Economic Outlook and Trends Through October 2023 United States and Colorado

cber.co Colorado-based Business and Economic Research Prepared November 20, 2023 Autumn Calm in the Suburbs - Before the Storm

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Economic Outlook and Trend October 2023

Purpose and Overview

The purpose of this chartbook is to review the outlook and performance of the Colorado and U.S. economies. The analysis focuses on available data for the ten months of 2023 and trends for the remainder of the year.

Economists continue to have mixed opinions about the future of the U.S. and Colorado economies.

Strong cases have been made for each of the following economic scenarios.

- Solid growth
- Slowdown in economic activity and the labor market
- Slight recession or downturn.

We hope for the best, but the third option is most likely.

Contents

This chartbook focuses on the following topics.

- Key Issues
- Gross Domestic Product and Real Disposable Personal Income Per Capita.
- U.S. and Colorado Employment, Unemployment, Earnings.
- Inflation
- Saving, Borrowing, Consumption, and the Wealth Effect
- U.S. Industry Indicators
- Colorado Industry Indicators
- 2023 Colorado Economic Outlook

Key Issues United States and Colorado

United States

- The U.S. labor market has slowed since Q2 2022, yet it remains resilient. There are labor shortages in many sectors.
- The inflation rate is slowing; however, consumers feel its accumulated effect.
- Rising interest rates will impact many sectors.
- The ISM indices show that manufacturing remains in contractionary mode and services are dangerously close.
- The economic outlook for small businesses is dismal.
- Energy policy and regulations are costly and often ineffective.
- Retail purchases are increasing at a decelerating rate.
- The war in Eastern Europe is now accompanied by war in Israel and the Gaza Strip.
- Federal investments (IRA and Chips Act) will benefit small segments of select sectors. There are currently not enough workers to fill jobs created by these investments.

Colorado

- The Colorado labor market is slowing. There are labor shortages in many sectors.
- The Colorado inflation rate is higher than the U.S. rate. Inflation in rural Colorado may be greater than the urban rate.
- The state's regulatory environment is unfriendly to businesses. Colorado is ranked 27th by the Tax Foundation (right-center) for its business climate.
- The slowdown in Colorado construction permits continues, yet the state has a shortage of 100,000 housing units.
- Oil production has stabilized.
- It is difficult for households to cover utility expenses because of rate hikes.
- Retail purchases are increasing at a decelerating rate.
- A recent report from Forbes lists Denver as the most desirable place to live in the U.S. Not all locals agree with that assessment.
- On a bright note, 72 million passengers will travel through DIA in 2023.
- The water wars have pitted industries and regions against each other.

Gross Domestic Product and Disposable Income

U.S. Real GDP – Economic Activity

Economic Activity – The Conference Board (TCB) Forecast

TCB Forecast

The Conference Board U.S. economic forecast is the base for the cber.co forecast.

- In the second half of 2022, TCB called for a shallow recession at the end of 2022 or early 2023. Instead, the economy had modest growth.
- The August 2023 forecast called for a mild recession in Q4 2023 and Q1 2024. The Q3 2003 economy was better than expected, and modest growth occurred in October.
- The September, October, and November forecasts have called for a slowdown in Q4 2023 and a shallow recession in Q1 2024.

Real GDP growth will be +2.2% in 2023 and +0.8% in 2024.

Headwinds

The current TCB forecast has identified the following headwinds:

- Elevated inflation
- High-interest rates
- Reduced savings levels
- Mounting consumer debt
- A lower amount of government spending
- Slower personal consumption
- Wars in the Eastern Europe, Israel, and the Gaza Strip.

U.S. Real GDP Growth The Conference Board Forecast (November 2023)

Real GDP and Economic Growth

The Conference Board forecast projects real GDP growth of 2.2% in 2023 and weaker growth in 2024. Real Disposable Income will increase by 3.9%, and Real Personal Consumption will increase by 2.3%. Residential investment will change by -11.0% in 2023, and non-residential investment will increase by 4.0%. Government spending will increase by 3.4% in 2023 but drop off in 2024.

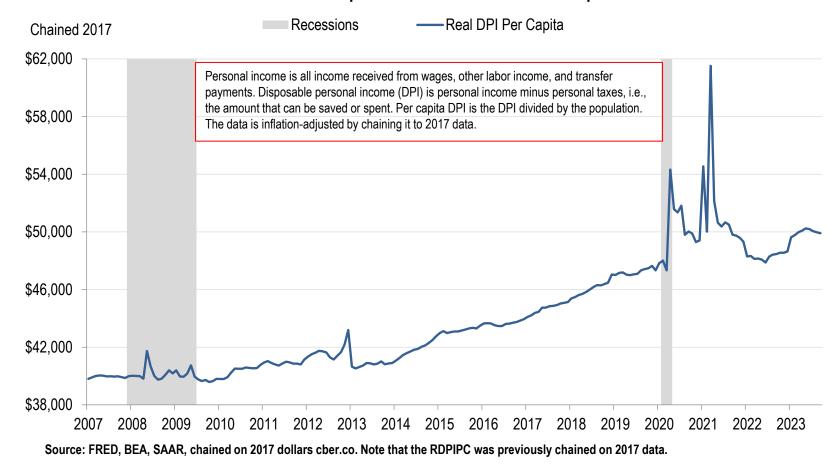
Other Economic Factors

There will be slower growth in exports in 2023 (2.7%) and similar growth in 2024 (3.0%). The U.S. unemployment rate will be 3.7% this year and increase to 4.1% in 2024. The annual PCE inflation rate will drop to 3.9%, and the core rate will be 4.2% in 2023. Inflation will approach the Fed's target rate in 2024. The Fed Fund rate will decline to 4.375% in 2024.

