FINANCIAL INTELLIGENCE *from* FHLBank Topeka

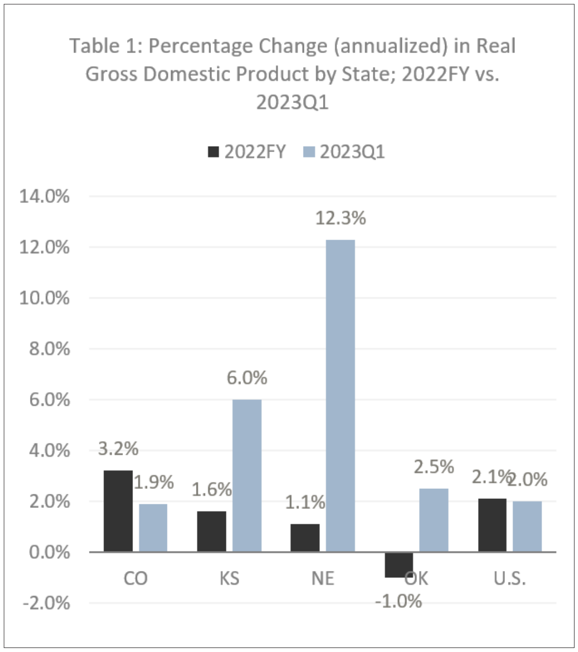
Tenth District Economic Update

Quarterly Report / Q1 2023

Prepared by: Corporate Strategy

Quarterly data as of first quarter 2023
Monthly data as of May 2023
Daily data as of June 30, 2023
See footnotes for source and data release information

Economic Growth



Tenth District includes Colorado, Kansas, Nebraska and Oklahoma

Optimism has returned to the economic fold as first quarter 2023 GDP growth well exceeded forecasts for most states.

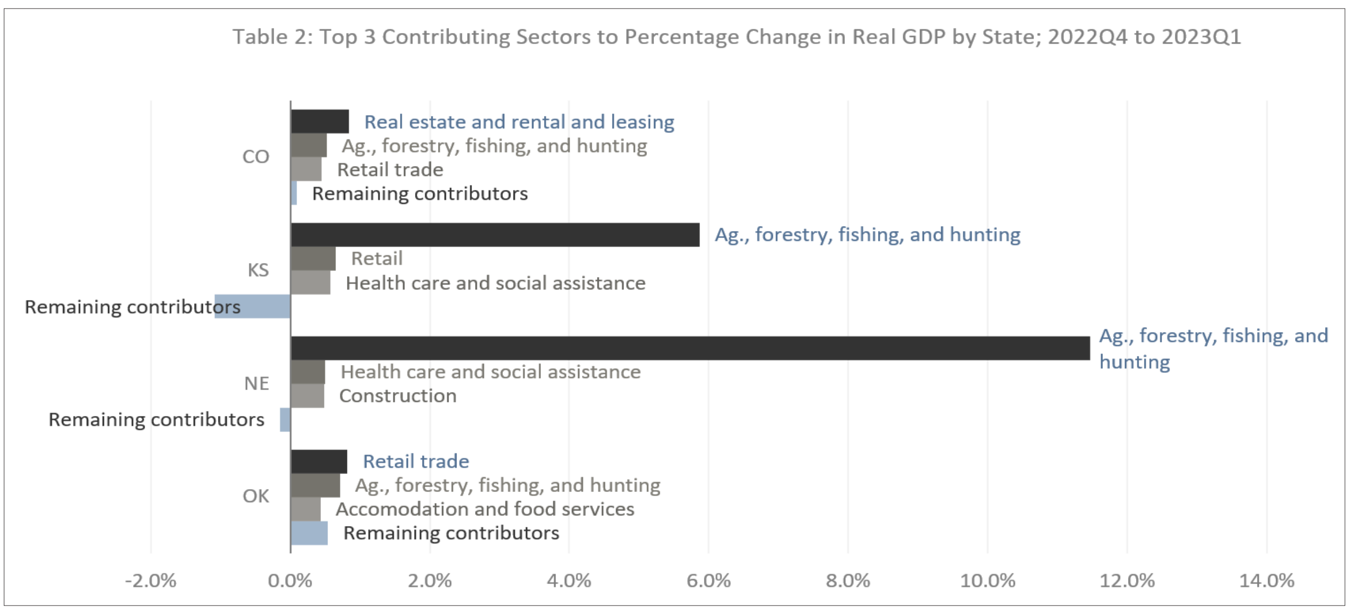
Overall, the U.S. economy grew by 2% (annualized) in the first quarter. Signs are pointing to continued growth in the second quarter, driven by strong consumer spending on vehicles and government spending but restricted by declining business spending, exports and housing.

Goldman Sachs' economists recently updated their forecast for a recession over the next 12 months to 25%, down from 35% in March and well below think tank The Conference Board's probability of 99% in April.

Largely due to strength in agriculture (ag), Tenth District* (District) states' first quarter 2023 GDP growth figures exceeded those seen in other states. In Kansas, 5.9% of the state's 6% GDP growth (ann.) and 11.5% of Nebraska's 12.3% growth (ann.) was due to contributions from the ag, forestry, fishing and hunting sector (see Table 2).

