FINANCIAL INTELLIGENCE *from* FHLBank Topeka

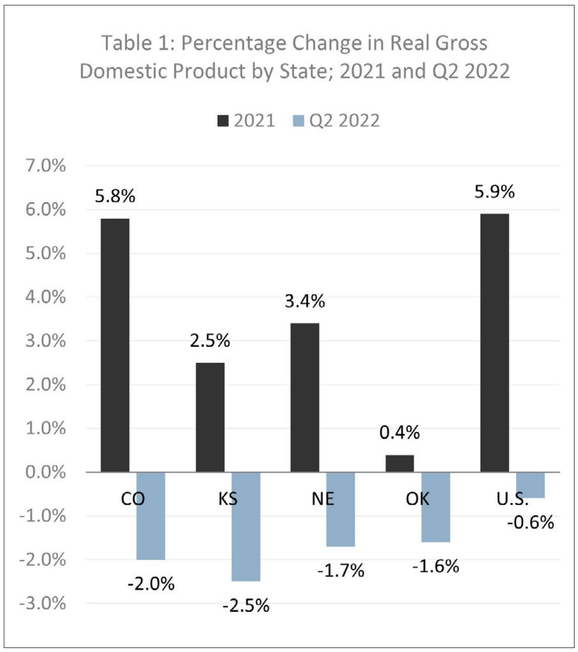
Tenth District Economic Update

Quarterly Report / Q2 2022

Prepared by: Corporate Strategies and Solutions

Data as of Friday, Oct. 14 — See footnotes for source and data release information

Second Quarter Economic Growth



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

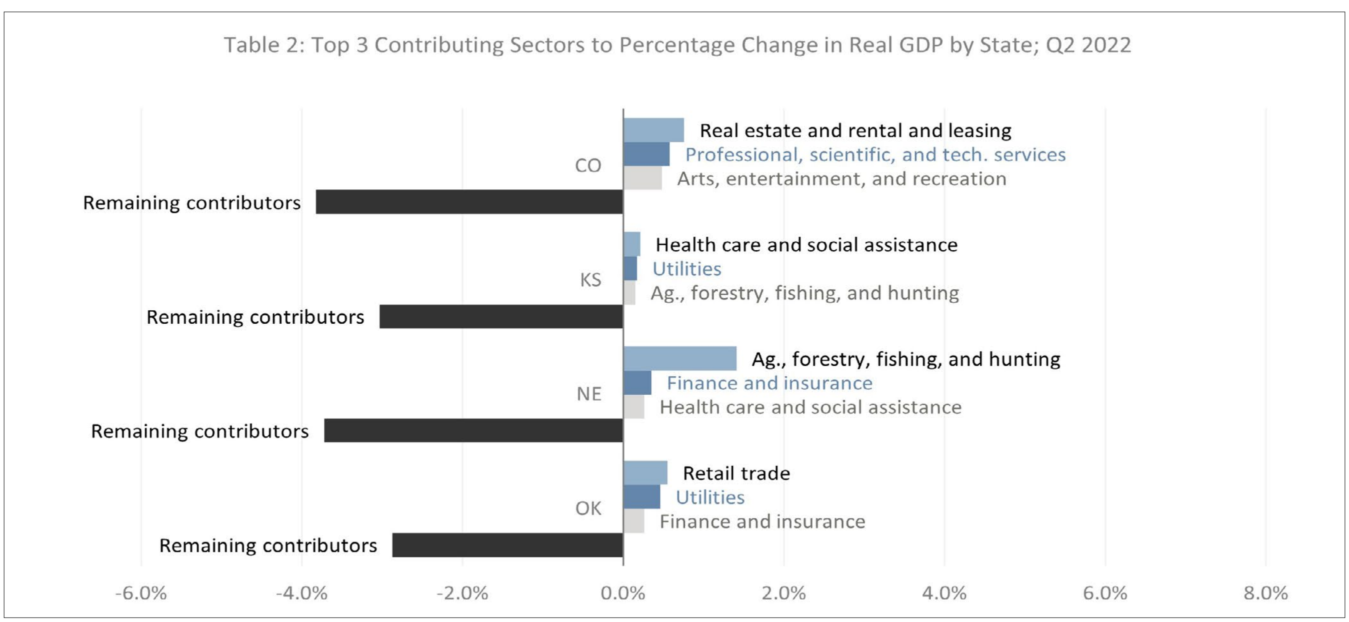
Despite strength in labor-related indicators and updated forecasts predicting positive economic growth in the third quarter of 2022, expectations remain that the U.S. economy will soon be in a recession.

According to recent forecasts by the Conference Board, there is a 96% likelihood of a recession over the next 12 months. Overall, the economy contracted 0.6% in the second quarter of 2022.

Compared to the rest of the U.S., Tenth District* (District) states have fared slightly worse from an economic growth perspective. States reliant on mining, quarrying and oil and gas extraction struggled in the second quarter. Of Colorado's -2% drop in second quarter real GDP, -0.95% was the result of losses in this energy sector (captured in "Remaining contributors" in Table 2 below).