	Q1 2022	Q2 2022	Q3 2022	Q4 2022	Q1 2023	Q2 2023	Q3 2023	Q4 2023	2022	2023	2024
Real GDP (YOY)	3.6%	1.9%	1.7%	0.7%	1.7%	2.4%	2.9%	2.5%	1.9%	2.2%	0.8%
Real Disposable Income	-9.8%	-1.4%	3.6%	2.2%	10.8%	3.5%	-1.0%	-1.0%	-6.0%	3.9%	0.2%
Real Personal Consumption	0.0%	2.0%	1.6%	1.2%	3.8%	0.8%	4.0%	2.0%	2.5%	2.3%	0.7%
Residential Investment	-1.9%	-14.1%	-26.5%	-24.9%	-5.3%	-2.2%	3.9%	1.0%	-9.0%	-11.0%	1.5%
Nonresidential Investment	10.7%	5.3%	4.7%	1.7%	5.7%	7.4%	-0.1%	-1.1%	5.2%	4.0%	-0.7%
Total Gov't. Spending	-2.9%	-1.9%	2.9%	5.3%	4.8%	3.3%	2.4%	1.1%	-0.9%	3.4%	1.7%
Exports	-4.6%	10.6%	16.2%	-3.5%	6.8%	-9.3%	5.2%	5.0%	7.0%	2.7%	3.0%
Unemployment Rate	3.8%	3.6%	3.6%	3.6%	3.5%	3.6%	3.7%	3.9%	3.6%	3.7%	4.1%
PCE Inflation (%Y/Y)	6.6%	6.8%	6.6%	5.9%	5.0%	3.9%	3.4%	3.2%	6.5%	3.9%	2.4%
Core PCE Inflation (%Y/Y)	5.5%	5.2%	5.2%	5.1%	4.8%	4.6%	3.9%	3.5%	5.2%	4.2%	2.4%

Conference Description Description

Real Disposable Personal Income Per Capita United States



Real Disposable Personal Income Per Capita

Real DPI Per Capita (RDPIPC)

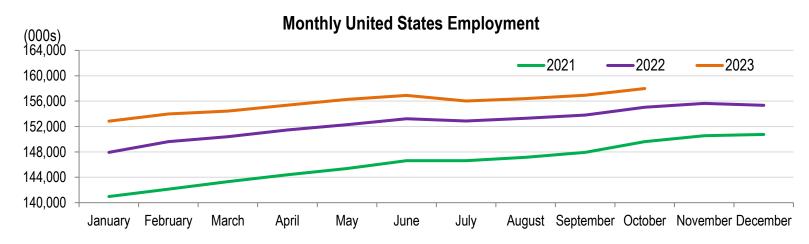
In September 2023, RDPIPC was \$49,904. It was less than the previous month but 3.0% greater than September 2022.

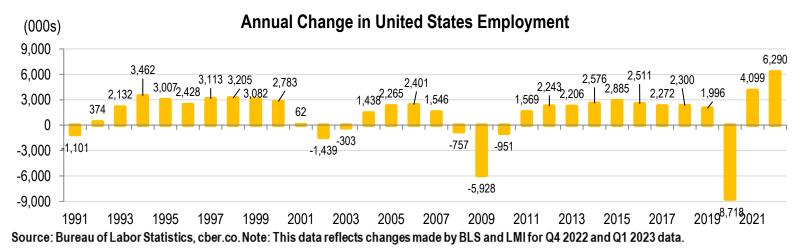
Real Dis	Real Disposable Annual (Average)				
Year	RDPIPC	% Change			
2016	\$43,659	1.1%			
2017	\$44,710	2.4%			
2018	\$46,057	3.0%			
2019	\$47,226	2.5%			
2020	\$50,054	6.0%			
2021	\$51,570	3.0%			
2022	\$48.313	-6.3%			

The RDPIPC behaved very differently in the COVID-19 recession than during the Great Financial Crisis. There was much more money in the system between 2020 and 2022. After peaking at \$61,512 in March 2021, it bottomed out at \$47,812 in June 2022. It increased through May of 2023, then tapered off.

U.S. and Colorado Employment and Unemployment

Employment and Change in Employment United States





U.S. Employment

The YOY October 2023 (orange) monthly change in employment was about 2.9 million more than October 2022 (purple). By comparison, the change in employment for January 2023 vs. 2022 was about 4.9 million.

The YOY change in employment has slowed dramatically.

As seen in the annual comparisons to the left, YOY employment from 2012 to 2019 ranged from a low of 2.0 million in 2019 to 2.9 million in 2015. The estimated YOY difference in 2023 vs 2022 annual employment will be 3.7 million.

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Change in Colorado Employment

Monthly (April 2021 through October 2023)

- - - 2012 to 2019 Average Employment (000s) 300 273.1 270 240 212.5 210 181.1 171.9 180 168.3 150.4 144.5 140.3 150 132.9128.5 122.2 104.1105.4 120 86.1 ^{74.7} 70.4 63.1 90 28.9 34.9 39.5 41.4 43.0 60 ſ.2 44.1 30 0 21-Apr 21-Jun 21-Aug 21-Oct 21-Dec 22-Feb 22-Apr 22-Jun 22-Aug 22-Oct 22-Dec 23-Feb 23-Apr 23-Jun 23-Aug 23-Oct

YOY Change in Colorado Employment

Estimated Benchmark Revision for 2023

Colorado Labor Market Information (LMI) uses UI data to compile the QCEW employment numbers used by BLS as the foundation for its benchmark revisions to the CES employment data series. Official 2023 benchmark revisions will occur in Q1 2024.

Colorado LMI recently released a report estimating that the current BLS data understates employment by .7% to .9%. If the LMI report is correct, the benchmark revision will increase the monthly BLS data by 20,000 to 30,000.

In other words, the annual YOY change (2023 vs. 2022) will be between 50,000 and 60,000.

Source: Bureau of Labor Statistics, cber.co.

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Unemployment Rate United States and Colorado

Colorado Recessions Percent 16% 14% 12% 10% 8% 6% 4% 2% 0% 2012 2013 2014 2019 2007 2008 2009 2010 2011 2015 2016 2017 2018 2020 2021 2022 2023

U.S. and Colorado Unemployment

Source: BLS, SA, cber.co.

Colorado-based Business and Economic Research https://doi.org/10.1011/j.com/10011/j.com/10011/

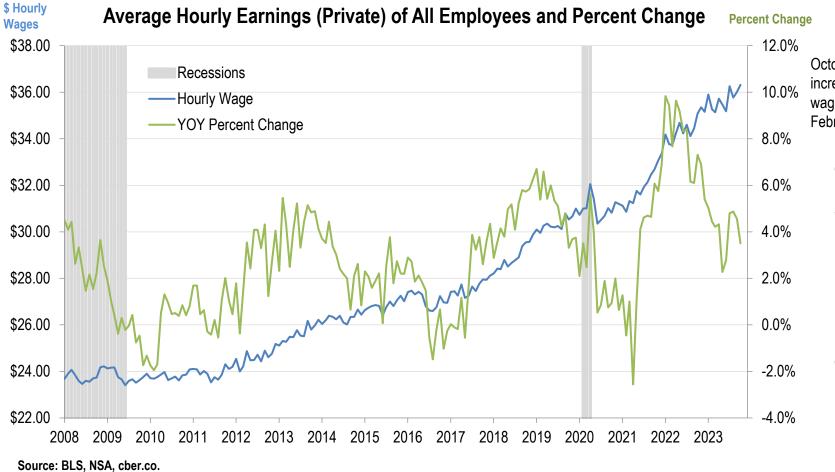
Unemployment Rate

The Colorado unemployment rate increased to 3.3% in October, and the U.S. rate was 3.9%. The economy operates inefficiently when the unemployment rate is this low.

