FINANCIAL INTELLIGENCE *from* FHLBank Topeka

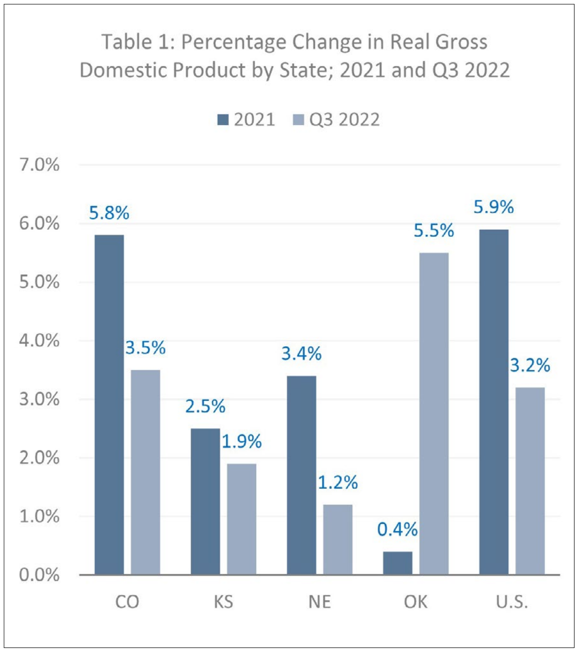
# Tenth District Economic Update

## Quarterly Report / Q3 2022

**Prepared by:** Corporate Strategies

*Data as of Dec. 27 — See footnotes for source and data release information*

# Third Quarter Economic Growth




**Tenth District includes Colorado, Kansas, Nebraska and Oklahoma*

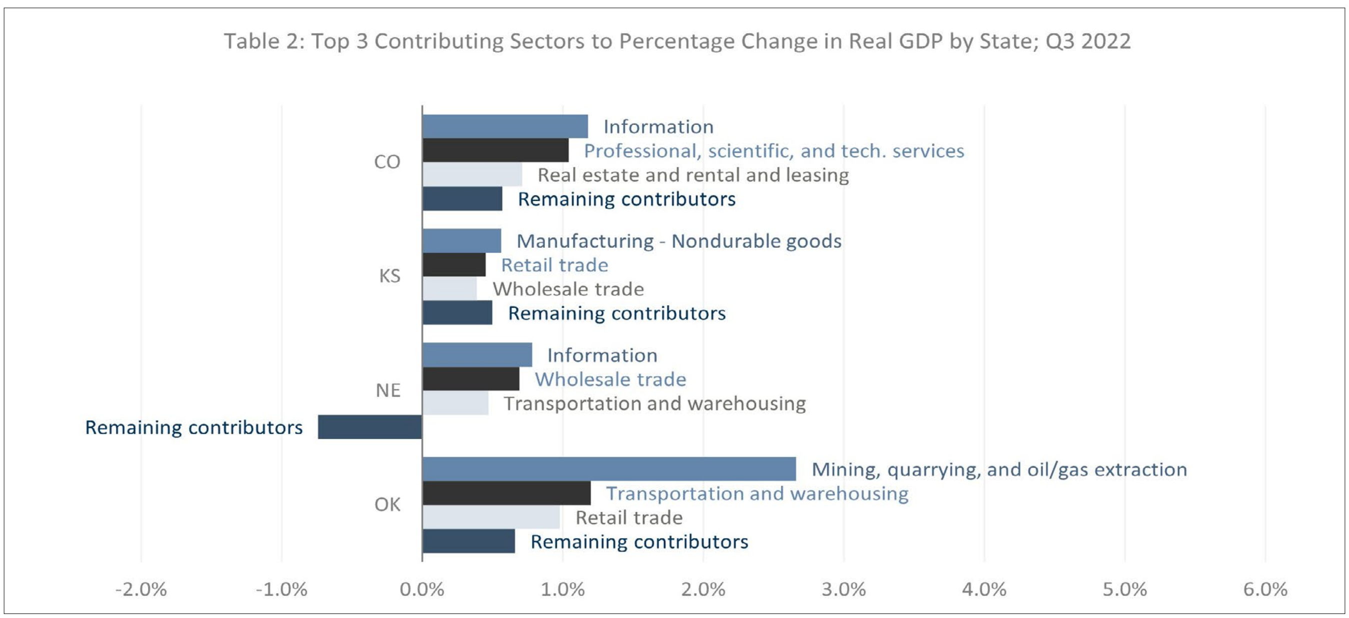
As expected, economic growth in the third quarter of 2022 rebounded into positive territory, buoyed by strong consumer spending despite rising rates and high inflation.

Overall, the U.S. economy grew by 3.2% in the third quarter. Forecasts predict another quarter of mild growth to end the year before slowing in 2023. According to the Conference Board, annual U.S. GDP growth will end up around 1.9% and 0% in 2022 and 2023, respectively.

Compared to the rest of the U.S., Tenth District* (District) states' figures have varied from an economic growth perspective. States reliant on mining, quarrying and oil and gas extraction excelled in the third quarter of 2022. Of Oklahoma's 5.5% increase in third quarter 2022 real GDP, 2.66% was the result of gains in this energy sector (captured in "Remaining contributors" in Table 2 below).