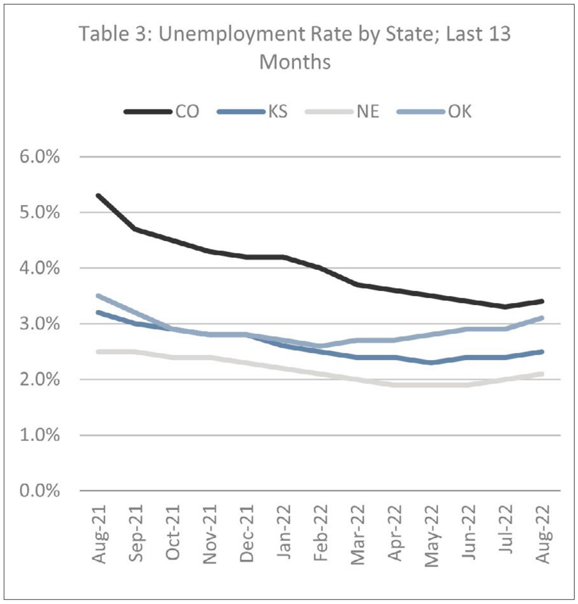
State economies largely impacted by the construction and manufacturing sectors also saw a major decline. At -2.5% GDP growth, Kansas was one of the hardest hit by this sudden loss in production, resulting in the seventh worst rate in the country. Nebraska, buoyed by strength in agriculture, forestry, fishing and hunting, fell only 1.7% in the second quarter.

More so than Colorado, Oklahoma's economy is heavily dependent on the energy sector. Though highest among District states, Oklahoma dropped well below the national average with -1.6% GDP growth in the second quarter.



Source: U.S. Bureau of Economic Analysis (BEA) – Gross Domestic Product by State, Second Quarter 2022
Next Release: Dec. 23, 2022 – Gross Domestic Product by State (Third Quarter 2022)

Second Quarter Employment & Labor

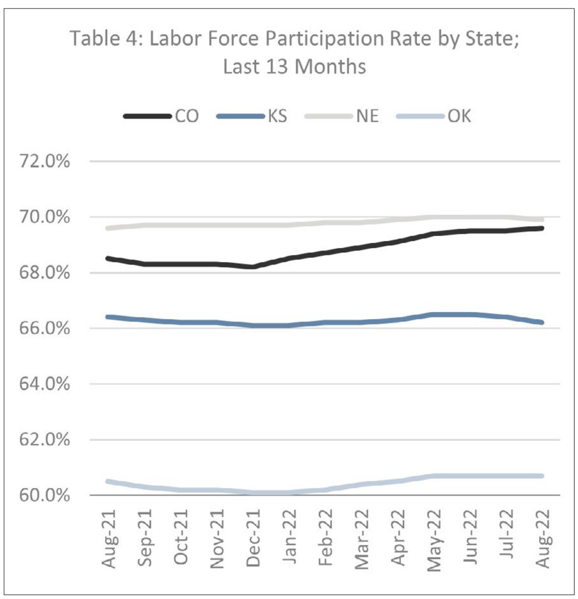


Though historically low, the unemployment rate in states across the country has started to tick up. Well above the rest of the District to start the year, Colorado has now fallen more in line with the national average at 3.4% in August.

Though both up 0.1% in August, Kansas and Nebraska remain among the strongest in the U.S. for unemployment. Year-to-date (YTD), Kansas is down 0.1% at 2.5%.

With 2.1% unemployment, Nebraska is down 0.1% for the year and tied with Utah for the second lowest unemployment rate in the U.S.

Persisting weakness in the energy sector has Oklahoma's unemployment rate increasing at an alarming pace. Dropping to as low as 2.6% in February 2022, Oklahoma's employment is back up to 3.1% in August 2022.



More and more workers are returning to the fold following improvements related to the COVID-19 pandemic situation. However, gains related to these types of workers are being offset by those discouraged due to a recent wave of layoffs.

Year-over-year (YOY), Colorado has seen the greatest improvement in their labor force participation (LFP) rate among District states. At 69.9%, Colorado is up 1.7% from their one-year low of 68.2% in December 2021, and second highest among U.S. states.

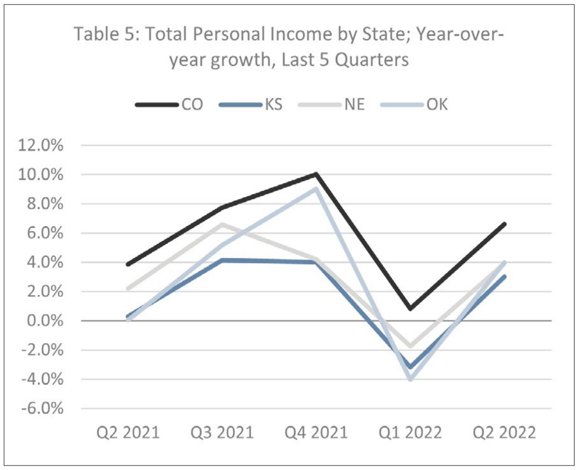
The only District state to see a decline from one year ago is Kansas, falling from 66.4% in August 2021 to 66.2% in August 2022. Kansas is also down 0.3% from their one-year high of 66.5% in June 2022.

