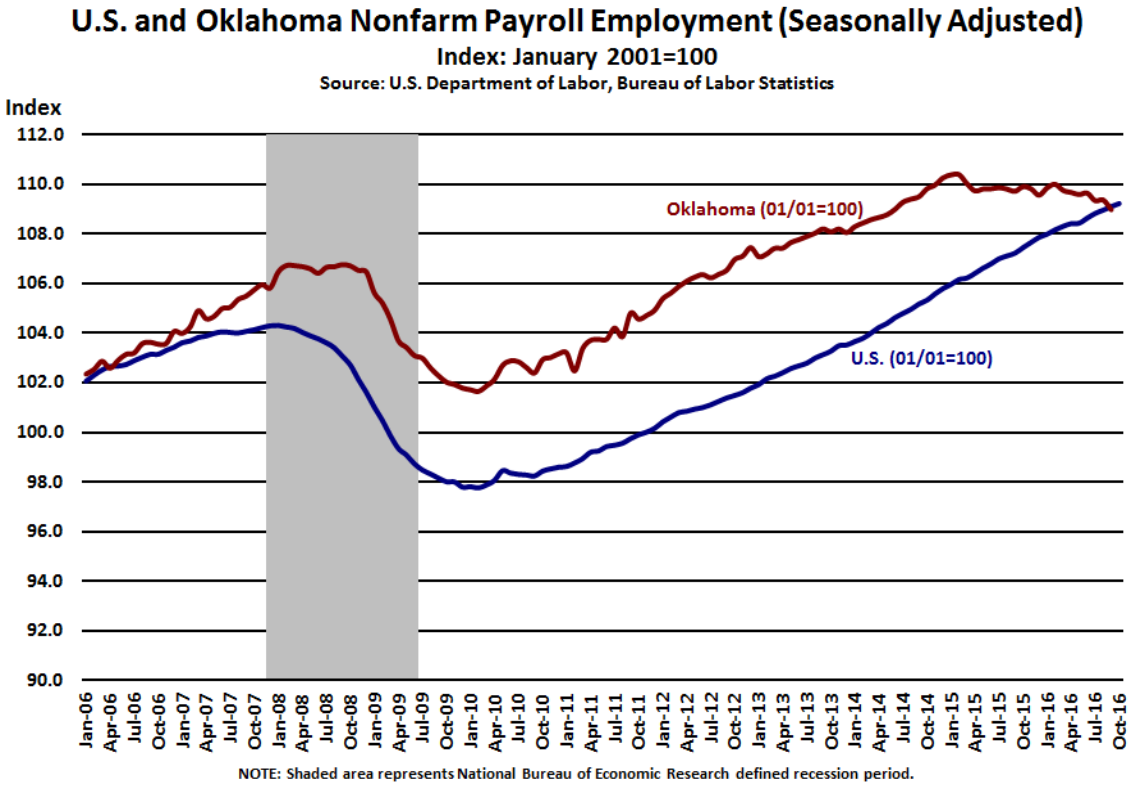
Initial claims are a leading indicator because they point to changes in labor market conditions. An increasing trend signals that layoffs are occurring. Conversely, a decreasing trend suggests an improving labor market. The four-week moving average of initial claims smooths out weekly volatility and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

Current Developments

The number of Americans filing for unemployment benefits rose in the last week of October but remain at the lowest level since June 2000. In the week ending October 29, the advance figure for seasonally adjusted initial claims was 265,000, an increase of 7,000 from the previous week's unrevised level of 258,000, according to figures released by the U.S. Labor Department (DOL). The less volatile 4-week moving average was at a level of 257,750, an increase of 4,750 from the previous week's unrevised average of 253,000.

In October, Oklahoma initial jobless claims rose while continued claims fell to the lowest level since April 2015. For the file week ending October 22, initial claims for unemployment insurance benefits were at a level of 1,734, up 252 from the previous week and 248 over the month. For the same file week ending, the less volatile four-week moving average rose 62 to 1,707. For the same file week ending on October 22, continued claims dropped 377 to a level of 19,247 while the continued claims four-week moving average fell 98 to 19,693.

Over the year, statewide initial jobless claims were 286 less than the October 24, 2015 level of 2,070 while continued claims were 1,775 less than 21,022 for the same file week ending.



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.

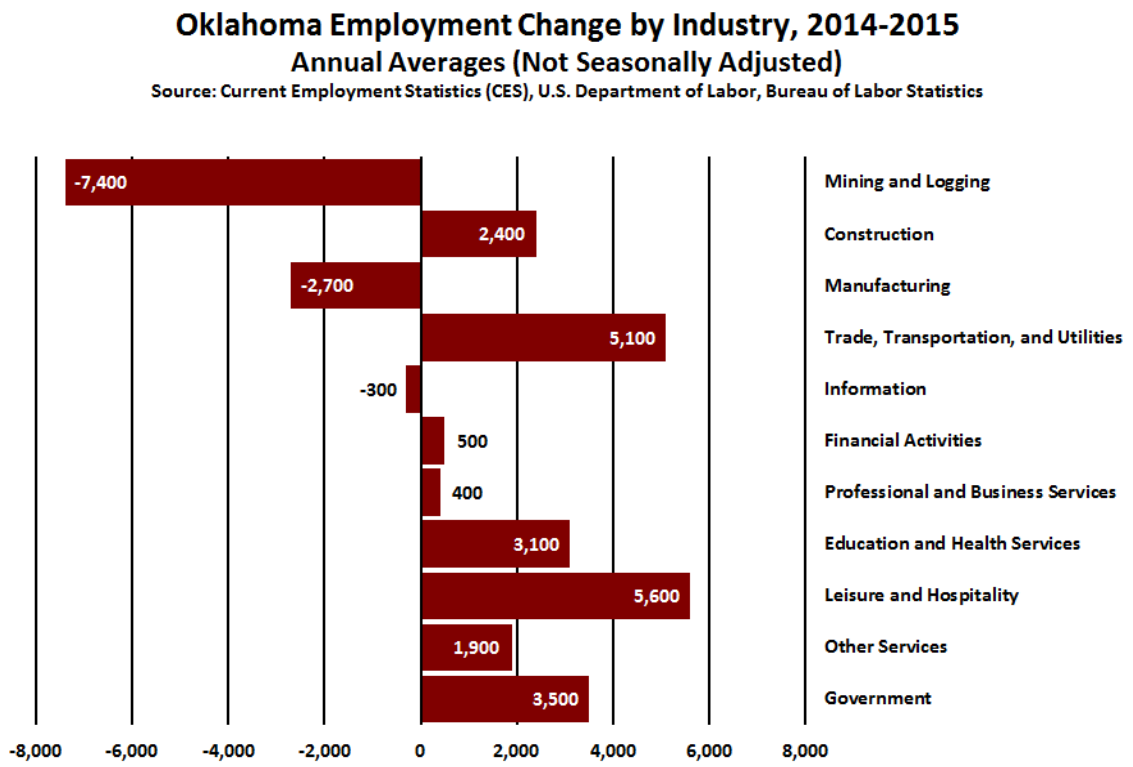
Payroll employment is one of the most current and reliable indicators of economic conditions and recessionary trends. Increases in nonfarm payrolls translate into earnings that workers will spend on goods and services in the economy. The greater the increases in employment, the faster the total economic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