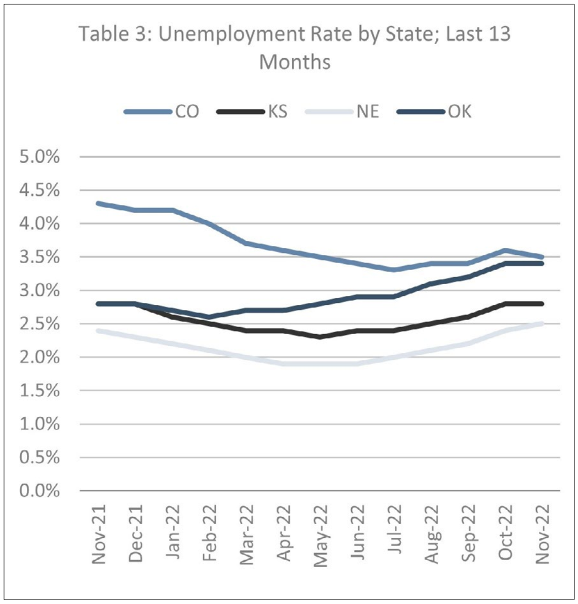
State economies largely impacted by the construction sector also saw a major decline in the third quarter of 2022. At 1.2% GDP growth, Nebraska continues to be one of the hardest hit by losses in production in this area, resulting in the seventh worst rate in the country at 1.2%. Kansas, supported by strength in manufacturing and trade, grew by 1.9% in the third quarter.

Colorado, with rapidly growing information and tech sectors, saw above average growth. Second among District states, Colorado grew 3.5% .




*Source: U.S. Bureau of Economic Analysis (BEA) – Gross Domestic Product by State, Third Quarter 2022*
*Next Release: March 31, 2023 – Gross Domestic Product by State (Fourth Quarter and Year 2022 [Preliminary])*

# Third Quarter Employment & Labor




Though still historically low, the unemployment rate in states across the country has started to tick up in recent months.

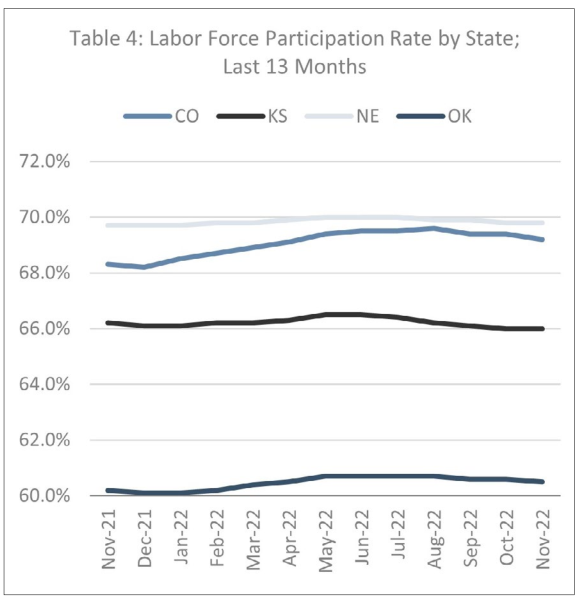
Despite being the only state in the District to drop in unemployment year-to-date (YTD), Colorado is up 0.2% in November 2022 from its one-year low of 3.3% in July 2022.

Though both up considerably from lows set in May 2022, Kansas and Nebraska remain among the strongest in the U.S. for unemployment. Year-over-year (YoY), Kansas is flat at 2.8%.

With 2.5% unemployment, Nebraska is up 0.3% YTD and tied with New Hampshire and South Dakota for the fifth lowest unemployment rate in the U.S.

Until recently, weakness in the energy sector had Oklahoma's unemployment rate increasing at a breakneck pace. And though flat month-over-month (MoM), Oklahoma's employment is elevated at 3.4% in November 2022.

---




As companies brace for a mild recession in 2023, layoffs are being seen in nearly every state, resulting in declining labor force participation (LFP) rates. On a whole, the U.S. rate for labor force participation in November 2022 sits at 62.%.

YoY, Colorado has seen the greatest improvement in their LFP rate among District states. At 69.2%, Colorado is up 1% from their one-year low of 68.2% in December 2021 and is second highest among U.S. states.

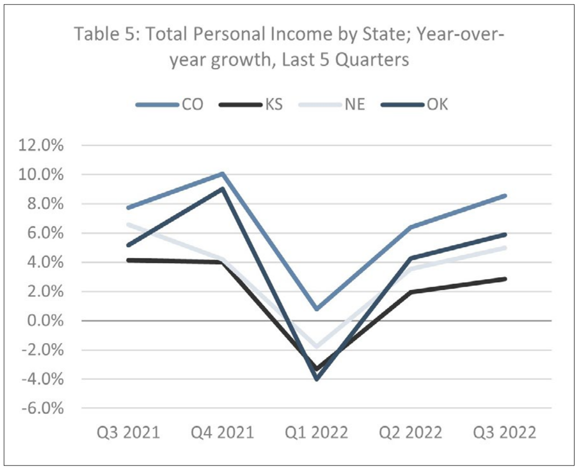
The only District state to see a decline in LFP from one year ago is Kansas, falling from 66.2% in November 2021 to 66% in November 2022. Kansas is also down 0.3% from their one-year high of 66.5% set in May and June of 2022.

During the past year, Nebraska has remained the highest in LFP compared to other District states. At 69.8%, Nebraska's LFP rate is also highest in the U.S.

Despite some improvement to start the year, Oklahoma remains well below District peers in LFP at 60.5% in November. This rate ranks 35th among U.S. states.

*Source: U.S. Bureau of Labor Statistics (BLS) – Civilian Noninstitutional Population and Associated Rate and Ratio Measures for Model-Based Areas, November 2022*
*Next Release: January 24, 2023 – State Employment and Unemployment (December 2022 data)*

# Third Quarter Wage Measure




Total personal income is defined by the U.S. Bureau of Economic Analysis (BEA) as the income people receive from wages, proprietors' income, dividends, interest, rents and government benefits.