Over the past year, Nebraska has remained the highest in LFP compared to other District states, though Colorado is quickly closing the gap. At 69.9%, 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 60.7% in August. This rates 36th among U.S. states and has remained flat since May 2022.

Source: U.S. Bureau of Labor Statistics (BLS) – Civilian Noninstitutional Population and Associated Rate and Ratio Measures for Model-Based Areas, August 2022
Next Release: Oct. 21, 2022 – State Employment and Unemployment (September 2022 data)

Second Quarter Wage Measure

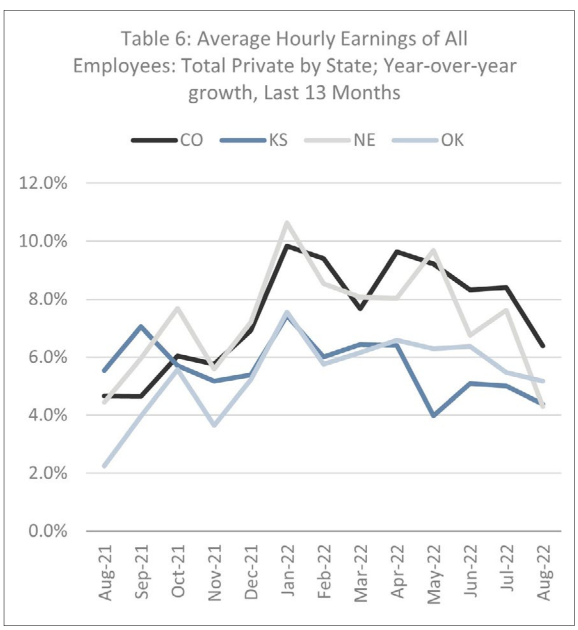


Total personal income is defined by the U.S. Bureau of Economic Analysis (BEA) as the income people receive from wages, proprietors' income, dividends, interest, rents and government benefits.

It is imperative that wages grow at or above inflation for workers to maintain purchasing power. With prices of essential purchases like groceries and gas increasing at a breakneck pace and remaining elevated over the past several months, the recent downward trend in personal income growth is alarming.

Despite improvement in the second quarter of 2022, many states in the U.S. remain below the benchmark rate set by inflation. Among District states, only Colorado saw annual income growth above 4% . Meanwhile, headline inflationary figures remain closer to 8% (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 falling to 4.3% in August 2022. Though most states are near or above their earnings rates compared to one-year ago, the notable downward trend is of some concern.

Sources: U.S. Bureau of Economic Analysis (Personal Income) and U.S. Bureau of Labor Statistics (Average Hourly Earnings)
Next Releases: Dec. 23, 2022 (Personal Income); Oct. 21, 2022 (Average Hourly Earnings)