As a result, Kansas and Nebraska ranked fourth and second in GDP growth for the quarter in the US. Other areas of strength included health care and social assistance, and retail trade.

The finance/insurance and oil sectors, typically large contributors of growth to Colorado and Oklahoma's economies, saw significant pullbacks in the first quarter. These sectors will continue to struggle if a recession takes hold and further reduces spending.



Source: U.S. Bureau of Economic Analysis (BEA) – Gross Domestic Product by State, First Quarter 2023
Next Release: Sept. 29, 2023 – Gross Domestic Product by State, Second Quarter 2023

Employment & Labor

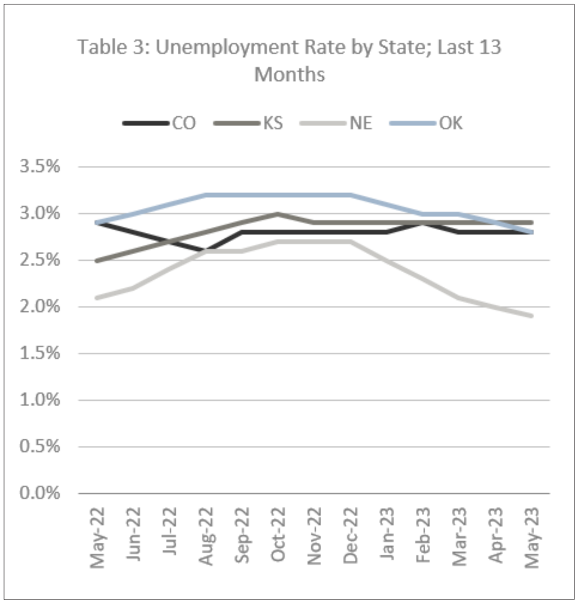


Table 3: Unemployment Rate by State; Last 13 Months

If there's any indicator showing strong evidence that a recession is still a ways off, it's in the employment and labor markets. May 2023's jobs report showed hiring is still chugging along at a steady pace, allowing consumer spending levels to remain elevated and keep the economy churning.

In the District, the unemployment rate has been flat or declining for all states over the past three months (see Table 3). Nebraska's unemployment rate has fallen every month since December 2022, dropping to 1.9% in May — tied for the lowest among U.S. states.

With 2.8% unemployment, Colorado and Oklahoma are both down 0.1% year-over-year (YOY) and are tied with Massachusetts for the 17th lowest rate in the country.

Kansas is the only state in the District to have a higher unemployment rate than last year. Up to 2.9% from 2.5% in May 2022, Kansas still ranks among the top half in the country and will remain stable as long as strength in the ag sector subsists.

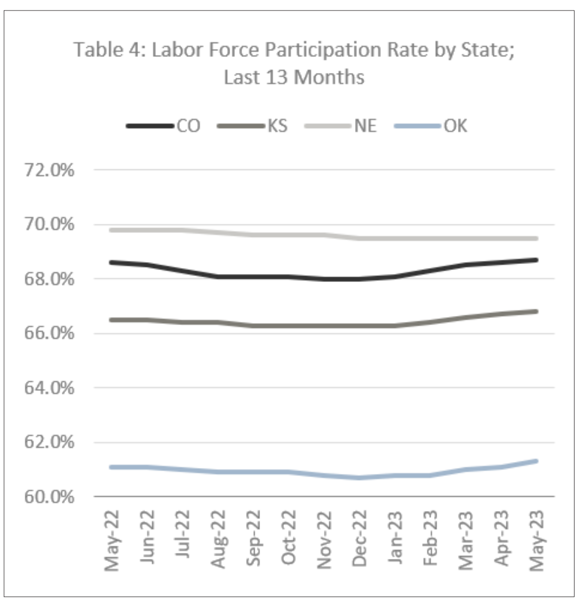


Table 4: Labor Force Participation Rate by State; Last 13 Months

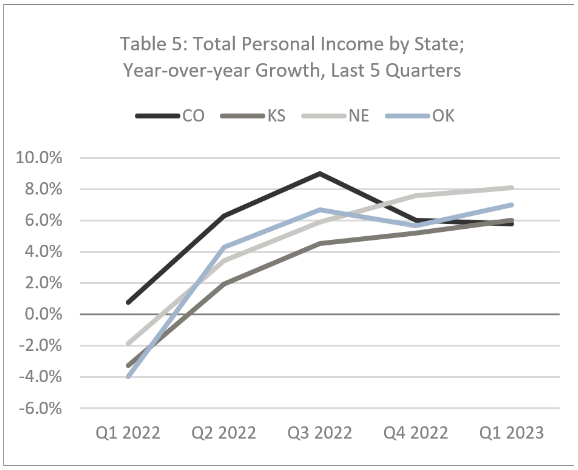
As job openings have been on the rise, particularly in the services, state and local government, retail, motor vehicle and nonresidential construction sectors, labor force participation (LFP) rates have followed suit. On a whole, the U.S. LFP rate sits at 62.6% as of May 2023, flat over the last two months but up 0.5% from its 12-month low in July 2022.