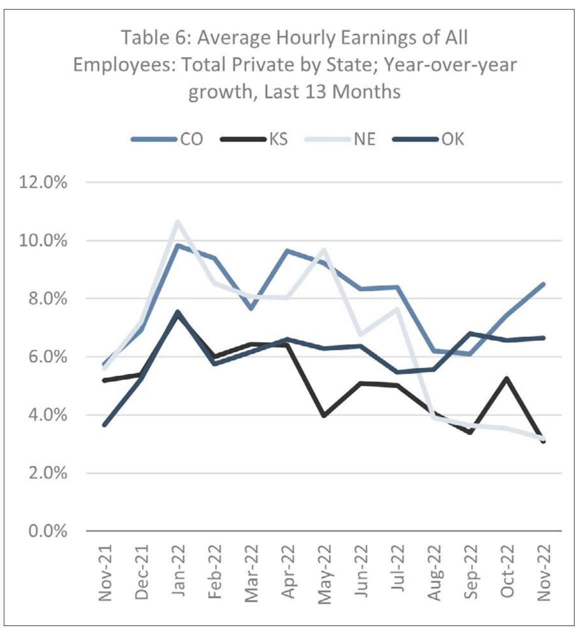
It is imperative that wages grow at or above inflation for workers to maintain purchasing power. With prices of essential purchases increasing at a breakneck pace, the downward trend in personal income growth to start the year was alarming.

Improvement in the second and third quarters of 2022 has eased some fears, though many states in the U.S. remain below the benchmark rate set by inflation.

Among District states, only Colorado saw annual income growth above 6% in the third quarter of 2022. Meanwhile, headline inflationary figures remain closer to 7% (see additional consumer inflationary measure detail on page 6).

This lingering disparity between wages and inflation serves as further evidence that a recession is on the horizon.

---




Average hourly earnings (AHE), as defined by the U.S. Bureau of Labor Statistics (BLS), reflect not only changes in basic hourly and incentive wage rates, but also such variable factors as premium pay for overtime and late-shift work and changes in output of workers paid on an incentive plan. They also reflect shifts in the number of employees between relatively high-paid and low-paid work and changes in workers' earnings in individual establishments.

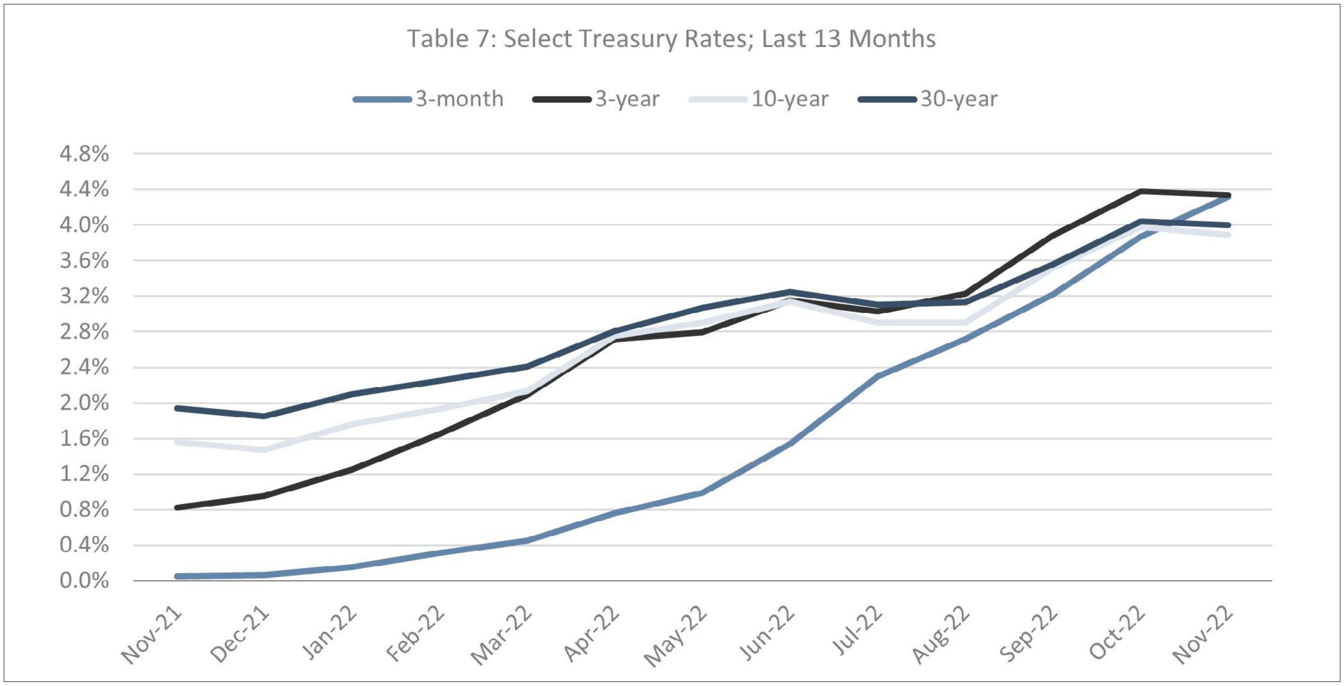
Earnings differ from wage rates in that earnings are the actual return to the worker for a stated period while wage rates are the amount stipulated for a given unit of work or time. Earnings do not measure the level of total labor costs on the part of the employer as the following are excluded — benefits, irregular bonuses, retroactive items and payroll taxes paid by employers.

Though trending up for most of 2021 and maintaining the elevated growth for the first half of 2022, earnings rates are starting to fall across the District.

Most notable is Nebraska, reaching a one-year high of 10.6% in January 2022 before tumbling to 3.2% in November 2022. Of District states, Colorado and Oklahoma are above their earnings rates compared to one-year ago. The notable downward trend seen elsewhere is of major concern.