Interest Rates and FOMC Policy

Table 7: Select Treasury Rates; Last 13 Months

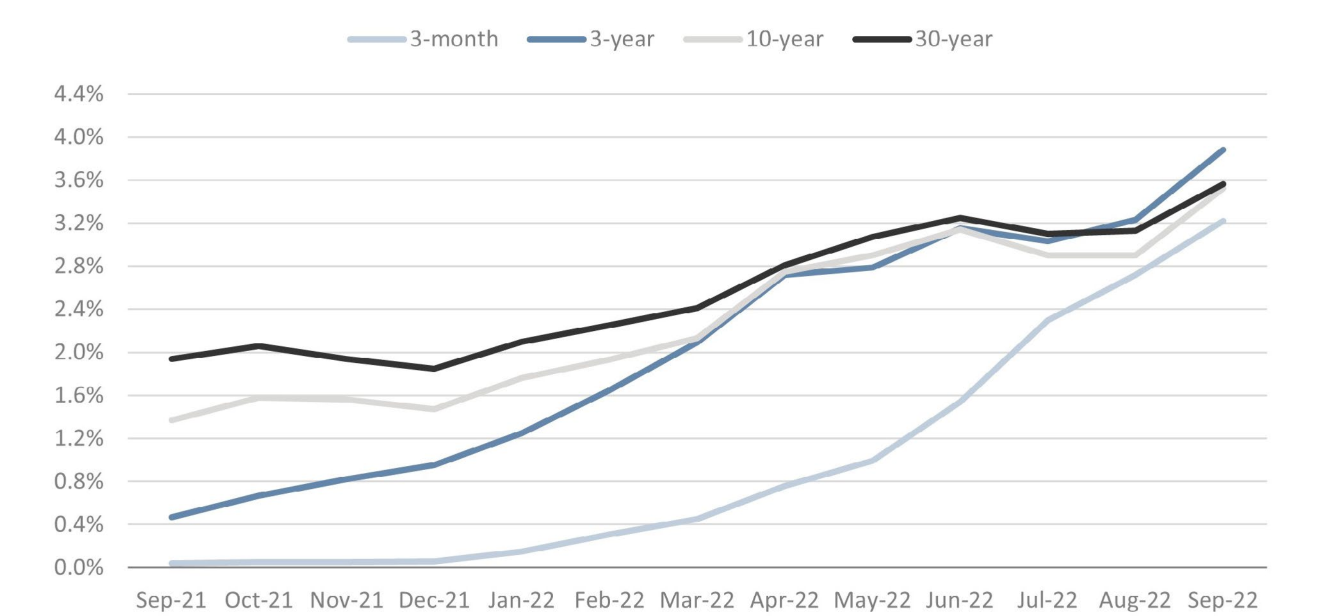


Table 8: Federal Funds Rate: Midpoint of target range or target level (Percent)	2022	2023	2024	Longer Run
5.000				
4.875		6		
4.750				
4.625	1	6	2	
4.500				
4.375	9	6	2	
4.250				
4.125	8		2	
4.000				
3.875	1	1	4	
3.750				
3.625			3	
3.500				
3.375			3	
3.250				
3.125			1	
3.000				2
2.875			1	
2.750				
2.625			1	1
2.500				8
2.375				1
2.250				6
2.125				
2.000				

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

After a third straight 75 basis point increase in September, borrowing costs are now the highest they've been since the Great Recession. Shorter-term rates have expectedly risen in-line with FOMC rate hikes while longer term rates have been 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 six-months 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 no signs of stopping related to the recent tightening. With a Federal Funds Rate target range midpoint currently at 3.125, the committee sees at least another 75 basis points of increases before the end of the year with the majority expecting closer to 100 or 125 basis points of increases.

Balancing interest rate hikes without slowing the economy into a major recessionary period will remain a difficult task for the FOMC in the months to come.

Source: Board of Governors of the Federal Reserve System – Interest Rates & Federal Open Market Committee (FOMC) Projections materials, September 2022
Next Summary of Economic Projections Release: Dec. 14

Prices: Consumer Inflationary Measure

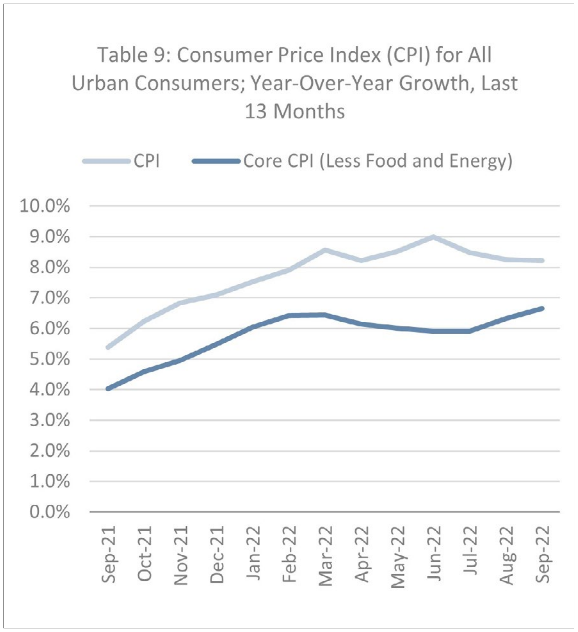


Table 9: Consumer Price Index (CPI) for All Urban Consumers; Year-Over-Year Growth, Last 13 Months

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.

Once considered "transitory" or temporary by the FOMC, inflation has seen a meteoric rise since 2021. Two types of inflation are reported with "headline" CPI above 8% YoY growth over the past seven months.

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.

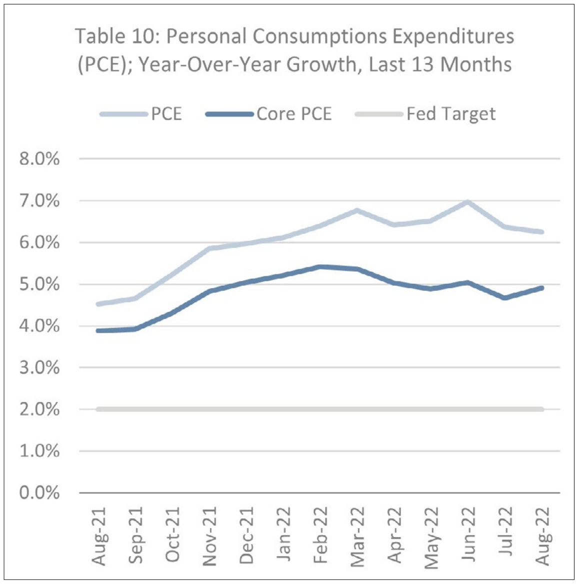


Table 10: Personal Consumptions Expenditures (PCE); Year-Over-Year Growth, Last 13 Months

The second and more often cited inflationary measure is the Personal Consumption Expenditures index (PCE).