Current Developments

U.S. employers continued a healthy pace of hiring and raised wages for workers in October. Total nonfarm payroll employment rose by 161,000 in October, according to the Bureau of Labor Statistics (BLS). In October, employment continued to trend up in health care (+31,000 jobs), professional and business services (+43,000 jobs), and financial activities (+14,000 jobs).

Oklahoma nonfarm payrolls fell by a seasonally-adjusted 6,000 jobs (-0.4 percent) in September. August's nonfarm employment was revised upward 900 to 1,660,200. Four of Oklahoma's 11 supersectors added jobs over the month as education & health services (+600 jobs) posted the largest monthly job gain in September. Professional & business services (-1,800 jobs) and government (-1,800 jobs) reported the largest over-the-month losses followed by leisure & hospitality (-1,700 jobs).

Over the year, statewide total nonfarm employment lost 11,300 jobs (-0.7 percent) led by manufacturing (-9,800 jobs) and mining & logging (-7,200 jobs). Leisure & hospitality (+5,500 jobs) once again claimed the largest job gain over the year.



Definition & Importance

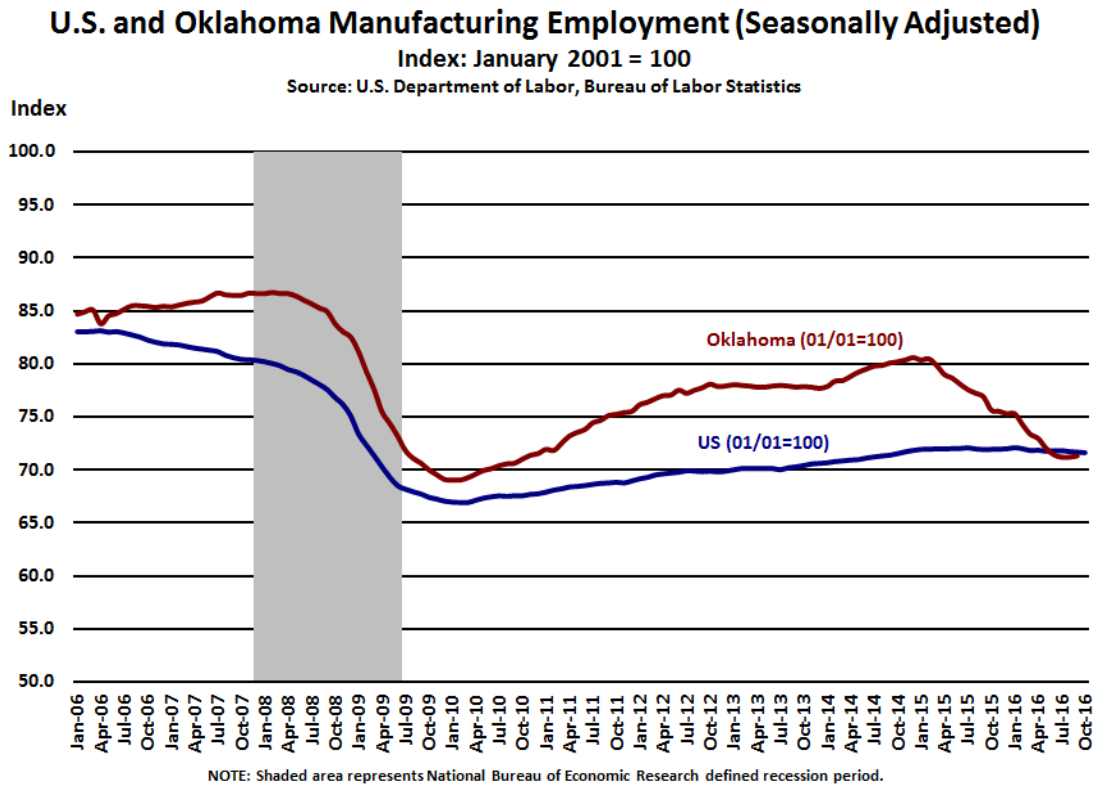
Employment growth by industry identifies the types of jobs being created in the state. Conversely, industries with a declining employment trend indicate those which are becoming less important in the state's economy. There may also be industries which behave more cyclically, growing during expansion 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 annual average employment growth slowed further in 2015, as mounting energy sector layoffs weighed on overall job growth. Total nonfarm employment added a non-seasonally adjusted 12,100 jobs for a 0.7 percent growth rate, (compared to 2014, when 21,300 jobs were added at a 1.3 percent growth rate).

In 2015, eight out of Oklahoma's 11 statewide supersectors recorded job growth. Leisure & hospitality led all other supersectors adding 5,600 jobs with the greater part of hiring occurring in food services and drinking places. The broad trade, transportation & utilities sector added 5,100 jobs with the largest part of growth coming from retail trade. Government added 3,500 employees with most of the growth in local government. Construction added 2,400 jobs with nearly all the job growth in specialty trade contractors.

The largest annual average over-the-year job losses were seen in mining & logging which dropped a non-seasonally adjusted 7,400 jobs (-12.0 percent). Manufacturing employment lost 2,700 jobs mostly in durable goods manufacturing. Information shed 300 jobs in 2015.