*Sources: U.S. Bureau of Economic Analysis (Personal Income) and U.S. Bureau of Labor Statistics (Average Hourly Earnings)*
*Next Releases: March 31(Personal Income); Jan. 24 (Average Hourly Earnings)*

# Interest Rates and FOMC Policy




| Table 8: Federal Funds Rate: Midpoint of target range or target level (Percent) | 2022 | 2023 | 2024 | 2025 | Longer Run |
|---|---|---|---|---|---|
| 5.750 | | | | | |
| 5.625 | | 2 | 1 | 1 | |
| 5.500 | | | | | |
| 5.375 | | 5 | | | |
| 5.250 | | | | | |
| 5.125 | | 10 | 1 | | |
| 5.000 | | | | | |
| 4.875 | | 2 | 3 | | |
| 4.750 | | | | | |
| 4.625 | | | 2 | | |
| 4.500 | | | | | |
| 4.375 | 19 | | | 1 | |
| 4.250 | | | | | |
| 4.125 | | | 7 | 1 | |
| 4.000 | | | | | |
| 3.875 | | | 3 | 1 | |
| 3.750 | | | | | |
| 3.625 | | | | 2 | |
| 3.500 | | | | | |
| 3.375 | | | 1 | 2 | |
| 3.250 | | | | | 1 |
| 3.125 | | | 1 | 4 | |
| 3.000 | | | | | 1 |
| 2.875 | | | | 2 | |
| 2.750 | | | | | |
| 2.625 | | | | 4 | 1 |
| 2.500 | | | | | 9 |
| 2.375 | | | | 1 | 2 |
| 2.250 | | | | | 4 |
| 2.125 | | | | | |
| 2.000 | | | | | |

In efforts to quell the rapid and sustained increase in inflation, the Federal Open Market Committee (FOMC) has adopted an extremely aggressive monetary policy.

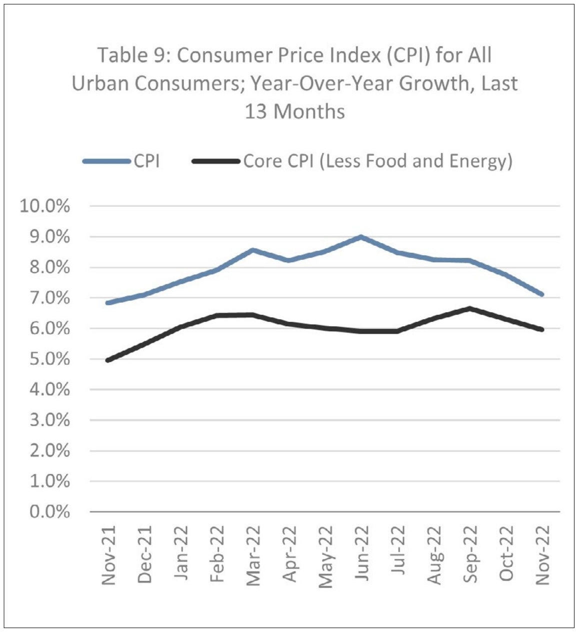
After a fourth straight 75 basis point increase in November and an additional 50 basis point increase in December, borrowing costs are now nearly as high as they were before the Great Recession. Shorter-term rates have expectedly risen in-line with FOMC rate hikes, while longer term rates have been slightly more reluctant to change.

The 10-year Treasury rate (often cited as a barometer for the market's long-term expectations for economic growth) sits below the rates for one-month through seven-years, causing a noticeable inversion in the yield curve and yet another indicator of a looming recession.

As shown in Table 8, the FOMC is showing signs of slowing related to the recent tightening. With a Federal Funds Rate target range midpoint currently at 4.375, the committee sees 2023 finishing with at least another 75 basis points of increases with most (if not all) of that tightening occurring in the first quarter. Balancing interest rate hikes without slowing the economy into a major recessionary period will remain a difficult task for the FOMC.

*Source: Board of Governors of the Federal Reserve System – Interest Rates & Federal Open Market Committee (FOMC) Projections materials, December 2022*
*Next Summary of Economic Projections Release: March 22*

# Prices: Consumer Inflationary Measure

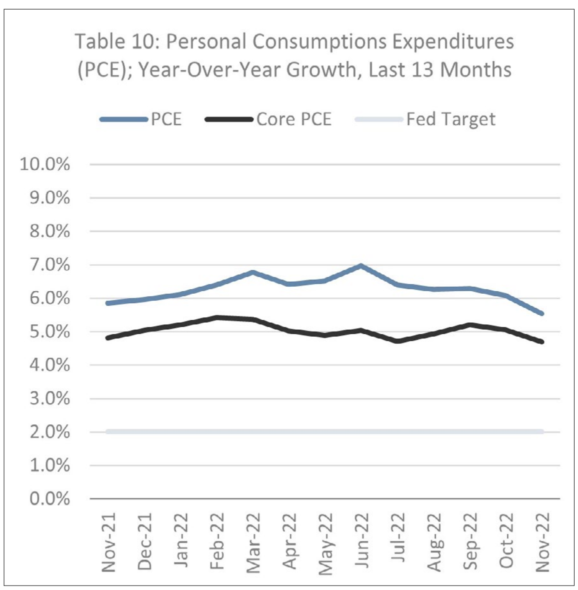



In measuring the purchasing value of the U.S. dollar, two indices rise above the rest. Both track the price level of a basket of goods but differ in a myriad of ways including the weights applied to different items in the basket, accounting for changes in the basket and simply what items are included in the basket.