Annual Unemployment Rate					
Year	United States	Colorado			
2016	4.9%	3.1%			
2017	4.4%	2.6%			
2018	3.9%	3.0%			
2019	3.7%	2.7%			
2020	8.1%	6.8%			
2021	5.3%	5.4%			
2022	3.6%	3.0%			

September data shows there were about 105,931 unemployed Coloradans to fill 197,000 job openings. Although there are about 1.86 openings per unemployed worker, companies fill most job openings from the pool of employed workers rather than unemployed workers.

Average Hourly Earnings of All Employees (Private) Colorado

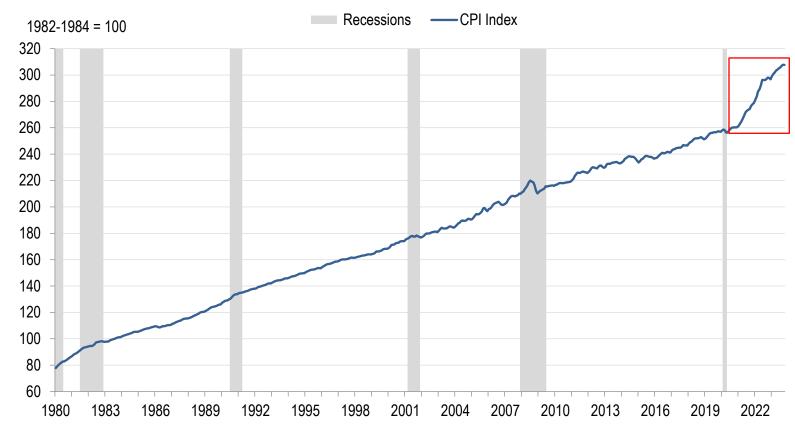


Hourly Wages and Percent Change October hourly wages (blue) were \$36.31, a YOY increase of 3.5% (green). The current rate of wage growth is down from a peak of 9.4% in February 2022.

Annual Wages and Change						
Year	CO CPI	Wages	Change			
2017	3.4%	\$27.60	2.0%			
2018	2.7%	\$28.92	4.8%			
2019	1.9%	\$30.37	5.0%			
2020	2.0%	\$30.99	2.0%			
2021	3.5%	\$31.97	3.2%			
2022	8.0%	\$34.47	7.8%			
Source: E	BLS, cber.co					

Inflation

CPI Inflation Index Value United States



U.S. CPI Inflation Index (NSA)

CPI Inflation Index

The chart shows the actual inflation data for the Consumer Price Index. The steep slope of the line in the red box shows the rapid increase since 2021. If a family had monthly expenses of \$10,000 in January 2021, their inflation-adjusted expenses would be \$11,762 in October 2023.

The change in the CPI data index can be tricky because of the base effect.

- The increase for October 2023 vs. October 2022 is 3.2%.
- The October annualized 2023 vs. October 2021 increase is 5.2%.
- The October annualized 2023 vs. 2020 increase is 5.0%.

The accumulated effect is significant.

Source: BEA, FRED, NSA, CPI calculator, cber.co.

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CPI Inflation U.S. CPI vs. Core Inflation

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9.0% -		Price Index (CPI) urban consumers f	••••						er, the YOY CF as 3.2%. The m		\sim	
3.0% -	-	Core CPI excludes prices are volatile.	food and energy		rate was 4.9%	•						
.0% -						· /·		•	and declined f		\wedge	\wedge
.0% -	in December. In October 2023, it was 4.0%. The mid-year core rate was 5.4%. The rate of inflation is declining. Consumers are feeling the accumulated effect											
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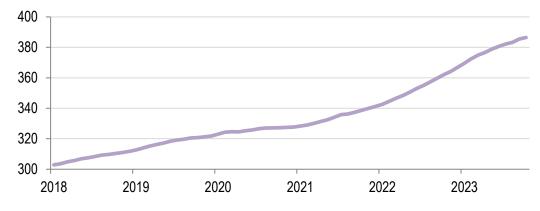
U.S. Inflation CPI vs. Producer Price Index (Final Demand)

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.0% .0% .0% .0%	The Consumer Price Index (CPI) is an aggregate of prices paid by urban consumers for a typical basket of goods. The Core CPI excludes food and energy because they may have very volatile prices. The Producer Price Index (PPI) measures the average change over time in the selling prices received by domestic producers for their output.	11.7% in Ma was 6.4%, a	rch 2022. In Dece nd the PPI rate (g	in June 2022, and ember 2022, the Y green) was 6.5%. inal Demand PPI	OY CPI rate (r The October 2	red) 023	
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.0%	The CPI and PPI increased after the 2007-2008 — Final Demand PPI Global Financial Crisis (GFC). The volatility of — CPI						
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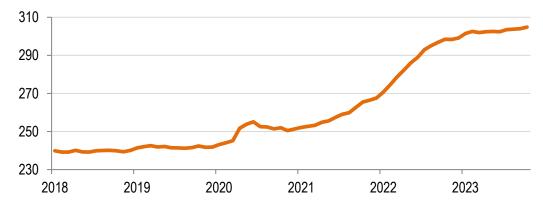
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United States CPI Index (Accumulated Effect of Inflation) Shelter, Food at Home, and Energy

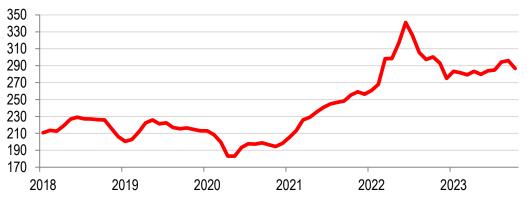
United States Shelter CPI Index



United States Food at Home CPI Index



Source: Bureau of Labor Statistics, NSA, cber.co.