Definition & Importance

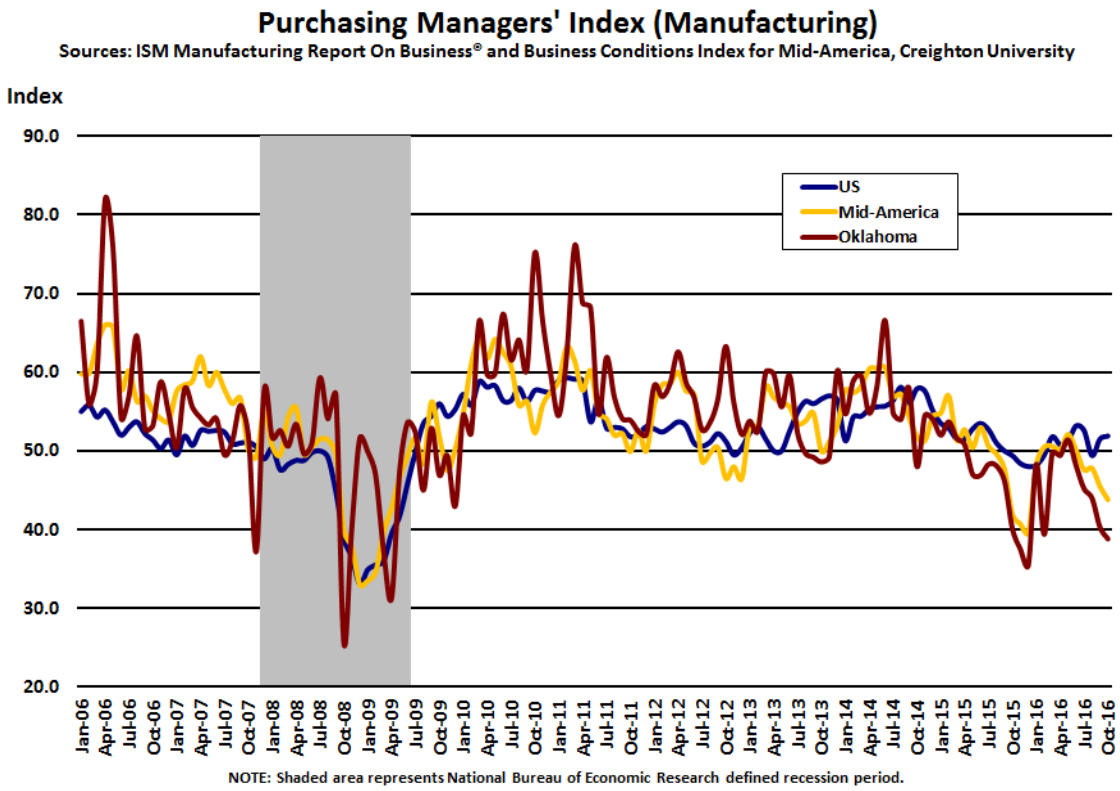
Manufacturing employment data is also produced by the Bureau of Labor Statistics' Current Employment Statistics (CES) program. Manufacturing and production are still important parts of both the U.S. and Oklahoma economies. During the 2007-09 recession, employment in manufacturing declined sharply. Although 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

Jobs in the U.S. manufacturing sector fell for the third straight month in October. Manufacturing employment lost 9,000 jobs in October, according to the Bureau of Labor Statistics (BLS). Durable goods manufacturing dropped 5,000 jobs in October while non-durable goods manufacturing shed 4,000 jobs. Over the year, manufacturing has lost 53,000 jobs.

Statewide manufacturing employment gained 200 jobs (0.2 percent) in September, to a seasonally-adjusted 125,300 jobs. Non-durable goods gained 300 jobs (0.8 percent) in September but those gains were somewhat offset by losses in durable goods manufacturing.

Over the year, statewide manufacturing employment dropped a seasonally-adjusted 9,800 jobs (-7.3 percent) with nearly all of the job losses coming from durable goods manufacturing. Fabricated metal product manufacturing lost a non-seasonally adjusted 4,100 jobs over the year while machinery manufacturing fell by 3,700 jobs. Non-durable goods manufacturing employment added a seasonally-adjusted 200 jobs (-0.5 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. 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 rose for the second straight month in October, a sign that the manufacturing sector could be turning around after two years of strong headwinds. The October PMI® registered 51.9 percent, an increase of 0.4 percentage point from the September reading of 51.5 percent, according to the latest Manufacturing ISM Report On Business®. Manufacturing expanded in October, indicating growth in manufacturing for the second consecutive month, with eight of the 18 industries reporting an increase in new orders and 11 of the 18 industries reporting an increase in production.

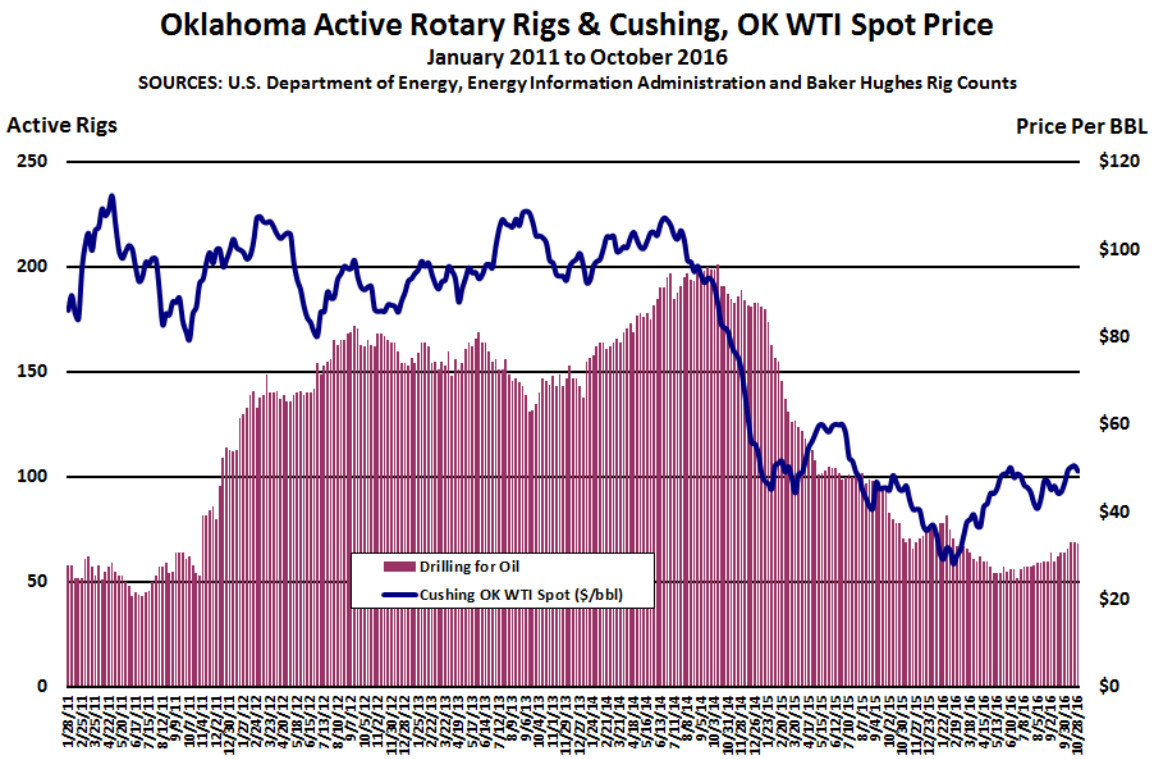
Hiring during the month gained steam as the Employment Index jumped 3.2 percentage points to 52.9 in October. The Production Index was 54.6 in October, and increase of 1.8 percentage points from September's reading of 52.8. A gauge of new orders dropped 3.0 percentage points to 52.1 in October.