YOY, Nebraska is surprisingly the only state in the District to see a decline in their LFP rate. At 69.5% in May 2023, Nebraska is down 0.3% from May 2022 and flat year-to-date (YTD). However, it still ranks first among all U.S. states with the highest LFP rate.

Reversing the downward trend to close out 2022, Colorado, Kansas and Oklahoma have all seen marginal YOY improvements of 0.1%, 0.3% and 0.2%, respectively, as of May 2023. Oklahoma continues to trail well behind the rest of the District at 61.3% LFP while Colorado and Kansas remain in the middle of the pack.

Source: U.S. Bureau of Labor Statistics (BLS) – Civilian Noninstitutional Population and Associated Rate and Ratio Measures for Model-Based Areas, May 2023
Next Release: July 21, 2023 – State Employment and Unemployment (June 2023 data)

Wage Measures



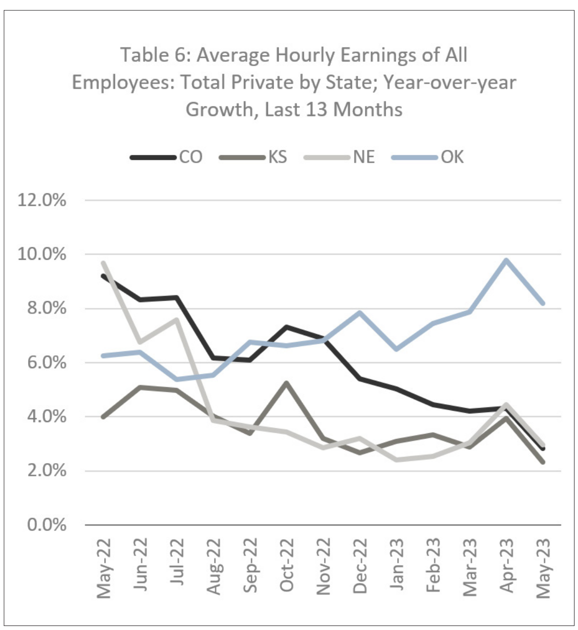
Total personal income is defined by the U.S. Bureau of Economic Analysis (BEA) as the income people receive from wages, proprietors' income, dividends, interest, rents and government benefits.

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

Total personal income increased in 48 states in the first quarter of 2023, falling only in Indiana and Massachusetts. The U.S. percentage change was 5.1%, meaning all four District states recorded rates above average.

Earnings, property income and transfer receipts all positively contributed to the increase in personal income. Meanwhile, headline inflationary figures have fallen to near or below 4% (see consumer inflationary measure detail on page 6).

The decreasing disparity between wages and inflation is an encouraging sign if the U.S. economy hopes to avoid a recession.



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 benefits, irregular bonuses, retroactive items and payroll taxes paid by employers are excluded.

All four District states saw a significant decline in YOY average hourly earnings growth from April 2023 to May 2023. And apart from Oklahoma, earnings rates have continued to fall significantly across District states during the past year.

Sources: U.S. Bureau of Economic Analysis (Personal Income) and U.S. Bureau of Labor Statistics (Average Hourly Earnings)
Next Releases: Sept. 29, 2023 – (Personal Income); July 21, 2023 – (Average Hourly Earnings)