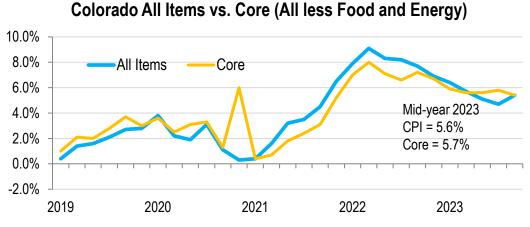
United States Energy CPI Index

United States CPI Index

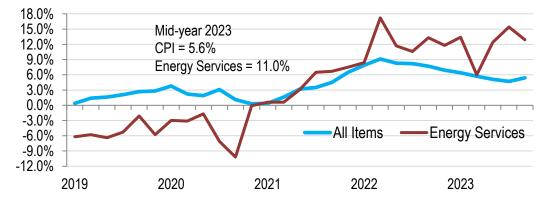
The three charts show the actual CPI index numbers from 2018 to October 2023 for Shelter, Food-at-Home, and Energy. Takeaways are:

- (Not shown) Between January 2021 and October 2023, the CPI index increased from 262 to 308 or 17.6%.
- (Not shown) Between January 2021 and October 2023, the core CPI index increased from 270 to 311 or 15.4%.
- (Upper left purple) Between January 2021 and October 2023, the shelter index increased from 328 to 386 or 17.7%.
- (Lower left orange) Between January 2021 and October 2023, the food-at-home index increased from 252 to 305 or 20.8%.
- (Above red) Between January 2021 and October 2023, the energy index increased from 210 to 286 or 39.7%.

Bi-Monthly Change in Colorado CPI All Items vs. Core, Food, Shelter, and Energy Services

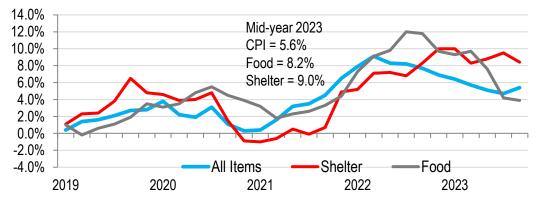


Colorado All Items vs. Energy Services



Source: Bureau of Labor Statistics, NSA, cber.co.

Colorado-based Business and Economic Research https:cber.co



Colorado All Items vs. Food and Shelter

Colorado CPI

Inflation for most Colorado items is published bi-monthly. The charts illustrate three bimonthly Colorado CPI comparisons. Mid-year inflation rates are also shown on the three charts. Takeaways are:

- (Upper left) Since March 2023, Colorado core inflation was at or above inflation for all items. Both are greater than the comparable U.S. CPI rates. The Colorado core rate has been less volatile than the overall rate in 2023.
- (Lower left) Since mid-2021, inflation for energy services (gas and electricity) has been greater than for all items. In September, energy services inflation decreased to 12.9%. Higher energy inflation will continue, given energy-related policies and utility rate increases. The climate change agenda will be expensive and cause inflation to remain higher than usual.
- (Above) YOY Inflation for shelter (red) was 8.4% in September, down from 9.5% in July. Inflation for food (grey) was 3.9% in September.

Saving, Borrowing, Consumption, and the Wealth Effect

U.S. Personal Savings Amount and Rate Percentage of Disposable Personal Income (DPI)

Rate Personal Savings Rate - - - Current Rate Recessions 35% 30% 25% 20% 15% 10% 5% 0% 1980 1983 1986 1989 1992 1995 1998 2001 2004 2007 2010 2013 2016 2019 2022

Personal Savings Rate

Personal Savings Rate

The September 2023 personal savings rate was 3.4%, and savings were \$687.7 billion, down from \$6.0 trillion in April 2020. That month, the savings rate was 32.0%. Since then, Americans have spent their savings or invested in other assets.

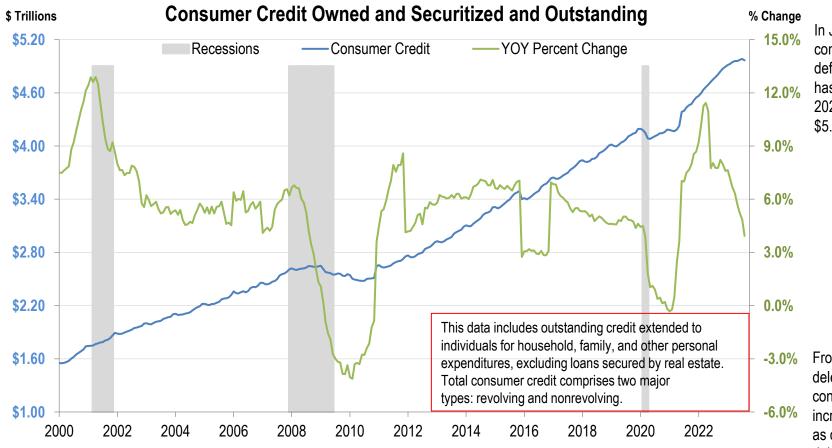
Year End Personal Savings (Billions) and Rate						
2017	\$948.5	6.3%				
2018	\$1,511.9	9.4%				
2019	\$1,381.3	8.3%				
2020	\$2,402.8	13.8%				
2021	\$1,372.3	7.5%				
2022	\$858.2	4.5%				
Source: B	Source: BEA, cber.co					

The personal savings rate jettisoned to a monthly high of 32.0% in the early stages of the pandemic. It fell to 12.0% in November 2020, then rose to 26.1% in March 2021. In June 2022, the personal savings rate bottomed out at 2.7%.

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Source: Federal Reserve, FRED, cber.co.

U.S. Consumer Credit Outstanding United States



Consumer Credit

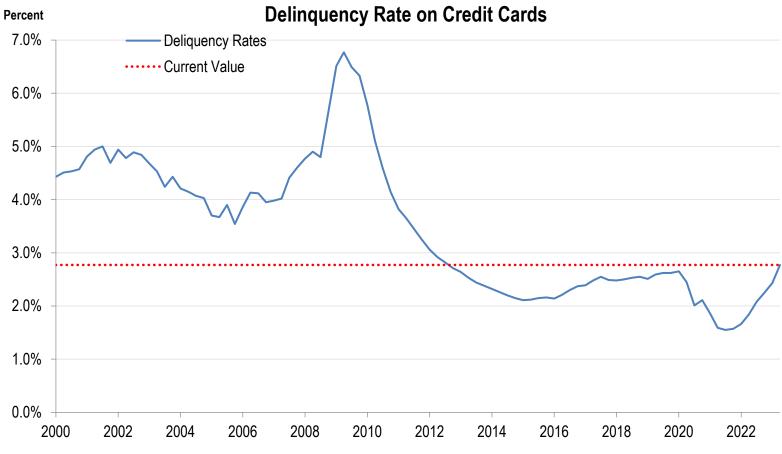
In January 2023, the YOY rate of outstanding consumer credit (including consumer loan defaults) increased by 7.7% (green). The YOY rate has since declined and was 3.5% in September 2023. The amount of securitized credit was almost \$5.0 trillion in September 2023.