For a fourth straight month, the Creighton University Mid-America Business Conditions Index, a leading economic indicator for a nine-state region stretching from North Dakota to Arkansas, was below growth neutral 50.0. The September Business Conditions Index, which ranges between 0 and 100, fell in October to 43.8 from September's 45.5, according to the Creighton Economic Forecasting Group. Like the national survey of supply managers, the regional survey is indicating that the manufacturing sector is experiencing negative growth.

"Even with oil prices hovering around $50 per barrel for the month, weakness among manufacturers linked to agriculture and energy continue to weigh on regional economic conditions. Due to the heavy dependence of the region on these two sectors, I expect the regional economy to continue to underperform the national economy. Despite the decline in manufacturing, the nonmanufacturing sector of the regional economy is expanding, albeit at a slow pace," said Ernie Goss, Ph.D., director of Creighton University's Economic Forecasting Group.

After moving above growth neutral for May, Oklahoma's Business Conditions Index has been below 50.0 for five consecutive months. The October index sank to a regional low of 38.8 from 40.3 in September, also a regional low. Components of the overall October index from a survey of supply managers in the state were new orders at 47.7, production or sales at 35.2, delivery lead time at 57.8, inventories at 19.2, and employment at 33.9.

"Both durable goods producers and nondurable goods manufacturers in the state continue to lose jobs," observed 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 fifth in the nation in crude oil production in 2013, 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

The U.S. Energy Information Administration's (EIA) October *Short-Term Energy Outlook* (STEO) indicates that oil market conditions are somewhat looser by the end of 2017 than previously projected. Although the annual average spot prices for West Texas Intermediate (WTI) and Brent are similar across the current and previous outlooks, quarterly WTI and Brent spot prices were revised more significantly.

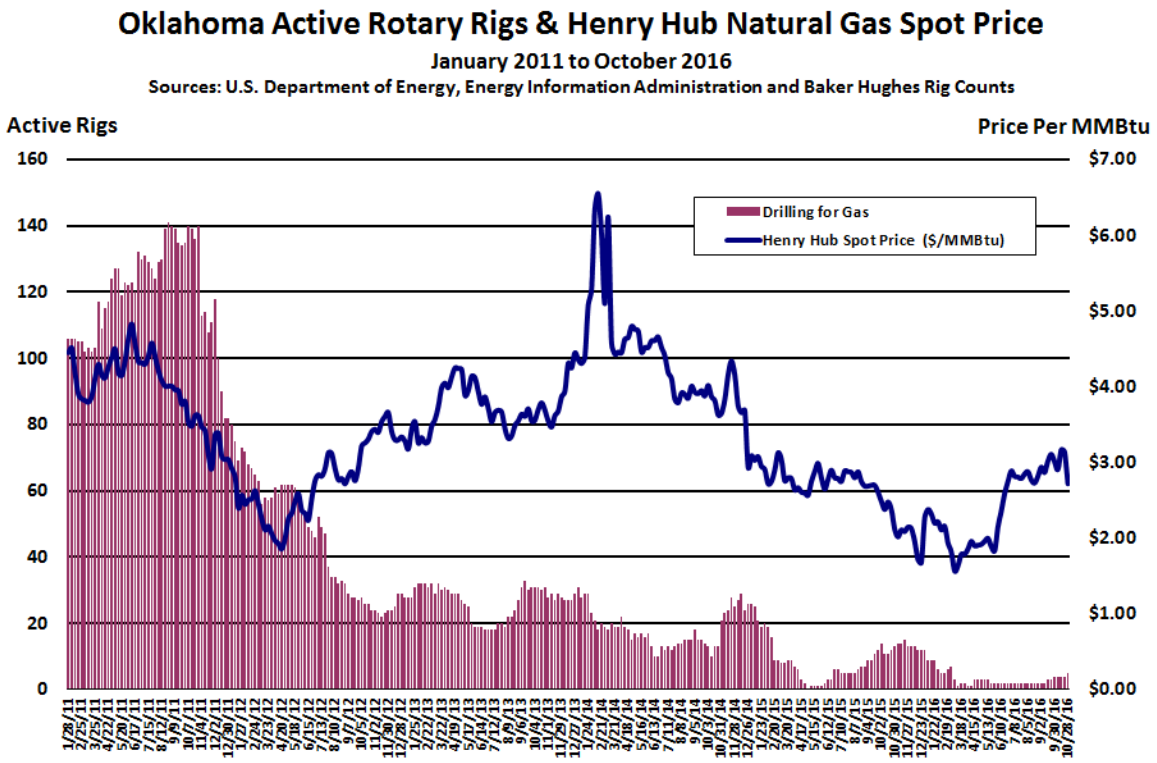
EIA's October STEO Brent crude oil price forecast for the 4th quarter of 2016 and the 1st quarter of 2017 is $48 per barrel (b) about $3/b higher than in the September forecast, reflecting recent price movements and a reduction in near-term downside price risks. However, the forecast for prices toward the end of 2017 has actually been reduced, with prices for 2017 as a whole slightly below the September forecast. The recent activity of U.S. onshore producers, along with expectations of higher U.S. production in 2017, is one of the drivers for lowering EIA's Brent crude oil forecast in the 4th quarter of 2017 to $55/b from a forecast of $58/b in the September STEO.

Monthly statewide crude oil production levels have been gradually declining over the past year but still remain at historically high levels. Oklahoma's crude production for August was at a level of 13,061,000 barrels, or 101,000 barrels (0.8 percent) more than July's revised production level of 12,960,000 barrels. Oklahoma's crude production for the first eight months of 2016 was 103,696,000 barrels, or 4,418,000 (4.1 percent) less than the 108,114,000 barrels produced during the first eight months of 2015.

West Texas Intermediate (WTI-Cushing) spot prices began October at $48.80/barrel (b) and finished at $46.83/b, averaging $49.78/b for the month. Over the year, WTI-Cushing domestic crude prices were up 23 cents, (0.5 percent) from $46.60/barrel on October 30, 2015.

The number of rigs exploring for oil and natural gas in the U.S. increased by four for the week ended Friday, October 28 to 557 active rigs. The U.S. rig count peaked at 4,530 in 1981 and reached an all-time low of 404 in May.