Historically the higher of the two rates, the Consumer Price Index (CPI) attempts to capture the cost of what households are buying. Once the preferred measure of the FOMC, CPI is tracked by the U.S. BLS.

Two types of inflation are reported, with "headline" CPI down to 7.1% YoY growth in November 2022 after peaking at 9% in June 2022. This index differs from the "core" measure in that it includes the typically more volatile prices of food and energy.

When gauging the general direction of the economy, the core figure is more often used. However, milk and gasoline are essential purchases in every household, so it's important to monitor both versions of the index.




The second and more often cited inflationary measure is the Personal Consumption Expenditures index (PCE). Based on surveys of business sales, the Fed targets 2% for the core measure when setting monetary policy.

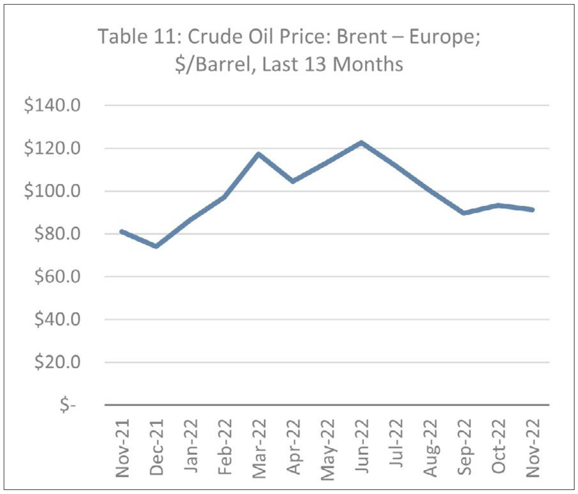
In August 2020, an adjustment was made to how the measure is interpreted, allowing for inflation to run higher than the standard 2% target before hiking interest rates. The new approach has been coined "average inflation targeting."

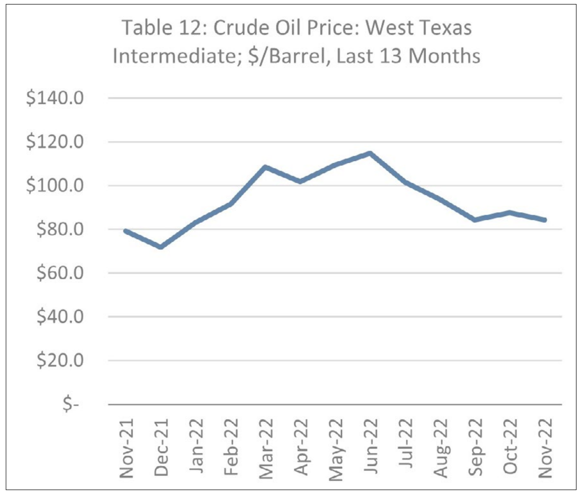
After trending up to near the 2% line in early 2021, core PCE inflation ramped up in late 2021 and early 2022. At 4.7% in November 2022, core PCE is still more than double the rate once targeted by the FOMC and has trended at or above 4.7% the past year.

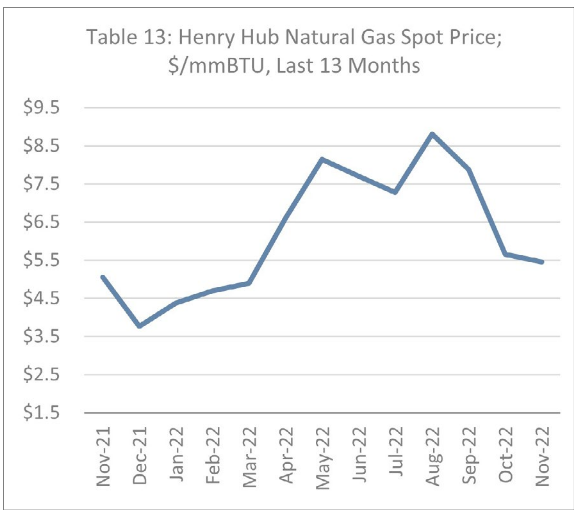
The persistently high level is of major concern to the FOMC, reflected by the aggressive rate hike policy adopted in March 2022.

*Source: U.S. Bureau of Labor Statistics (CPI) and U.S. Bureau of Economic Analysis (PCE), November 2022 releases*
*Next CPI Release: January 12, 2023 (December 2022 data)*
*Next PCE Release: January 27, 2023 (December 2022 data)*

# Prices: Energy




Two different prices of crude oil are generally tracked by those monitoring the energy sector — Brent (European) and West Texas Intermediate (WTI). A number of factors can contribute to differences between the prices, including extraction and production, shipping and storage costs, content quality, and politics such as trade tensions. Thus, it is important to look at both figures rather than the global price of oil alone to get an accurate depiction of the energy landscape.

After trending up for much of 2022 due to (1) lack of supply resulting from sanctions placed on Russia and (2) increased demand following the COVID-19 pandemic, oil prices are seeing some much-needed relief. Currently, Brent is trading at about a $7 premium to WTI.