	Outstanding Credit (Billions) and Percent Change					
2017	\$3,830.8	5.3%				
2018	\$4,007.0	4.5%				
2019	\$4,192.2	4.6%				
2020	\$4,184.9	-0.3%				
2021	\$4,431.9	5.9%				
2022	\$4,780.8	7.9%				
Source: FF	Source: FRED, G-19, cber.co					

3.0% From Q3 2008 to Q4 2010, consumers deleveraged and decreased the amount of consumer debt. The amount of credit authorized increased in 2018 and 2019 and declined in 2020 as consumers reduced expenditures and paid off debt during the pandemic (blue).

Source: FRED, Federal Reserve, G.19, SA.

Delinquency Rate on Credit Cards



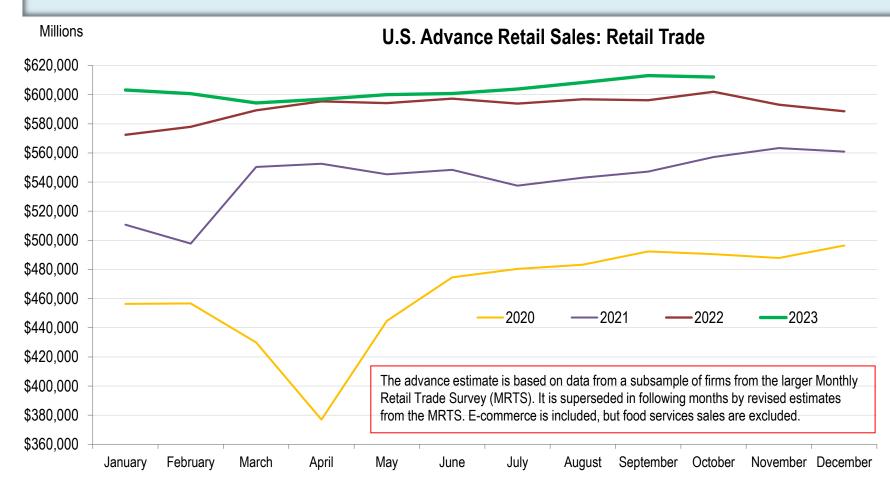
Delinquency Rate on Credit Cards

In Q2 2023, the credit card delinquency rate rose to 2.77%, the highest rate since Q3 2012. The rate remains well below the delinquency rate seen between 2000 and 2012.

Source: FRED, Federal Reserve, SA.

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U.S. Advance Retail Sales: Retail Trade Monthly



Advance Retail Sales

On a MOM basis, there was a decline in retail sales for October. Total YTD sales through October 2023 (green) were 2.0% greater than YTD sales for the first ten months in 2022 (burgundy).

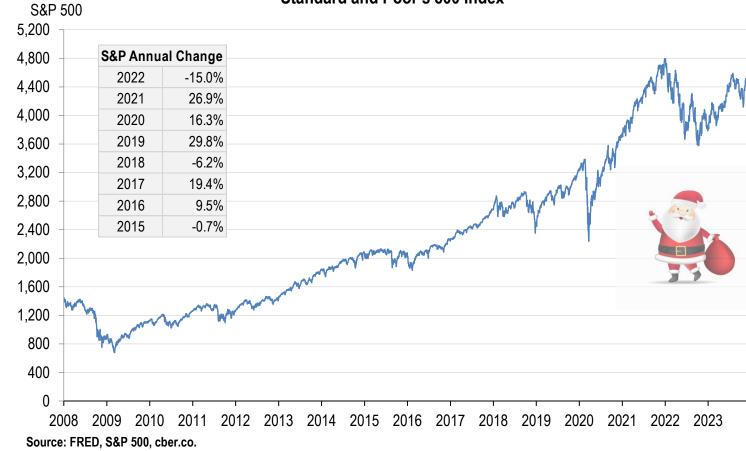
The National Retail Federation projected that 2023 sales would be 4.0% to 6.0% greater than the 2022 total – A little too optimistic. NRF expects holiday sales to be up 3.0% to 4.0% compared to last year, in line with pre-pandemic sales.

Annual	Retail Sales	(Trillions)
2017	\$5.04	4.4%
2018	\$5.25	4.1%
2019	\$5.39	2.7%
2020	\$5.57	3.3%
2021	\$6.51	16.9%
2022	\$7.10	8.9%
Source: Ce	ensus, cber.co	

Source: U.S. Census Bureau, cber.co. Note: Not adjusted for inflation. Colorado-based Business and Economic Research https:cber.co

Standard and Poor's 500 Index

Standard and Poor's 500 Index



Market Returns

2020 COVID-19 Policies February 19, 2020 3,386 March 23, 2020 2,237 a change of **-34%** to 1,148 August 18, 2020 3,386 bear market was 149 days 2020 change was **+16.3%**

Year-End 2021 Bull Market

For most of 2021 – steady growth December 31, 2021 4,766, a change of +26.9%.

2022 Bear Market

December 31, 2022 3,839, a change of -15.0%

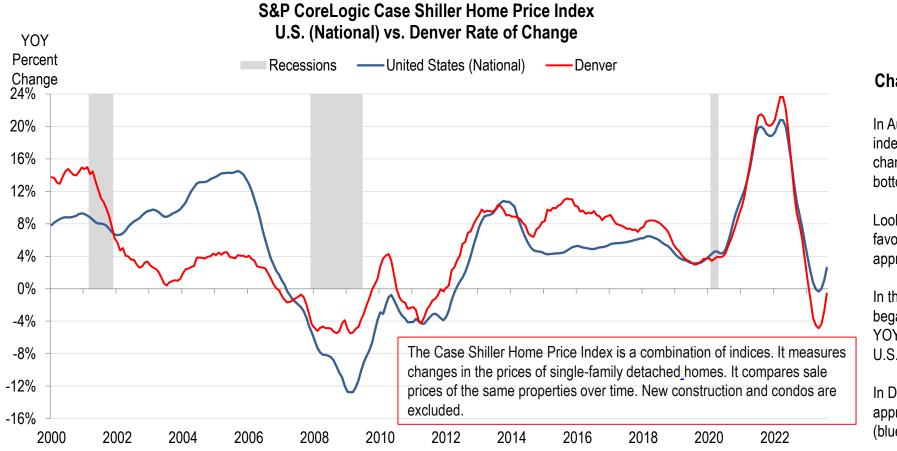
2023

November 17, 2020 4,514 YTD change +17.6%

Will there be a Santa Claus rally this December?