Oklahoma's rig count for the week ending October 28, 2016 held steady at 73, the same as the previous two weeks, according to Baker Hughes' weekly rig count. Oil-directed rigs accounted for approximately 93 percent of total rig activity (68 active rigs). A year earlier, Oklahoma's rig count was 84.



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 United States with production typically accounting for almost one-tenth of the U.S. total. 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

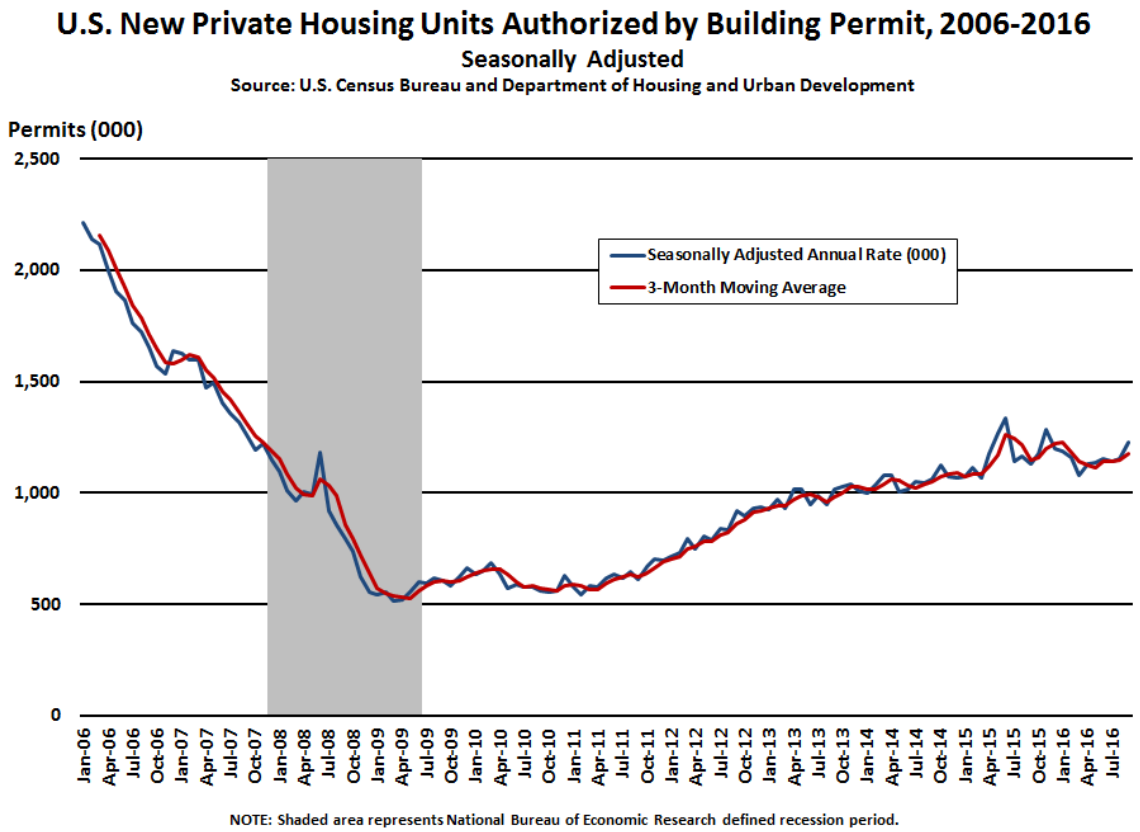
According to the September 2016 *Short-Term Energy Outlook*, the U.S. Energy Information Administration (EIA) noted that natural gas marketed production fell from 79.7 billion cubic feet per day (Bcf/d) in September 2015 to 76.5 Bcf/d in July 2016. The EIA expects marketed natural gas production to average 77.5 Bcf/d in 2016, a decrease of 1.6 percent from the 2015 level, which would be the first annual decline since 2005. Forecast production increases by 3.7 Bcf/d in 2017.

Natural gas production in Oklahoma increased again in August. Statewide natural gas gross production in August was at a level of 212,741 MMcf, a gain of 2,737 MMcf (1.3 percent) from the revised July production level of 210,004 MMcf. For the first eight months of 2016, Oklahoma natural gas gross withdrawals were at a level of 1,670,005 MMcf, 6,733 MMcf (0.4 percent) slightly less than 1,676,738 MMcf produced in the first eight months of 2015.

Warmer weather this summer has helped drive up the price of natural gas as power plants consume more gas as people turn on their air conditioners. Natural gas spot prices began to rise at the end of May and continued to climb through the summer months to in September. Henry Hub spot prices began October at $2.84/MMBtu, climbing as high as $3.25/MMBtu before settling $2.85/MMBtu at the month's end.

In the U.S. there were 114 active rigs searching for natural gas as of October 28, 2016, up six units from the previous week but down 79 rigs over the year, according to oil services company Baker Hughes Inc.

Oklahoma's natural gas-directed drilling rig count finished the month up one at a level of five active rigs and up one active rig from the previous month. Over the year, the number of statewide rotary rigs exploring for natural gas was down eight rigs from 13 reported for the week ended October 30, 2015.