Interest Rates

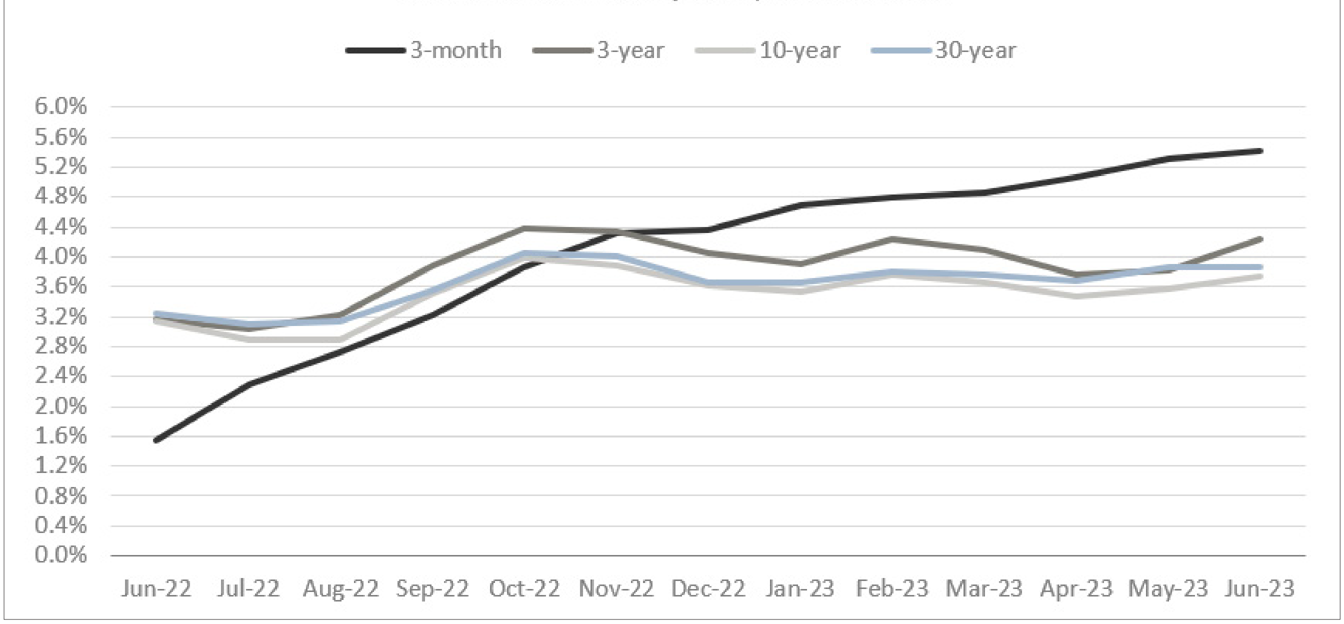


Table 7: Select Treasury Rates; Last 13 Months

Table 8: Federal Funds Rate: Midpoint of target range or target level (Percent)	2023	2024	2025	Longer Run
6.125	1			
6.000				
5.875	2	1		
5.750				
5.625	9	2	1	
5.500				
5.375	4			
5.250				
5.125	2	3		
5.000				
4.875		2	1	
4.750				
4.625		2	1	
4.500				
4.375		6		
4.250				
4.125		1	2	
4.000				
3.875			1	
3.750				
3.625		1	2	1
3.500				
3.375			3	
3.250				1
3.125			3	
3.000				1
2.875			1	
2.750				2
2.625			2	2
2.500				7
2.375			1	3

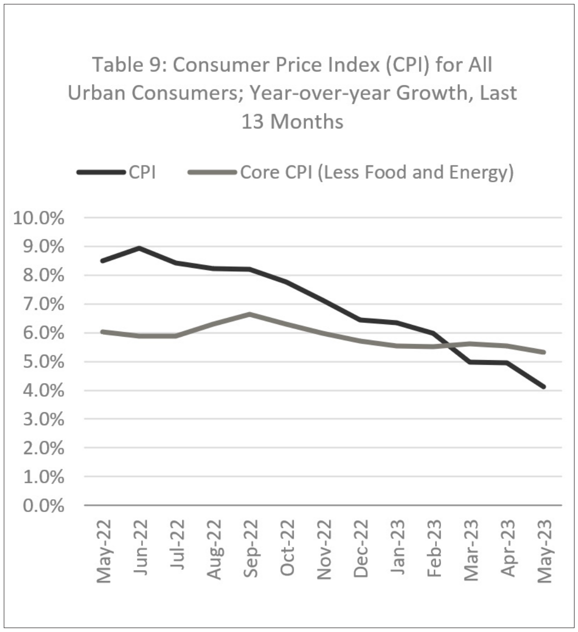
After ten straight meetings in which the Federal Open Market Committee (FOMC) elected to raise the Federal Funds target rate, the policymakers voted for their first pause in more than a year at the June 2023 meeting. During that time, the target range raised 500 bps, causing a rise in other short-term rates like Treasuries, resulting in a major inversion of the curve.

Throughout much of late 2022 and early 2023, longer-term rates have been reluctant to change in anticipation of a 2023 recession. However, with renewed optimism in the resilience of the U.S. economy, longer-maturity rates have seen a tangible increase. There is still a long way to go. As of June 30, the 10-year Treasury rate sits nearly 170 bps below its three-month counterpart.

As seen in Table 8, the FOMC believes there is still more work to be done before rates cool off again. With the target range midpoint currently at 5.125%, the majority of the committee sees 2023 finishing with a net increase of 50 bps in rates before falling considerably in 2024 and 2025. The balancing act of reigning in inflation without causing a major slowdown continues.

Source: Board of Governors of the Federal Reserve System – Interest Rates & Federal Open Market Committee (FOMC) Projections materials, June 2023
Next Summary of Economic Projections Release: Sept. 20, 2023

Prices: Consumer Inflationary Measures

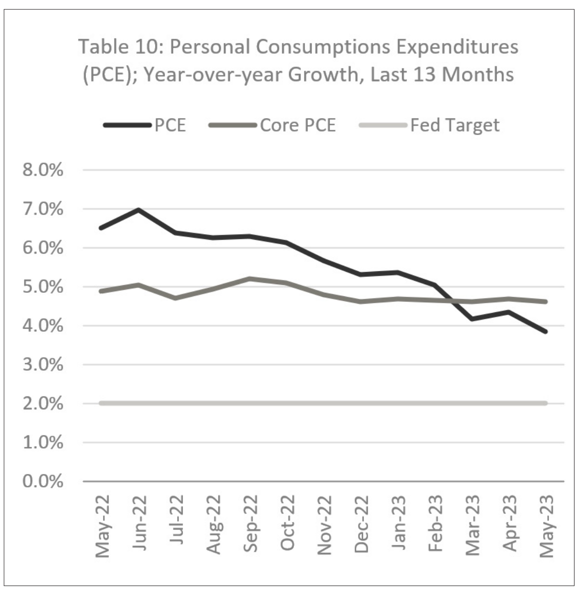


In measuring the purchasing value of the U.S. dollar, two indices rise above the rest. Both track the price level of a basket of goods, but differ in a myriad of ways, including the weights applied to different items in the basket, accounting for changes in the basket and simply what items are included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

Two types of inflation are reported with "headline" CPI down to 4.1% YOY growth in May 2023 after peaking at 8.9% 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."