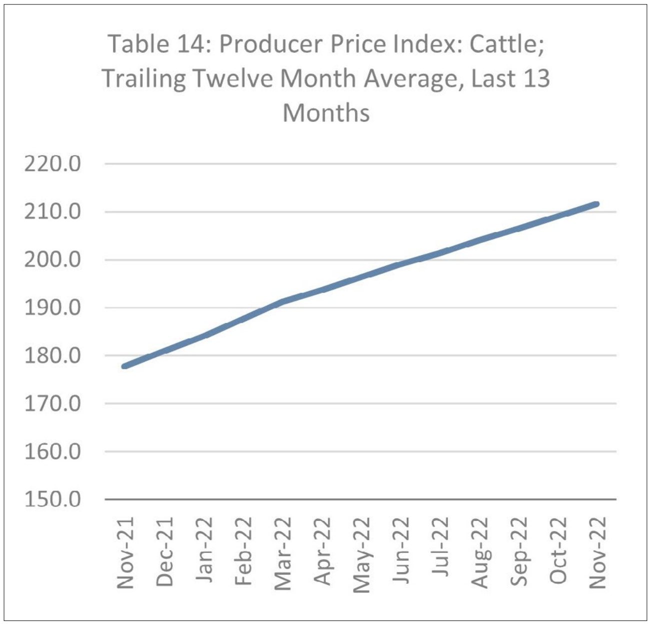
With high travel months in the rearview mirror, demand for gas will have prices remaining near current levels around $3 per gallon. In general, crude oil prices have been bouncy but will expectedly decline as global economic activity weakens.

Often reflective of simple market dynamics, the price of natural gas typically peaks in the winter months and idles in the summer. Yet, given Russia's invasion of Ukraine and the resulting swings in natural gas supply, traditional market fluctuations have gone out the window.

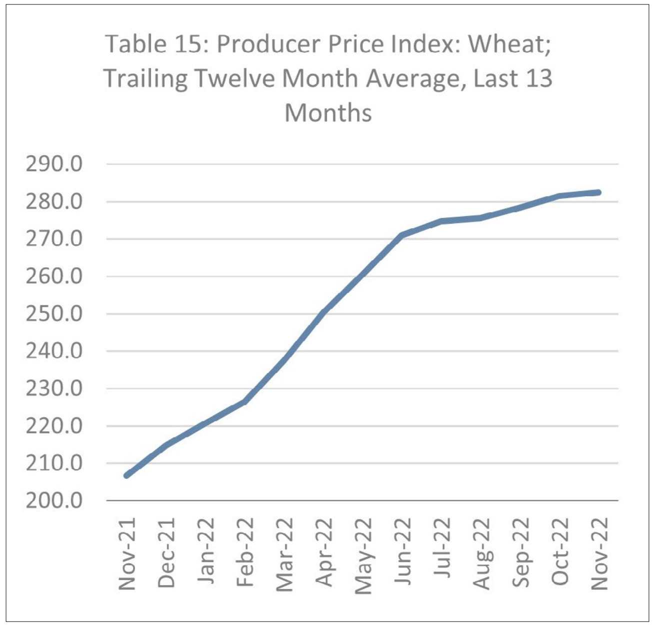
The price per million British thermal units peaked in August 2022 at $8.80 but has since fallen nearly 38% to $5.50 in November 2022. However, a sustained cold spell could weigh on current supply and push prices back up.

*Source: U.S. Energy Information Administration – Spot Prices (available daily)*

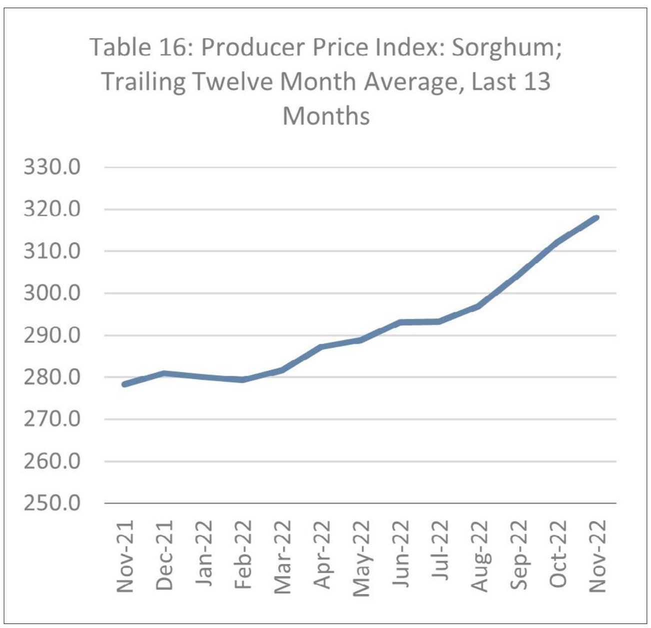
# Prices: Farm & Agriculture



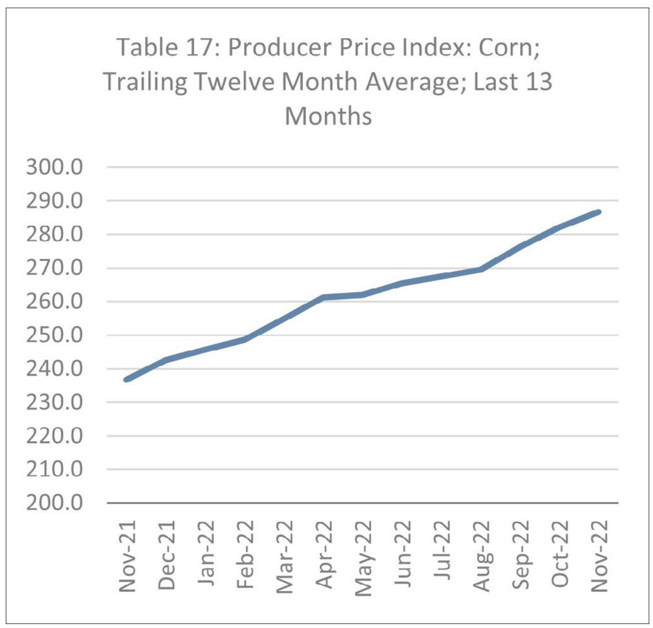

District rankings among U.S. states in cattle production — 2nd Oklahoma, 4th Nebraska, 6th Kansas, 17th Colorado