Definition & Importance

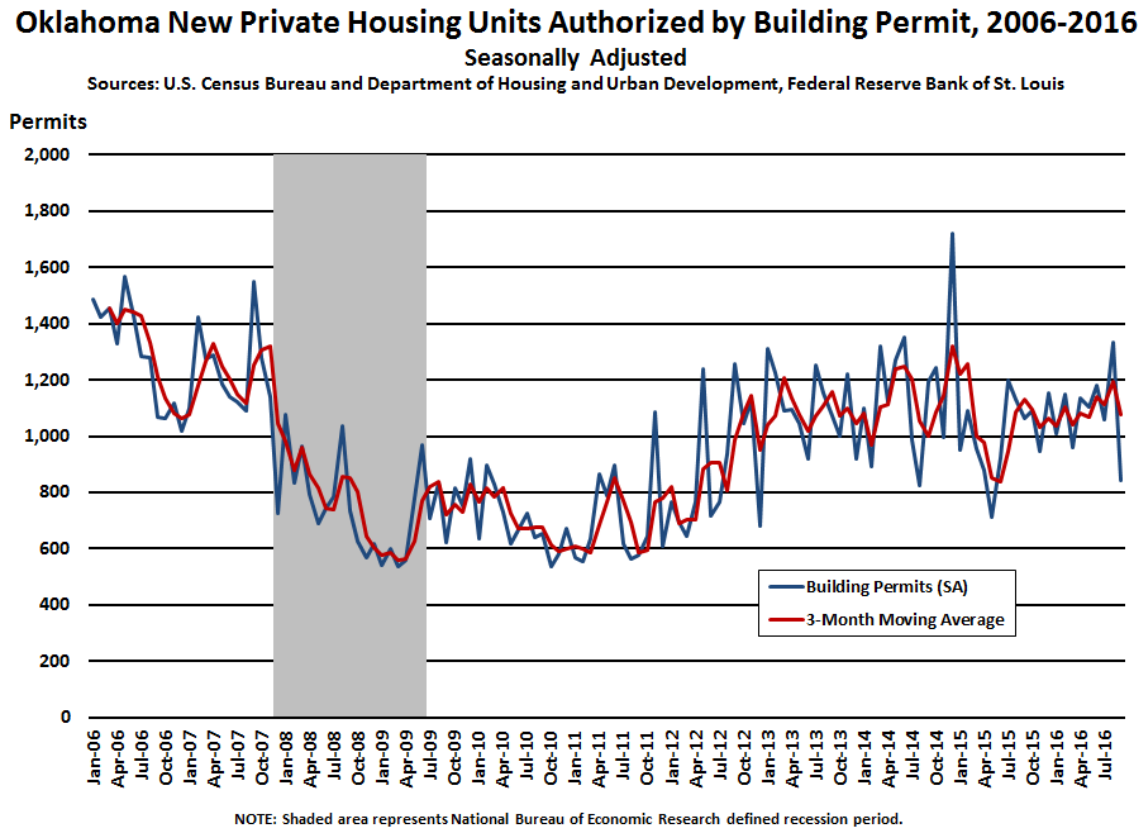
The U.S. Census Bureau and the Department of Housing and Urban Development jointly provide monthly national and regional data on the number of new housing units authorized by building permits; authorized, but not started; started; under construction; and completed. The data are for new, privately-owned 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 outsize 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

Although housing starts plunged in September, applications for building permits posted the largest gain since last November, suggesting overall home building activity is likely to rebound in the coming months. Privately-owned housing units authorized by building permits in September were at a seasonally adjusted annual rate of 1,225,000, 6.3 percent above the revised August rate of 1,152,000 and 8.5 percent above the September 2015 estimate of 1,129,000, according to the U.S. Census Bureau and the Department of Housing and Urban Development.

In September, single-family permits edged up 0.4 percent while building permits for apartments soared 16.8 percent.



Definition & Importance

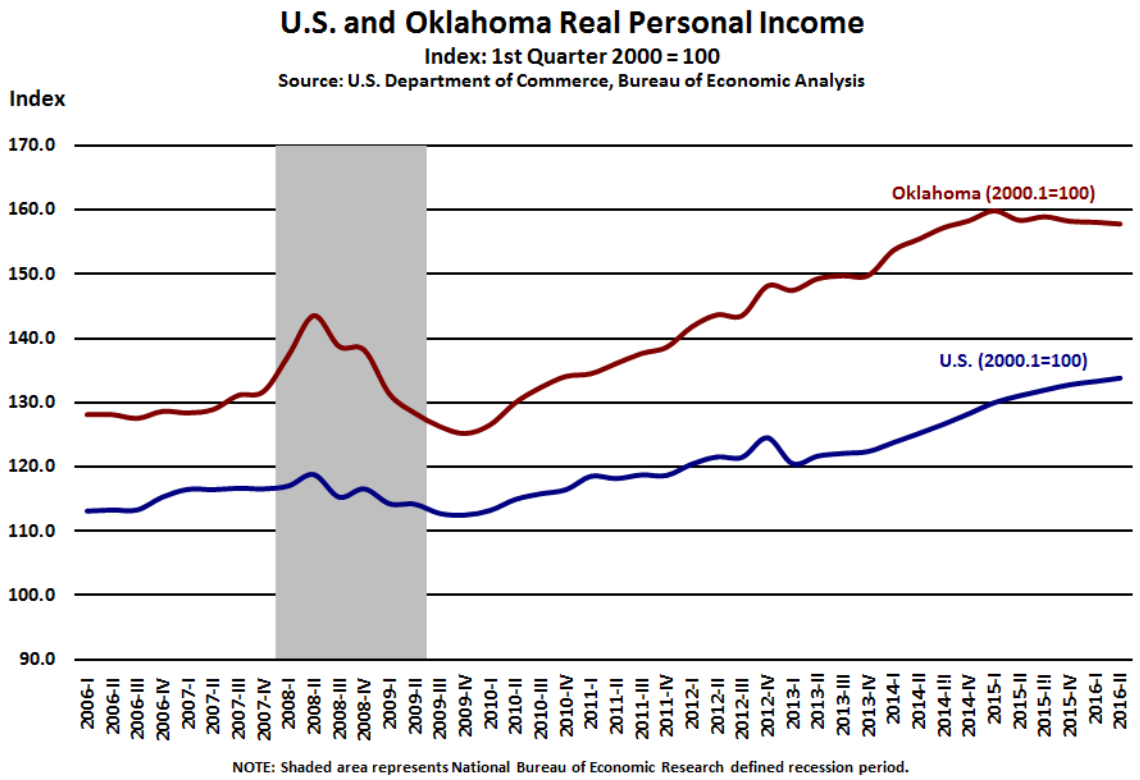
The data services of the Federal Reserve Bank of St. Louis produces series that are seasonally adjusted including monthly state level data on the number of new housing units authorized by building permits. These adjustments are made using the X-12 Procedure of SAS to remove the seasonal component of 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

Oklahoma residential permitting dropped sharply in September following a surge in applications to build apartments in August. Total residential building permitting for September was at a seasonally adjusted level of 841, 37.0 percent (493 permits) less than August's downwardly revised level of 1,334 and 21.0 percent (223 permits) less than the August 2015 estimate of 1,064 units, according to figures from the Federal Reserve Bank of St. Louis.

Single-family permitting accounted for almost all, (95.6 percent), of total residential permitting activity in September while multi-family permitting accounted for only 1.6 percent. Applications for single-family homes were at a non-seasonally adjusted level of 800, a 6.1 percent decline from August's level of 852 permits. The more volatile multi-family permitting was at a non-seasonally adjusted level of 13 in August, down 674 units, from August.

Over the year, the number of single family permits was 22.0 percent less than the September 2015 non-seasonally adjusted level of 1,073 permits. Apartment permitting activity was 92.0 percent less than the August 2015 non-seasonally adjusted level of 162 permits.



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.