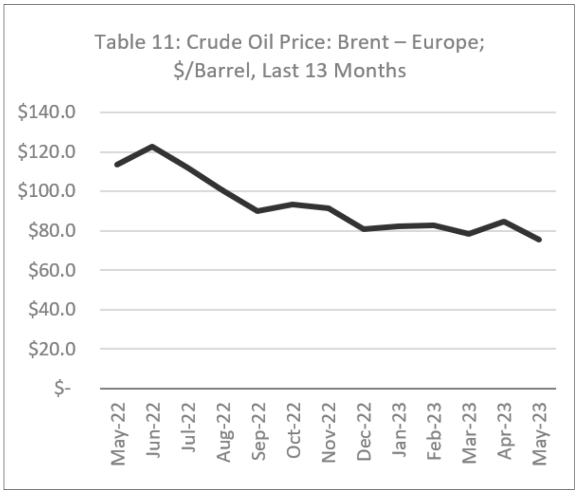
After trending up to near the 2% line in early 2021, core PCE inflation ramped up in late 2021 and early 2022 peaking at 5.4% in February 2022.

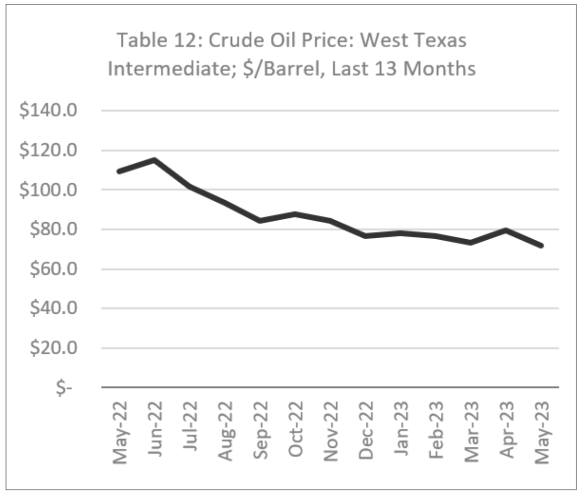
Though dropping and at 4.6% in May 2023, core PCE is still more than double the rate once targeted by the FOMC and has trended at or above 4.6% every month over the past year.

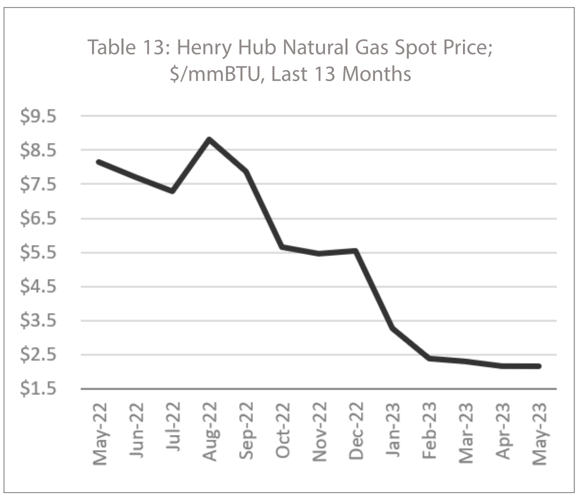
The persistently high level is of major concern to the FOMC, reflected by the continued aggressive rate hike policy.

Source: U.S. Bureau of Labor Statistics (CPI) and U.S. Bureau of Economic Analysis (PCE), May 2023 releases
Next CPI Release: July 12, 2023 (June 2023 data)
Next PCE Release: July 28, 2023 (June 2023 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 lack of supply resulting from sanctions placed on Russia and increased demand following the COVID-19 pandemic, oil prices are seeing some much-needed relief. Currently, Brent is trading at about a $4 premium to WTI.