District rankings among U.S. states in wheat production — 2nd Kansas, 6th Oklahoma, 11th Colorado, 14th Nebraska




District state rankings in U.S. sorghum production — 1st Kansas, 3rd Nebraska, 5th Oklahoma, 6th Colorado




District state rankings in U.S. corn production — 3rd Nebraska, 6th Kansas, 17th Colorado, 28th Oklahoma

*Source: U.S. Bureau of Labor Statistics – Producer Price Indices, November 2022*
*Next Release: January 18, 2023 (December 2022 data)*

# Prices: Housing

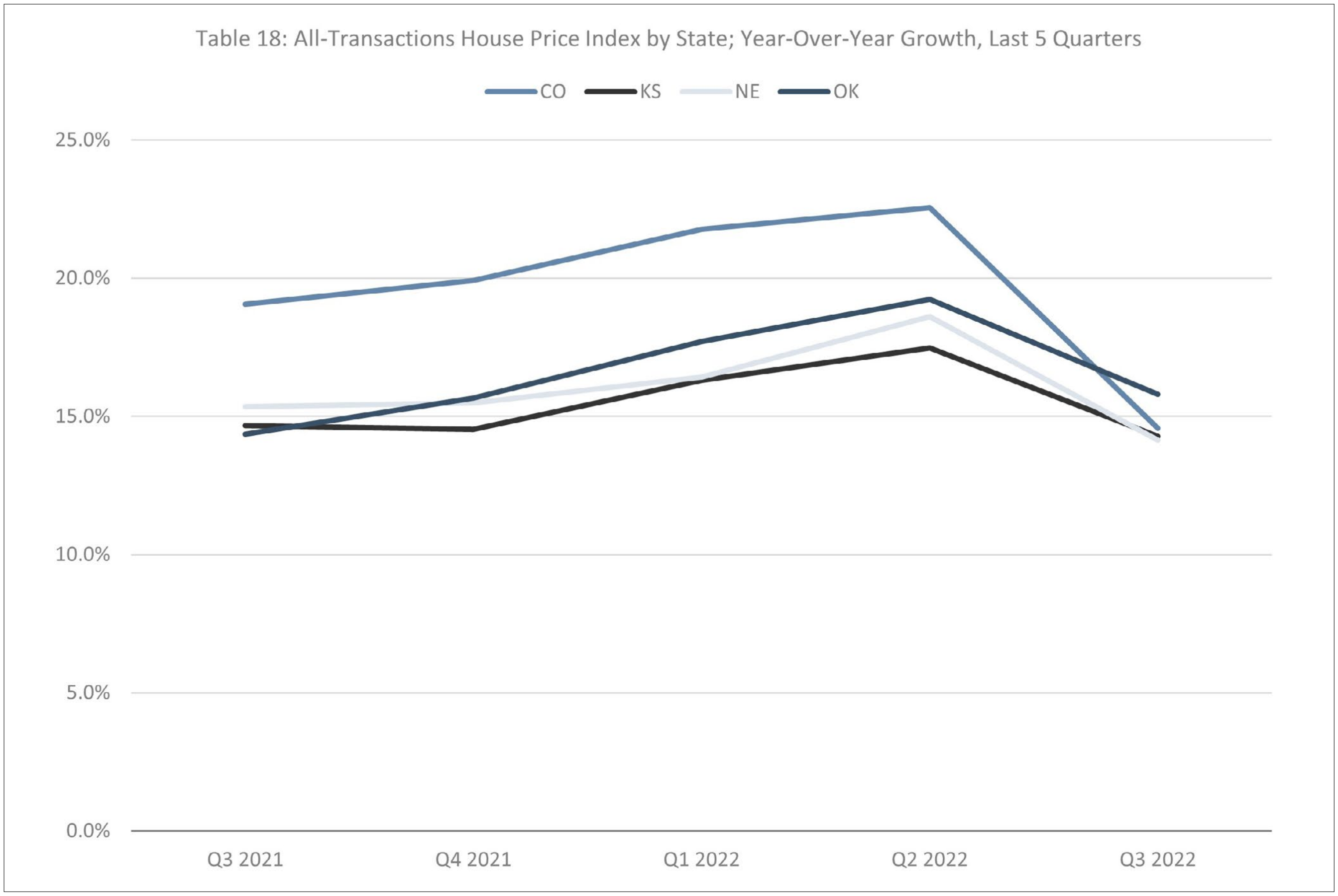



Table 18 depicts the All-Transactions House Price Index (HPI) by state for the District. According to the Federal Housing Finance Agency, the HPI is a broad measure of the movement of single-family house prices.

The HPI is a weighted, repeat-sales index meaning that it measures average price changes in repeat sales or refinancing on the same properties. Data is obtained by reviewing repeat mortgage transactions on single-family properties whose mortgages have been purchased or securitized by Fannie Mae or Freddie Mac since 1975.

With the cost of building a new home still extremely high given the elevated price of inputs like lumber and labor, demand for resales remains strong. Coupled with an exodus of workers out of major metropolitan areas and into neighboring suburbs, the value of existing homes continues to grow.

Oklahoma surpassed Colorado as the fastest growing housing market by price in the District, up 15.8% year-over-year in the third quarter of 2022. All four District states posted YoY price growth above 14% for the fifth straight quarter in Q3 2022.

In the third quarter of 2022, the U.S. on a whole saw 16.6% YoY growth, higher than all four states in the District.