Daily

Case Shiller Home Price Index YOY National vs. Denver Rate of Change



Change in S&P CoreLogic Case Shiller Index

In August 2023, the change in the U.S. index was +2.6%, and the Denver index changed by -0.6%. Market prices have bottomed out.

Looking back, the 2019 housing market favored buyers, and the U.S. YOY appreciation rate was about 4.0%.

In the summer of 2020, the market began to favor sellers. In August 2021, YOY appreciation for Colorado and the U.S. peaked above 20.0%.

In December 2022, the YOY appreciation for the U.S. was 5.8% (blue) and 3.5% (red) for Denver.

Source: S&P Case Shiller, cber.co.

U.S. Industry Indicators

ISM Purchasing Managers Composite Indices Manufacturing vs. Services

ISM Manufacturing PMI vs. Services PMI Composite Indices Index Value 70 -ISM Manufacturing Index ISM Services Index 65 Neutral 60 55 50 45 Values > 50 points represent an 40 expansion and values < 50 points represent a contraction. A value of 50 is 35 neutral. 30 2008 2009 2010 2011 2012 2015 2016 2017 2018 2019 2021 2022 2023 2013 2014 2020 Source: Institute of Supply Management, cber.co.

Manufacturing and Services PMI

The ISM manufacturing index (blue) trended downward after peaking at 64.7 in March 2021. It dropped below 50 in November 2022 and was 46.7 in October 2023. The only two manufacturing industries that reported growth in October were food and beverage products and plastics and rubber products. The other 13 manufacturing industries reported contractions.

The ISM service index (orange) has trended downward since November 2021. It fell below 50 in December 2022 but has been above 50 during the first ten months of 2023. It dropped to 51.8 in October. The five industries reporting a decrease in October were real estate, rental and leasing, agriculture, mining, wholesale trade, and professional, scientific, and technical services.

NFIB Small Business Optimism Index United States

1984=100 ------NFIB - - - Current Value Recessions Index Average 116 112 108 104 100 96 92 88 84 80 1988 1990 1992 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 2022 1986

NFIB Small Business Optimism Index

NFIB Small Business Index

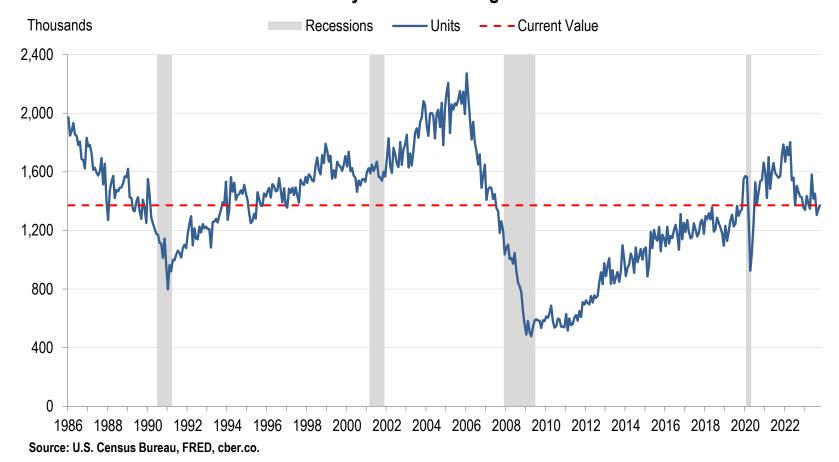
In October 2023, the NFIB index dropped slightly to 90.7 (red dotted line), the 22nd consecutive month below the 49-year average of 98.0 (purple dotted line).

According to NFIB, "Labor costs, energy costs, and most everything else small business owners pay for to operate their business are not falling, so firms continue to raise selling prices to keep up."

The NFIB monthly SBET report is available at <u>https://www.nfib.com/</u>.

Source: NFIB, cber.co.

New Privately-Owned Housing Units Started United States



New Privately Owned Housing Units Started

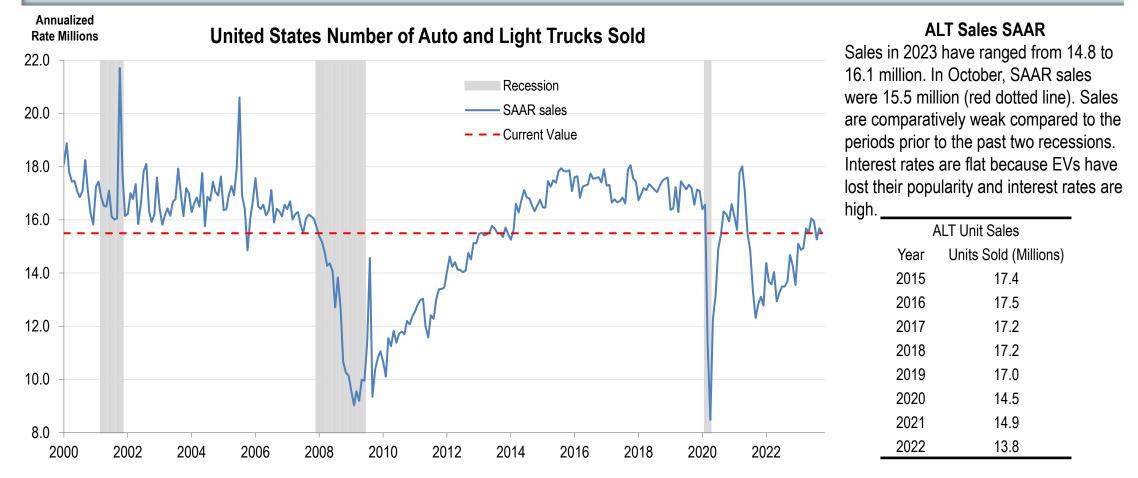
New Privately Owned Housing Units Started

The number of housing starts has been volatile and below 1.6 million units since May 2022.

The slight increase in October was a result of multifamily construction. The number of starts is 4.2% below a year ago.

Over-the-month housing starts increased in the West and Midwest but decreased in the Northeast and South.