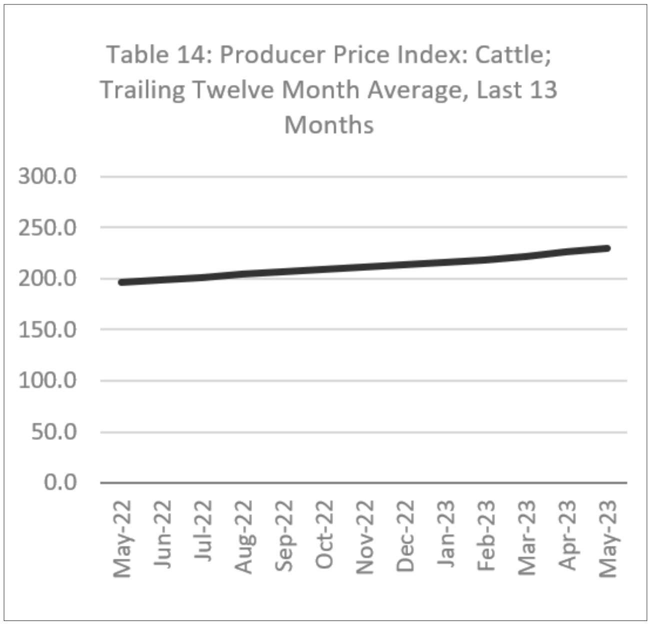
At one time dropping due to anticipation of a recession, oil prices now remain muted due to the massive stockpiles created during the winter months. At a time when prices at the pump generally see increases with more travelers on the road, the average cost per gallon of unleaded gas remains near $3.

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.

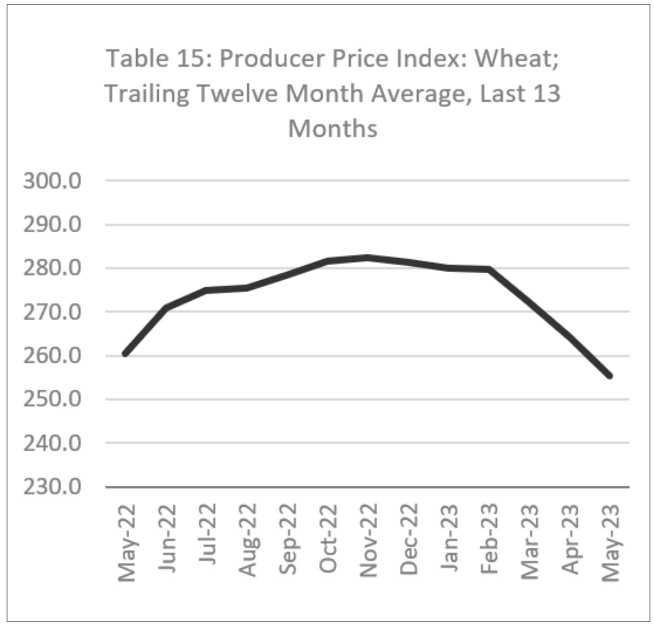
The price per million British thermal units peaked in August 2022 at $8.80, but has since fallen more than 300% to $2.20 in May 2023 with no end to the falloff in sight.

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

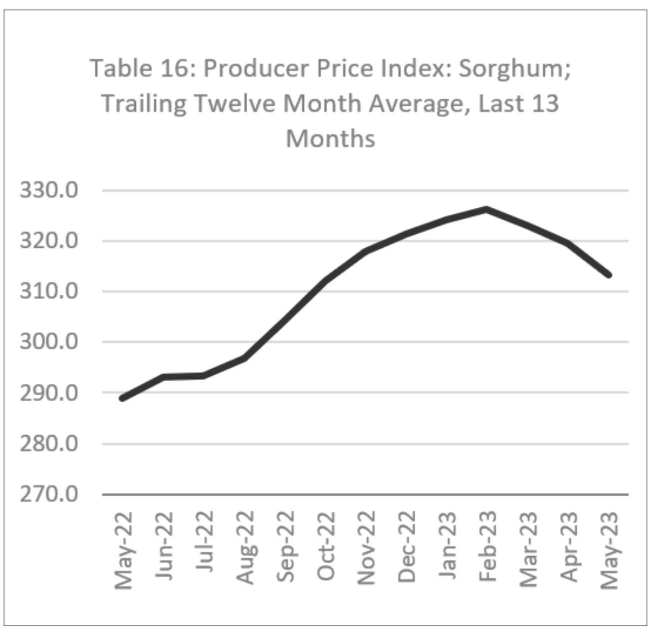
Prices: Farm & Agriculture



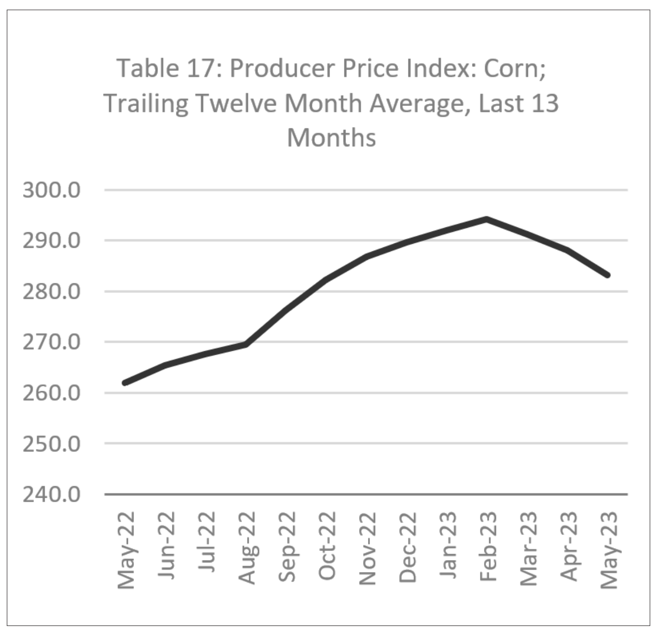
District state rankings in 2022 U.S. cattle production — 2nd Oklahoma, 4th Nebraska, 6th Kansas, 17th Colorado