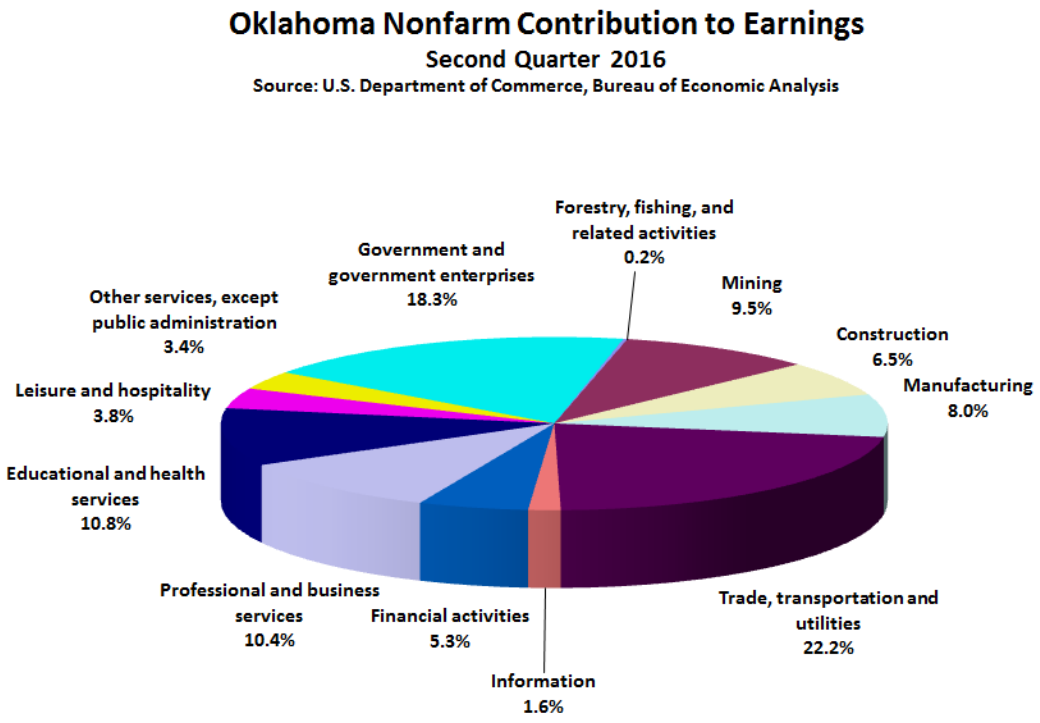
To show the vastly different levels of total personal income for the U.S. and Oklahoma on the same chart, these data have been converted to index numbers. This chart shows a comparison of Oklahoma and U.S. growth in real personal income with 1st quarter 2000 as the base year.

Current Developments

Personal income rose at a modest rate in September while consumers increased their spending at the fastest pace in three months. Personal income increased $46.7 billion, or 0.3 percent, in September according to estimates by the Bureau of Economic Analysis (BEA). Disposable personal income (DPI) increased $37.0 billion (0.3 percent) and personal consumption expenditures (PCE) increased $61.0 billion (0.5 percent). Real DPI increased less than 0.1 percent in September and Real PCE increased 0.3 percent. The PCE price index increased 0.2 percent. Excluding food and energy, the PCE price index increased 0.1 percent.

In September, consumer spending was led by a 1.3 percent surge in spending on autos and other durable goods. Spending on non-durable goods such as clothing also showed a solid increase of 0.6 percent in September. Household outlays on services rose 0.3 percent in September.

With spending rising faster than incomes, September's personal saving rate edged down to 5.7 percent from a 5.8 percent rate 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

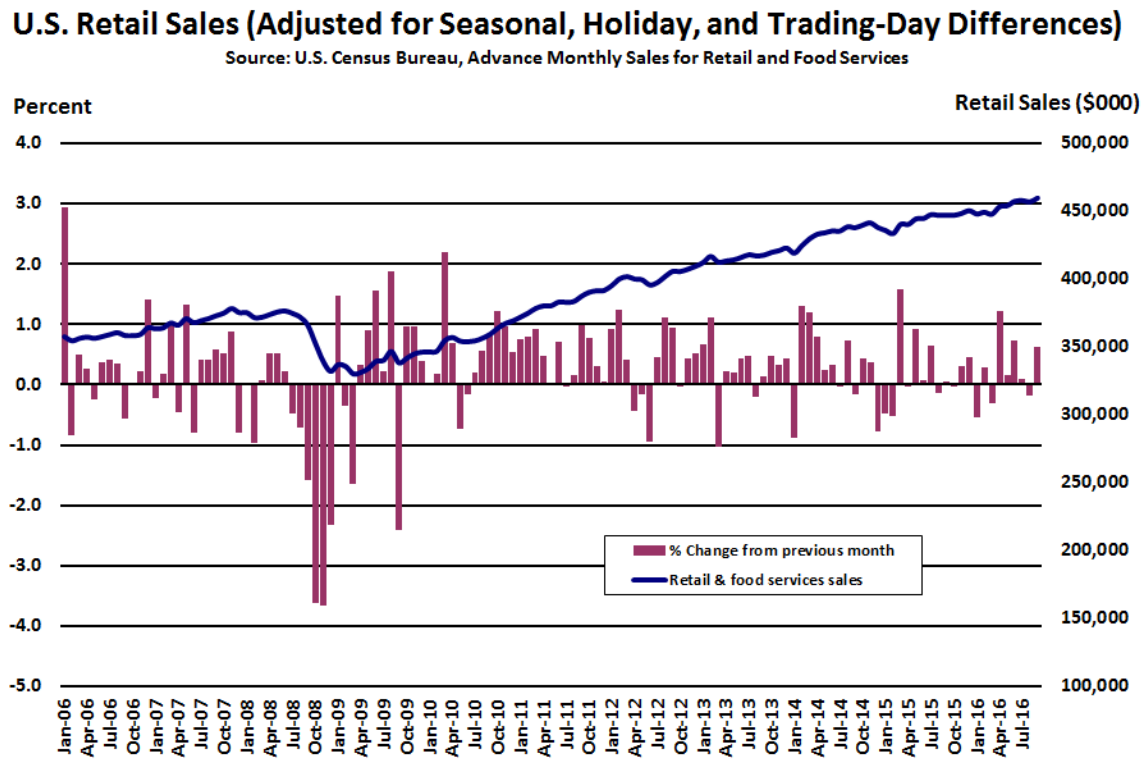
State personal income growth accelerated to 1.0 percent on average in the 2nd quarter of 2016 from 0.3 percent in the 1st quarter, according to estimates by the U.S. Bureau of Economic Analysis (BEA). Personal income grew in every state in the 2nd quarter with growth rates ranging from 0.4 percent in Alaska to 1.4 percent in Utah.

Oklahoma's personal income grew at a 0.5 percent rate, to a level of $178.9 billion, ranking the state 48th among all states and the District of Columbia in the 2nd quarter of 2016.