*Source: U.S. Federal Housing Finance Agency – House Price Indices, Q3 2022*
*Next Release: February 28, 2023 (Q4 2022 data)*

# Third Quarter Housing Numbers

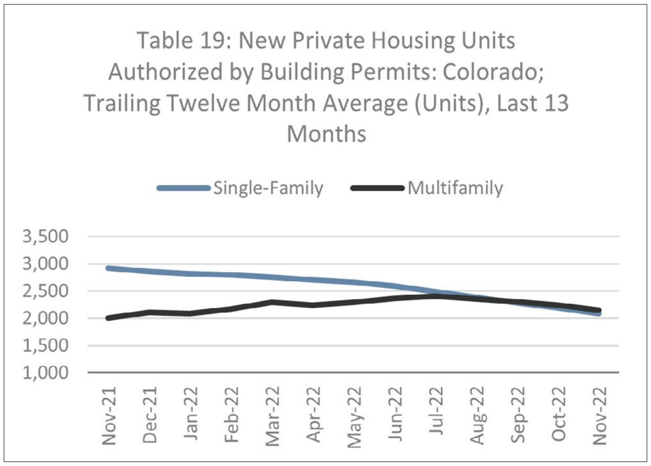


Table 19: New Private Housing Units Authorized by Building Permits: Colorado; Trailing Twelve Month Average (Units), Last 13 Months

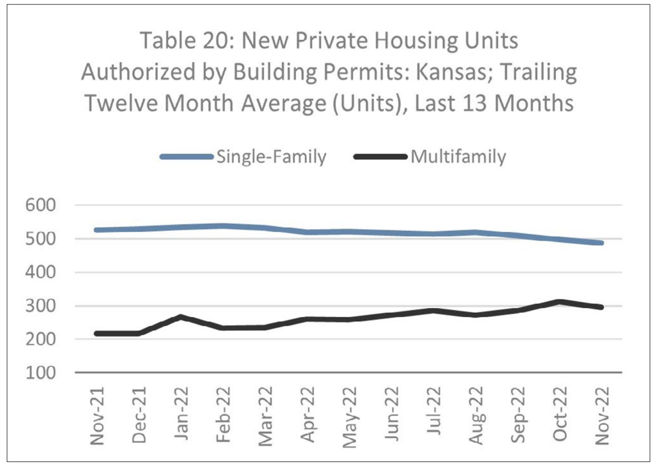


Table 20: New Private Housing Units Authorized by Building Permits: Kansas; Trailing Twelve Month Average (Units), Last 13 Months

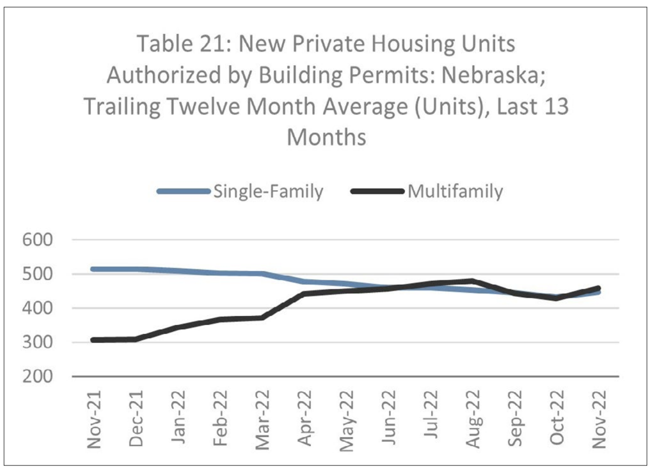


Table 21: New Private Housing Units Authorized by Building Permits: Nebraska; Trailing Twelve Month Average (Units), Last 13 Months

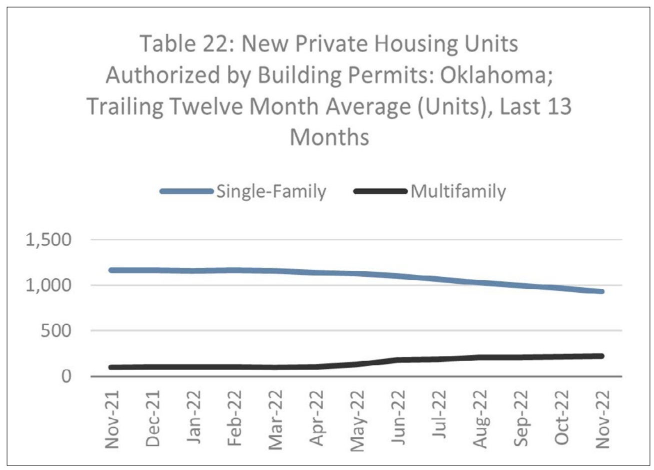


Table 22: New Private Housing Units Authorized by Building Permits: Oklahoma; Trailing Twelve Month Average (Units), Last 13 Months

Tables 19-22 depict single-family and multifamily housing units authorized by building permits for each state in the District. According to the U.S. Census Bureau, these numbers provide a general indication of the amount of new housing stock that may have been added to the housing inventory.

Since not all permits become actual housing starts and starts lag the permit stage of construction, these numbers do not represent total new construction but should provide a general indicator on construction activity and the local real estate market. Authorized permits can vary greatly from month to month, so a trailing twelve-month average is used to provide a general trend.

With mortgage rates rising and supply chain bottlenecks continuing to negatively impact construction of single-family homes, multifamily permitting has seen a revival. Low vacancy rates and high rents have developers focusing on apartment building in large suburban markets.

Though relatively flat in Kansas and Oklahoma, the difference between single-family and multifamily permits has flip-flopped in Colorado and Nebraska. One year ago, multifamily permits accounted for 41% of authorizations in Colorado and 37% in Nebraska. Today, those numbers have risen to 51% in both states.

*Source: U.S. Census Bureau Building Permits Survey – November 2022*
*Next Release: January 26, 2023 (December 2022 data)*