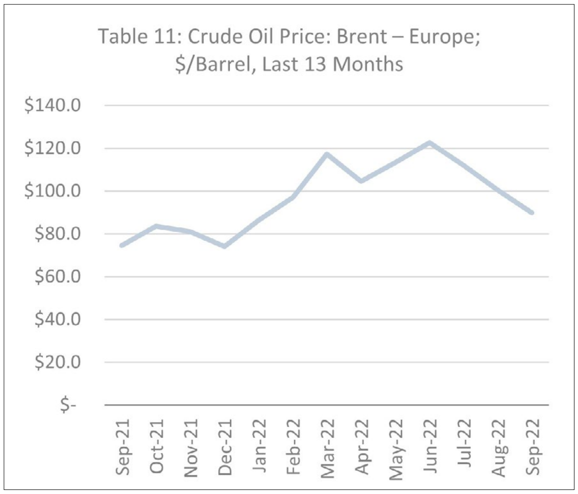
Based on surveys of business sales, the Fed targets 2% for the core measure when setting monetary policy. In August 2020, an adjustment was made to how the measure is interpreted, allowing for inflation to run higher than the standard 2% target before hiking interest rates. The new approach has been coined "average inflation targeting."

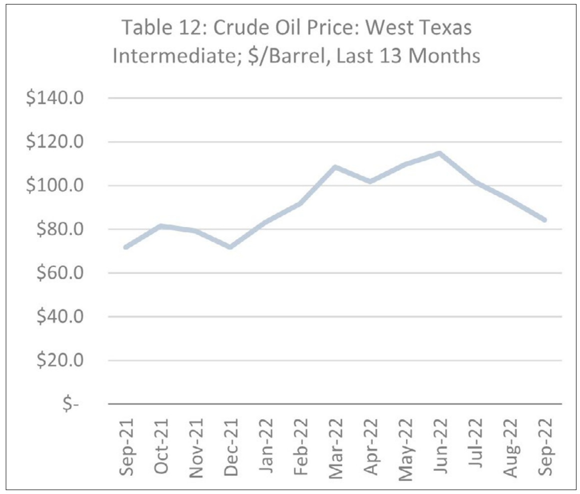
After trending up to near the 2% line in early 2021, core PCE inflation boomed in late 2021 and early 2022. At 4.9% in August 2022, core PCE is still more than double the rate once targeted by the FOMC and has trended at or above 3.9% since August 2021.

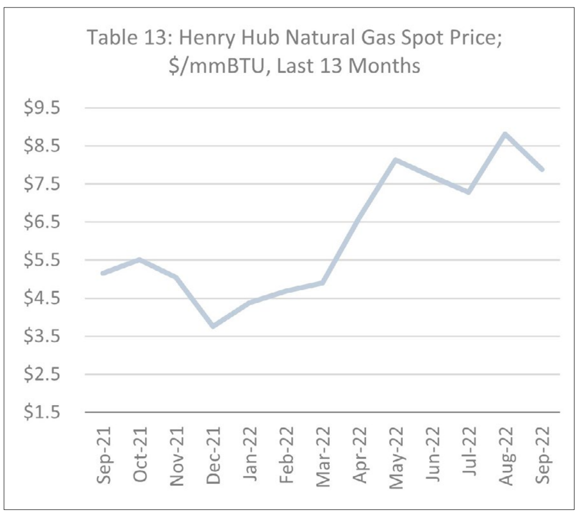
The persistently high level is of major concern to the FOMC, reflected by the aggressive rate hike policy adopted in March 2022.

Source: U.S. Bureau of Labor Statistics (CPI) and U.S. Bureau of Economic Analysis (PCE), August & September 2022 releases
Next CPI Release: November 10, 2022 (October 2022 data)
Next PCE Release: October 28, 2022 (September 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.

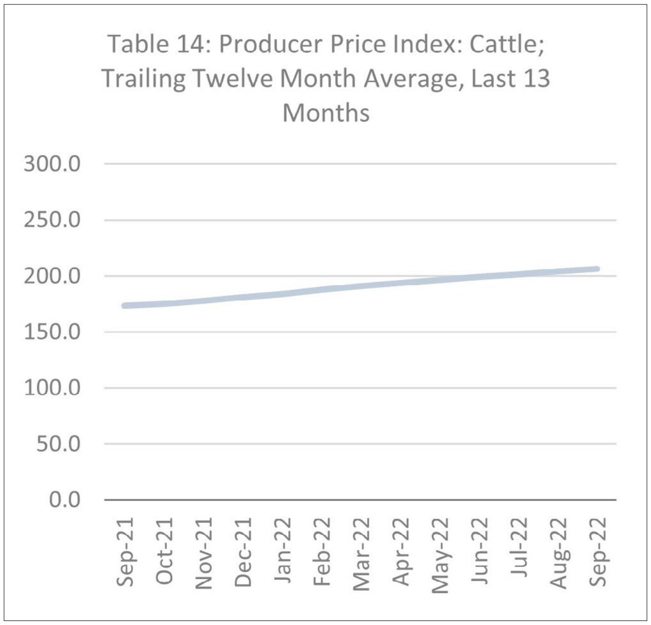
After trending up for much of 2022 due to (1) lack of supply resulting from sanctions placed on Russia and (2) increased demand following the COVID-19 pandemic, oil prices are seeing some much-needed relief. Currently, Brent is trading at about a $5 premium to WTI.