Overall, earnings increased 1.1 percent in the 2nd quarter of 2016 and was the leading contributor to growth in personal income in most states including Oklahoma where net earnings grew 0.4 percent and contributed 0.3 percentage point to personal income growth.

In Oklahoma, growth in construction earnings was the leading contributor to earnings growth in the 2nd quarter of 2016, adding 0.12 percentage point to personal income growth. Growth in transportation & warehousing earnings contributed 0.10 percentage point to personal income growth while health care and social assistance added 0.09 percentage point in the 2nd quarter of 2016.

Mining earnings fell 2.2 percent nationally in the 2nd quarter, the seventh consecutive quarterly decline, and was a leading contributor to below average earnings and personal income growth in four of the five slowest-growing states: Alaska, Wyoming, Oklahoma, and North Dakota. In Oklahoma, mining earnings declined 2.66 percent and subtracted 0.18 percentage point from 2nd quarter income growth. Since peaking in the 3rd quarter of 2014, mining earnings have declined 25.6 percent nationally and 26.5 percent in Oklahoma.



Definition & Importance

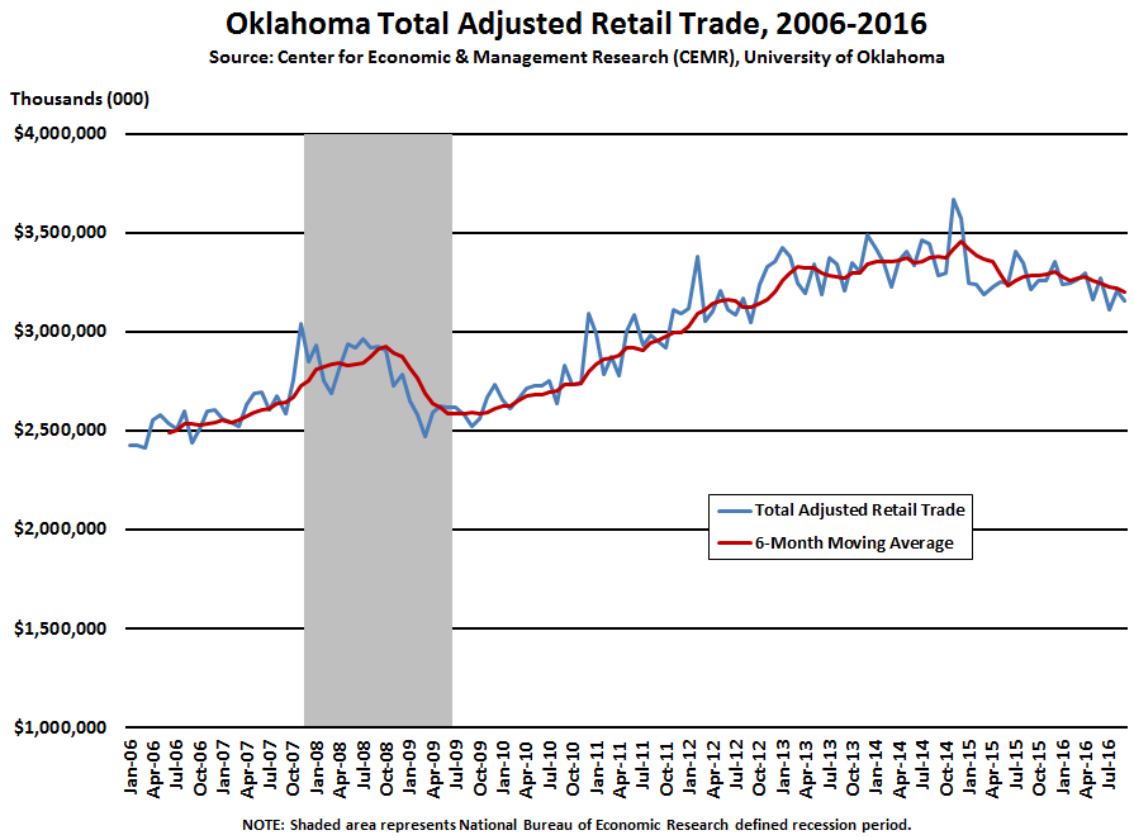
Retail sales measure the total receipts at stores that sell merchandise and related services to final consumers. Sales are by retail and food services stores. Data are collected from the Monthly Retail Trade Survey conducted by the U.S. Bureau of the Census. Essentially, retail sales cover the durables 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 sales rebounded to a solid pace in September boosted by robust sales at auto dealers, gas stations and restaurants. Advance estimates of U.S. retail and food services sales for September, adjusted for seasonal variation and holiday and trading-day differences, but not for price changes, were $459.8 billion, an increase of 0.6 percent from the previous month, and 2.7 percent above September 2015, according to the U.S. Census Bureau. Total sales for the July 2016 through September 2016 period were up 2.4 percent from the same period a year ago. July 2016 to August 2016 percent change was revised from down 0.3 percent to down 0.2 percent.

Automobile sales surged 1.1 percent in September after rising 1.7 percent in July. Higher oil prices translated into a 2.4 percent increase in sales at gas stations in September. Excluding automobiles, sales gained 0.5 percent and excluding both autos and gasoline, sales were still up 0.3 percent. Spending at restaurants, another discretionary spending category, was up 0.8 percent in September adding to August's 0.7 percent gain.

The less volatile "core" sales used to calculate gross domestic product, which strips out automobiles, gasoline, building materials, and food services edged up 0.1 percent in September, reversing last month's 0.1 percent drop. Department stores saw a 0.7 percent sales decline in September. Online sales were also soft rising just 0.3 percent over the month.



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

Retail sales in Oklahoma slipped in September as lower pump prices pulled down the total. Total adjusted retail sales for September were at a level of $3.15 billion, a 1.7 percent decline from August's level of $3.21 billion. Over the year, total adjusted retail sales fell 1.8 percent.

Total durable goods sales were of -0.4 percent in September led by declining miscellaneous durable goods (-7.4 percent); computer, electronics & music store sales (-4.2 percent); used merchandise (2.0 percent); and furniture (-0.3 percent). Durable goods categories with over-the-month gains included lumber, building materials & hardware (2.7 percent) and auto accessories & repair (1.5 percent).

Nondurable goods spending increased 2.2 percent in September, as estimated gasoline sales fell 8.1 percent from August. Other retreating non-durable goods categories for the month were apparel (-5.1 percent); general merchandise stores (-2.2 percent); liquor (-4.0 percent); drugstore sales (-3.4 percent); and miscellaneous non-durables (-0.8 percent). Advancing non-durable categories in September were eating & drinking places (0.9 percent) and food (0.2 percent).