District state rankings in 2022 U.S. wheat production — 2nd Kansas, 7th Oklahoma, 10th Colorado, 14th Nebraska



District state rankings in 2022 U.S. sorghum grain production — 1st Kansas, 4th Colorado, 5th Nebraska, 6th Oklahoma



District state rankings in 2022 U.S. corn production — 3rd Nebraska, 6th Kansas, 17th Colorado, 28th Oklahoma

Source: U.S. Bureau of Labor Statistics – Producer Price Indices, May 2023
Next Release: July 13, 2023 (June 2023 data)

Prices: Housing

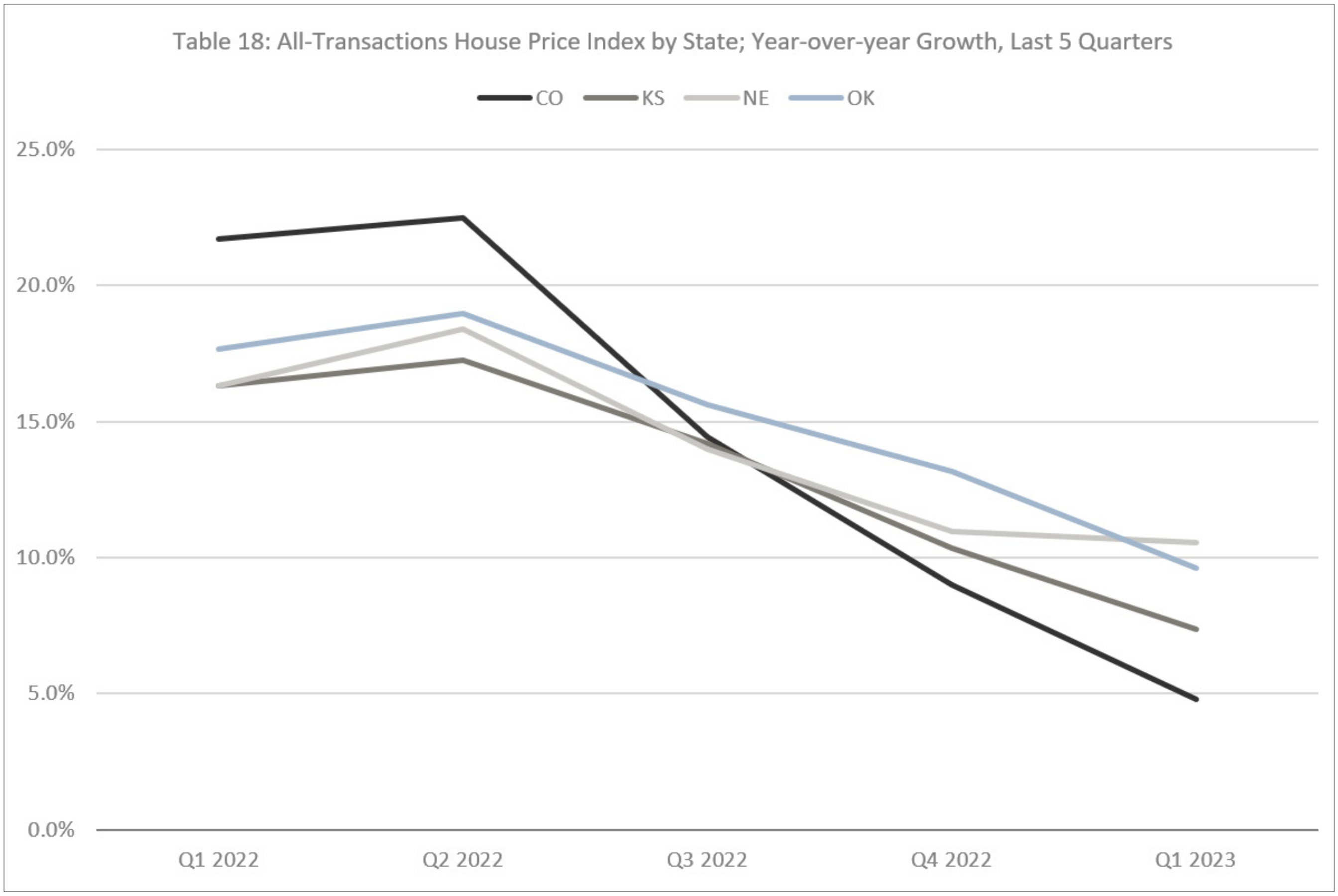


Table 18 depicts the All-Transactions House Price Index (HPI) by state for the District.

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 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.