However, economists don't expect the reprieve at the pump to last for long. OPEC recently announced plans to reduce oil exports. Look for national gas prices to stabilize near its current average of $3.75-$4.00.

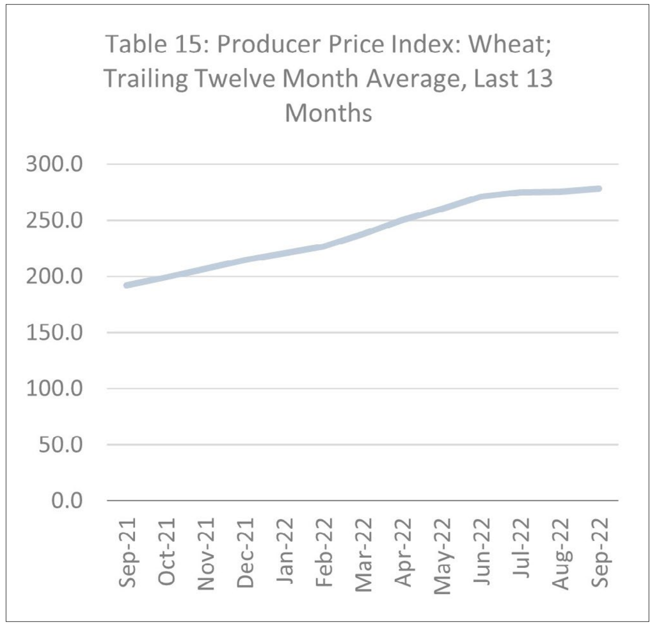
Often reflective of simple demand dynamics, the price of natural gas typically peaks in the winter months and idles in the summer. Yet, given Russia's invasion of Ukraine and the resulting shortage in natural gas, traditional market fluctuations have gone out the window. The price per million British thermal units continues to rise and now sits $4.10 higher in September 2022 (up to $7.90) compared to its monthly average of $3.80 in December of last year.

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

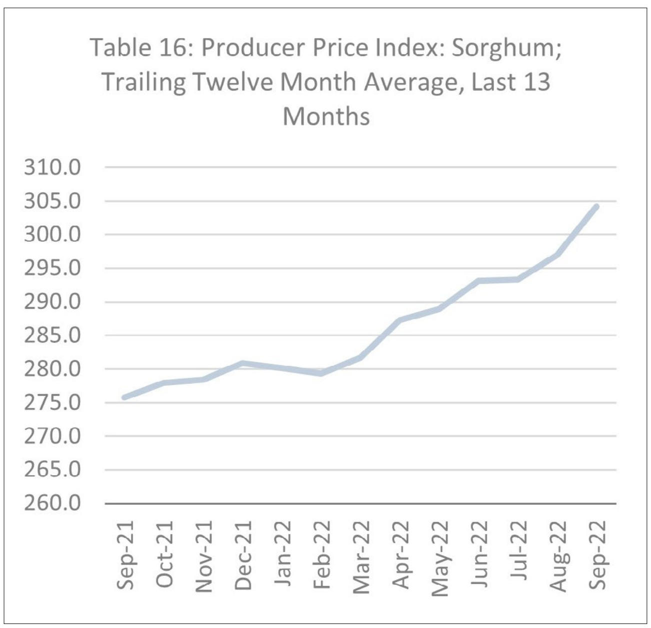
Prices: Farm & Agriculture



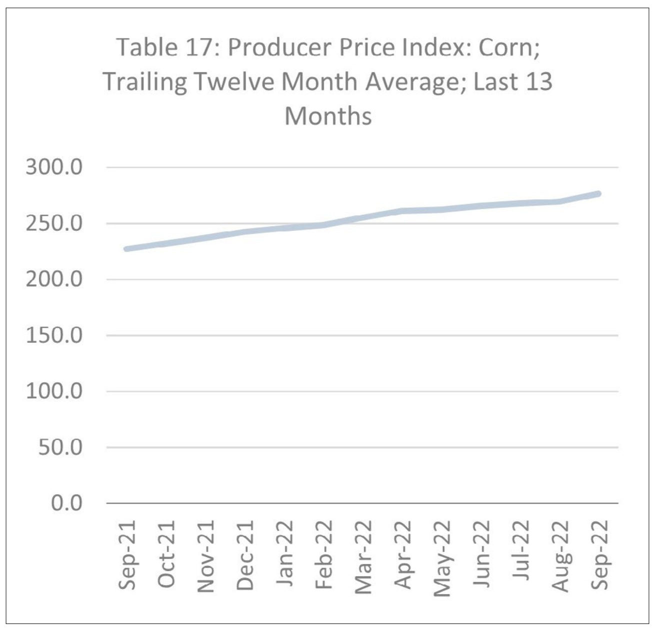
District rankings among U.S. states in cattle production — 2nd Oklahoma, 4th Nebraska, 6th Kansas, 17th Colorado