U.S. Auto and Light Truck (ALT) Sales Monthly (Seasonally Adjusted Annualized Rate in Millions)



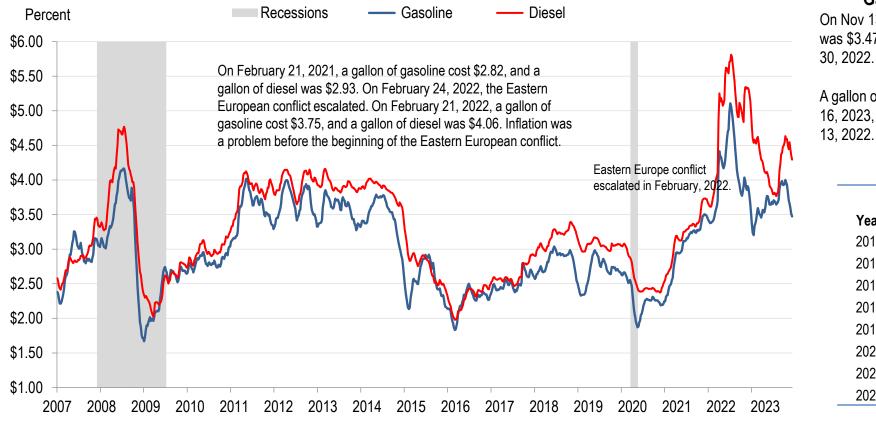
Source: FRED, BEA, Seasonally Adjusted Annualized Rates (SAAR), cber.co.

Crude Oil Prices West Texas Intermediate

Dollars per Crude Oil Prices: West Texas Intermediate, Cushing, Oklahoma Barrel \$200 Average Annual On November 13, 2023, the price per barrel was \$78.86 (red dotted line). Oil prices have \$180 Price per Barrel remained high because of volatility in global supply and demand, U.S. energy policies and 2019 \$56.99 \$160 sanctions, and concerns that the war in Israel will spread to the Middle East. Time will tell \$39.17 2020 whether these factors will impact gasoline prices, although it is reasonable to expect continued 2021 \$68.21 \$140 volatility. \$97.96 2022 \$88.57 2023 \$120 \$100 \$80 \$60 \$40 \$20 \$0 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Source: EIA, cber.co, https://www.eia.gov/outlooks/steo/#:~:text=U.S.%20crude%20oil%20production%20in,b%2Fd%20set%20in%202019.

Weekly Gasoline (Regular All Formulations) and Diesel Prices United States



U.S. Gasoline Regular (All Grades, All Formulations) and Diesel Prices

Gasoline and Diesel Prices

On Nov 13, 2023, a gallon of gasoline (blue) was \$3.47, down from a peak of \$5.11 on June 30, 2022.

A gallon of diesel (red) was \$4.29 on October 16, 2023, compared to its peak of \$5.78 on June 13, 2022.

Average Annual						
Year	Diesel	Gasoline				
2015	\$2.71	\$2.63				
2016	\$2.30	\$2.30				
2017	\$2.65	\$2.26				
2018	\$3.18	\$2.90				
2019	\$3.06	\$2.83				
2020	\$2.55	\$2.37				
2021	\$3.29	\$3.22				
2022	\$4.99	\$4.27				

Source: FRED, EIA , https://www.eia.gov/dnav/pet/pet_pri_gnd_a_epd2d_pte_dpgal_w.htm, https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=EMM_EPM0_PTE_NUS_DPG&f=W, cber.co.

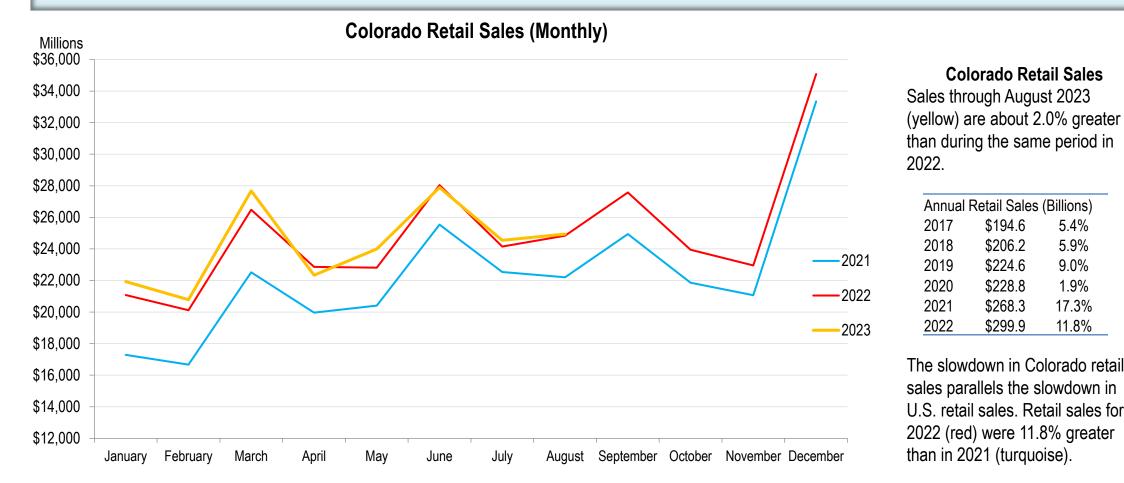
Colorado Industry Indicators

Colorado Residential Building Permits

Units	Colorado Building Permits (Monthly) Annual B						
		Year	Single Family	Multi-Family			
6,500 🚽		2000	38,588	16,008			
6,000	The YOY total number of single-family permits changed by -28.1% for the first nine months of	2001	36,437	18,570			
	2023 compared to the same period in 2022. Multifamily permits changed by -26.1%	2002	35,042	12,878			
5,500 —	compared to the same period in 2022. Permits are a leading indicator of housing starts. In an	2003	33,894	5,732			
5,000	October 23 report in the Denver Post, Aldo Svaldi stated that Colorado has a housing deficit	2004	40,753	5,746			
	· · · · · · · · · · · · · · · · · · ·	2005	40,018	5,732			
,500 +	of over 100,000 units. There is demand for housing, but permits are not being issued.	2006	30,365	7,978			
,000		2007	20,516	8,938			
	Multifamily	2008	11,147	7,851			
,500 -		2009 2010	7,261	2,094			
,000 -	Single Family	2010	8,790 8,729	2,801 4,779			
		2011	12,618	10,684			
,500 -		2012	15,773	11,745			
,000 -		2013	17,100	11,591			
		2011	20,025	11,846			
,500 -		2016	21,577	17,397			
,000 -		2017	24,338	16,335			
		2018	26,134	16,493			
500 -		2019	24,756	13,877			
0 —		2020	26,636	13,833			
2000	0 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023	2021	30,246	26,278			
		2022	23,728	25,111			