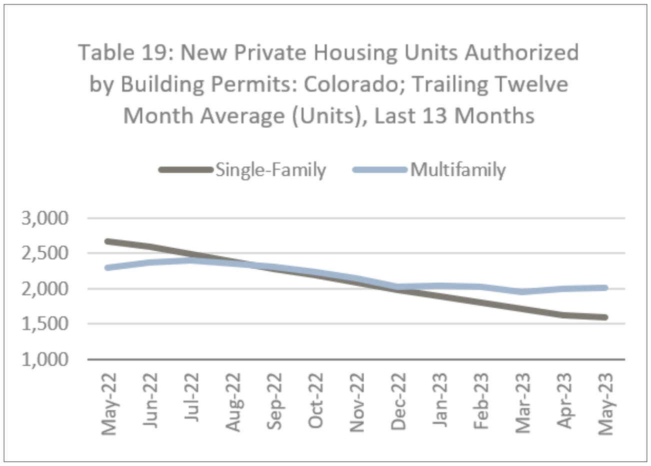
With the cost of building a new home still extremely high given the elevated price of inputs like lumber and labor, demand for resales remains strong. Coupled with an exodus of workers out of major metropolitan areas and into neighboring suburbs, the value of existing homes continues to grow.

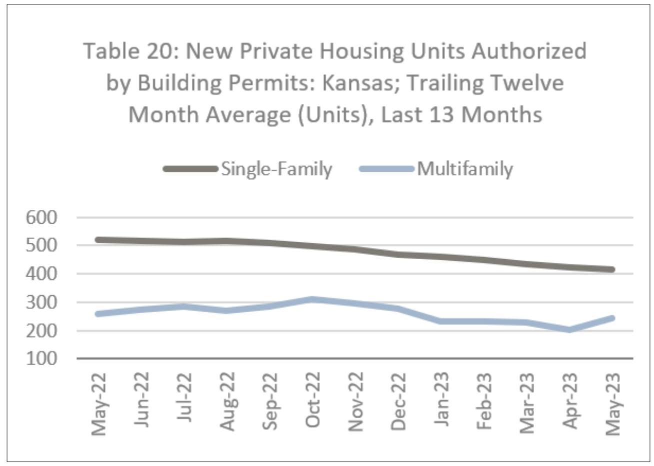
Nebraska recently surpassed Oklahoma as the fastest growing housing market by price in the District, up 10.5% YOY in the first quarter of 2023. All four District states have shown considerable declines in overall housing price growth since peaking in the second quarter of 2022.

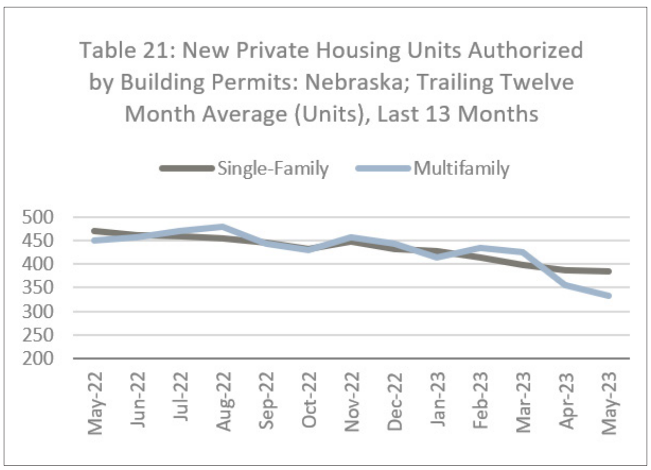
In the first quarter of 2023, the US on a whole saw 8.1% YOY growth, higher than Kansas and Colorado but lower than Oklahoma and Nebraska.

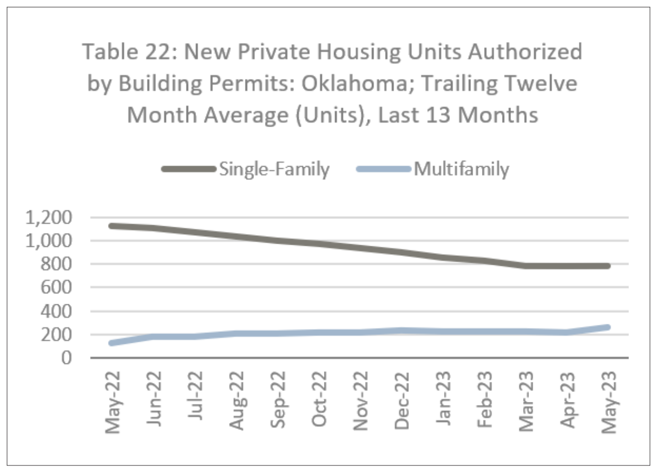
Source: U.S. Federal Housing Finance Agency – House Price Indices, Q1 2023
Next Release: Aug. 29, 2023 (Q2 2023 data)

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 shrinking somewhat in Kansas and Oklahoma, the difference between single-family and multifamily permits has flip-flopped in Colorado and alternated from positive to negative multiple times during the past year in Nebraska. One year ago, multifamily permits accounted for 47% of authorizations in Colorado. Today, that number has risen to a staggering 56%.

Source: U.S. Census Bureau Building Permits Survey – May 2023
Next Release: July 26, 2023 (June 2023 data)