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, September 2022
Next Release: Nov. 15, 2022 (October 2022 data)

Prices: Housing

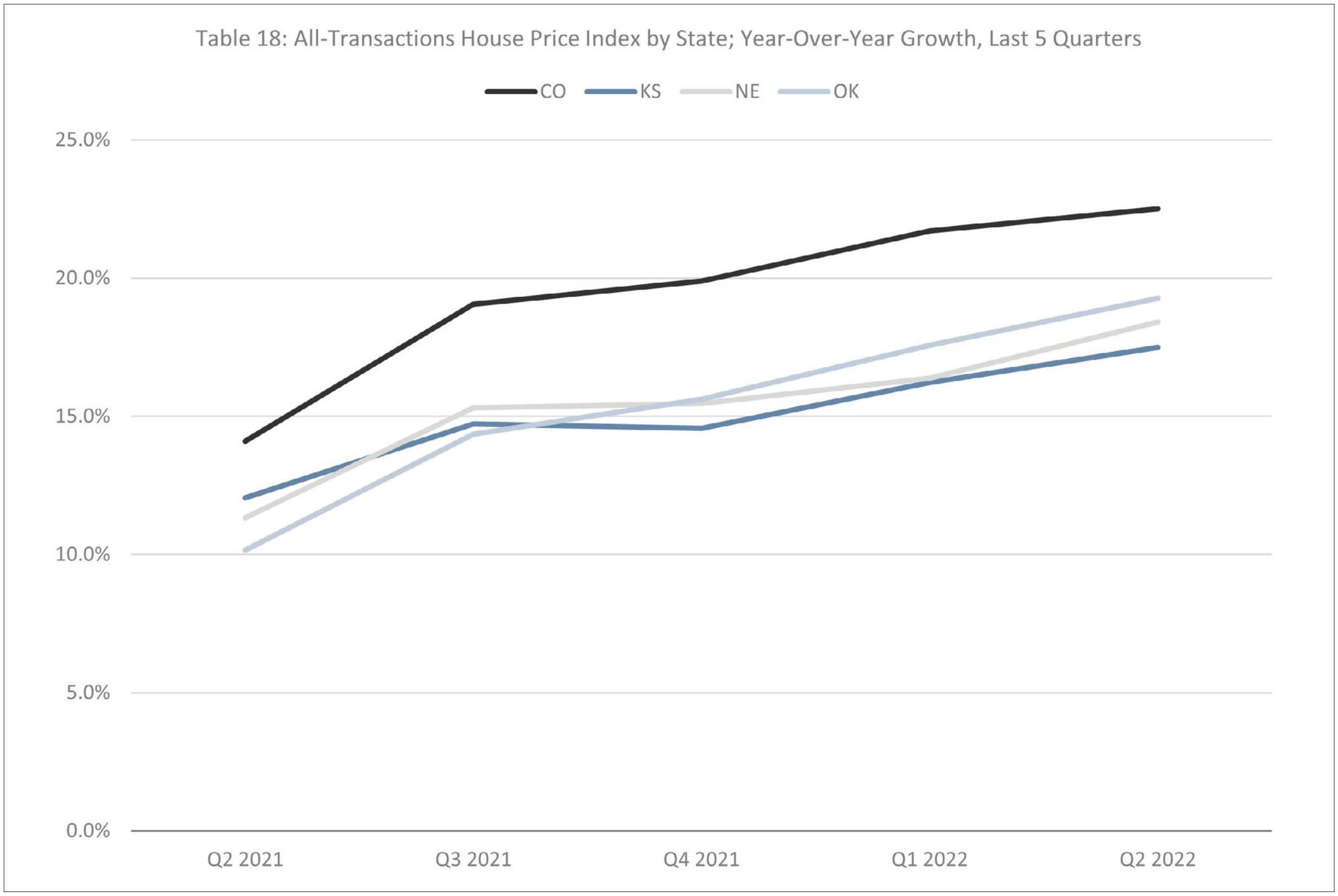


Table 18 depicts the All-Transactions House Price Index (HPI) by state for the District. According to the Federal Housing Finance Agency, the HPI is a broad measure of the movement of single-family house prices.

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.