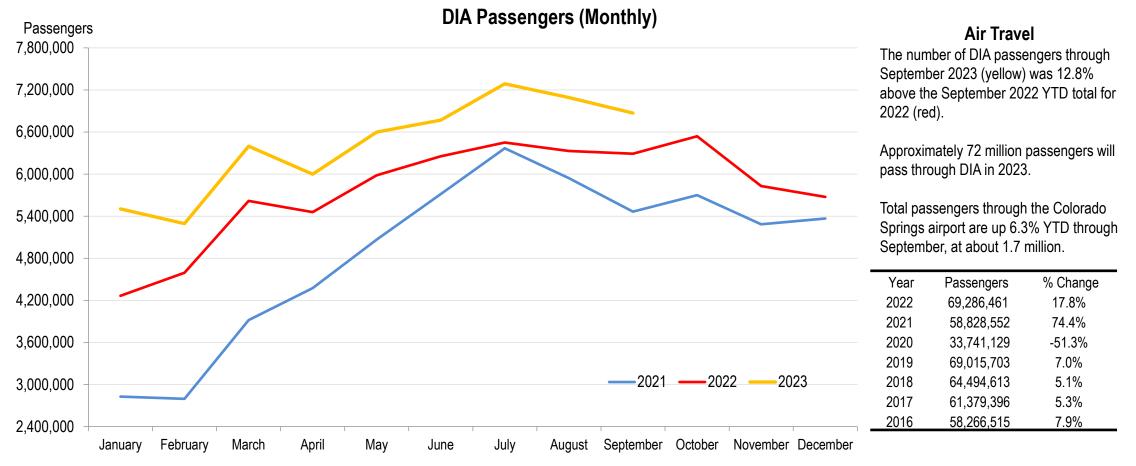
Source: TAMU Real Estate Center, U.S. Census Bureau, cber.co.

Colorado Retail Sales Monthly



Source: Colorado Department of Revenue, https://cdor.colorado.gov/retail-sales-reports, cber.co. Note: Not adjusted for inflation.

Denver International Airport Passengers Monthly



Source: flydenver.com, COS airport, cber.co.

Colorado Field Production of Crude Oil 2011 to 2023 (Thousand Barrels)

Thousand Barrels	Colorado Cruc	e Oil Production
18,000 17,000 16,000 15,000 14,000 13,000 12,000 11,000	Crude oil production for Colorado reached record levels in 2015, despite the drop in the price of a barrel of oil. In 2016, the rig count was down. Production remained solid, albeit at a slightly lower level than in 2015.	<u>16,031</u> <u>14,115</u> <u>14,303</u> <u>13,346</u> <u>13,545</u> <u>10,830</u>
10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000	5,518 201 reg 3,293 4,147 rela pro	In 2022, average production was about 13.3 million barrels per month. Production through August 2023 is up slightly at 13.5 million barrels per month.
2,000 + Jan-11	Jan-12 Jan-13 Jan-14 Jan-15 Jan-16	Jan-17 Jan-18 Jan-19 Jan-20 Jan-21 Jan-22 Jan-23

Source: EIA, cber.co.

Colorado Economic Outlook

Colorado Economic Forecast 2023

In 2023, the Colorado real GDP growth rate will be 2.6% compared to 2.2% for the U.S.	Colorado Economic Forecast					More than 72 mi
	Real GDP Value (billions) (chained 2012) % Change Real GDP	2020 \$353.35 -1.4%	2021 \$373.76 5.8%	2022 \$385.8 3.2%	2023 \$395.8 2.6%	will pass through There will be soli through the Colo
Colorado's job growth in 2023 will be more volatile and much weaker	CES Employment (thousands) Annual Change (thousands)	2,652.7 -137.4	2,750.9 98.2	2,864.9 114.0	2,924.9 60.0	airport.
than in 2022, and the unemployment rate will remain lower than the U.S. rate.	% Change Unemployment Rate	-4.9% 6.8%	3.7% 5.4%	4.1% 3.0%	2.1% 3.2%	The total numbe 2023 building pe
	Retail Sales (billions) % Change	\$228.8 1.9%	\$268.3 17.3%	\$299.9 11.8%	\$305.9 2.0%	significantly less construction (hor
Retail sales for 2023 will increase more slowly than during the past two years. Coloradans will face	Consumer Price Index (CPI)	272.2 2.0%	281.8 3.5%	304.3 8.0%	317.4 4.3%	estate market wi 2023.
sticky inflation, high interest rates, high energy and housing costs,	DIA Passengers (millions)	33.0	59.0	69.0	72.0	Crude oil produc 2021 because of
labor shortages, and tight credit conditions. Inflation has declined, but it is more of a problem in	Single Family Permits Multi-family Permits	26,636 13,833	30,246 26,278	24,000 25,000	19,000 21,000	and reduced der COVID-related p increased in 202
Colorado than in other states.	Oil Production (thousands) barrels	171,635	153,423	160,149	162,000	2023.

More than 72 million passengers will pass through DIA in 2023. There will be solid travel activity through the Colorado Springs airport.

The total number of SF and MF 2023 building permits will be significantly less than in 2022. The construction (housing) and real estate market will remain volatile in 2023.

Crude oil production declined in 2021 because of state regulations and reduced demand related to COVID-related policies. Production increased in 2022 and will be flat in 2023. cber.co Economic Outlook and Trends Through October 2023 Colorado and the United States

This analysis is for informational purposes only. Any opinions or interpretations of data are those of the presenter. As such, they do not represent the viewpoints of any group or particular organization.
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Gary Horvath has produced annual employment forecasts of the state economy for over 30 years. They have been supplemented by monthly economic updates and indices that track economic performance over the short term. In addition, he has directed three statewide analyses that included reviews of all 64 county economies.

Horvath was the principal investigator for a state and federally funded project to prepare a nanotechnology roadmap for Colorado. As well, he was a co-founder of the Colorado Photonics Industry Association, a trade group for Colorado's Photonics cluster. Horvath has been an active board member of the group since its inception.

Horvath has also served on the Board of Directors for the Economic Development Council of Colorado, Northwest Denver Business Partnership, Adams County Regional Economic Partnership, and Broomfield Economic Development Corporation. Horvath has also been the chair of the photonics/electronics committee in the Governor's Office of Economic Development and International Trade early stage and proof of concept Advanced Industries grant program, and he served on the 2021 Colorado Legislative Redistricting Commission.