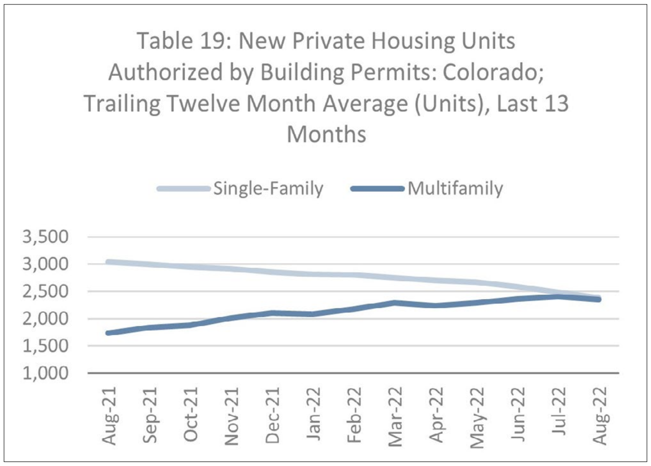
With the cost of building a new home still extremely high given the elevated price of inputs like lumber and labor, demand for resales remains strong. Coupled with an exodus of workers out of major metropolitan areas and into neighboring suburbs, the value of existing homes continues to grow.

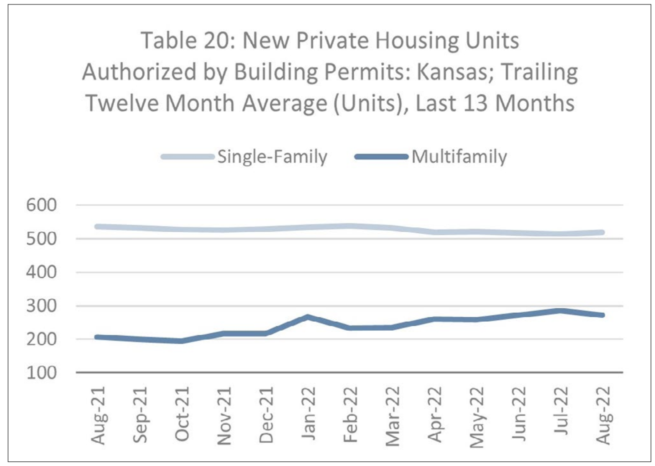
Colorado remains the hottest housing market in District, up 22.5% year-over-year in the first quarter of 2022. All four District states posted YoY price growth above 14% for the fourth straight quarter in Q2 2022.

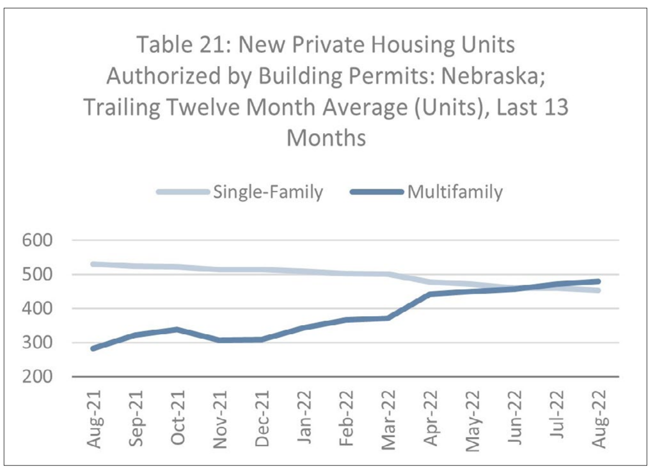
In the second quarter of 2022, the U.S. on a whole saw 18.1% YoY growth, lower than all but Kansas in the District.

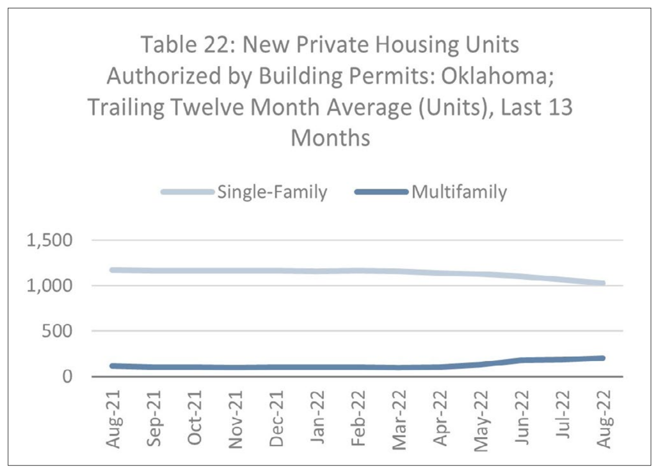
Source: U.S. Federal Housing Finance Agency – House Price Indices, Q2 2022
Next Release: No. 29, 2022 (Q3 2022 data)

Second Quarter Housing Numbers









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 shrunk considerably in Colorado and flip-flopped in Nebraska. One year ago, multifamily permits accounted for 36% of authorizations in Colorado and 35% in Nebraska. Today, those numbers have risen to 50% and 51%, respectively.

Source: U.S. Census Bureau Building Permits Survey – August 2022
Next Release: Oct. 19, 2022 (September 2022 data)