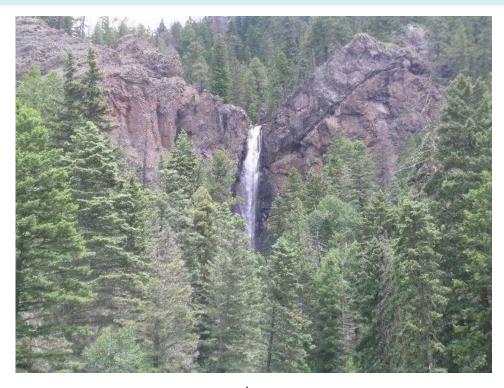
Review of Colorado and United States Economy



cber.co Colorado-based Business and Economic Research Prepared April 20, 2020

Overview

There is limited data that measures the impact of the COVID-19 health crisis on the economy because most of the data lags by at least a month. This short analysis reviews the most recent release of Colorado employment data and other information that foretells employment and economic changes in the weeks ahead.

Labor Data

- Real GDP Projections United States
- Initial Unemployment Claims United States and Colorado
- Number of Unemployed and Unemployment Rate United States and Colorado
- Employment United States and Colorado

Other U.S. Data

- Consumer Sentiment Index
- NFIB Small Business Optimism Index
- U.S. Light Truck and Auto Sales
- Advanced Retail Sales
- S&P 500 Index
- Crude Oil Prices

Closing Comments

Real GDP Forecast

United States

Various economists have revised their forecasts multiple times in the past six weeks. On April 9, the Conference Board provided a scenario of four forecasts for real GDP growth in the United States. Pick your poison!

Forecasts for Quarterly U.S. Real GDP Growth

The Conference Board April 9, 2020

May Reboot – There will be a peak in new U.S. COVID-19 cases in mid-April and the economy will gradually begin to re-open in May with the sectors that have been impacted the most.

U-Shaped – Social distancing will flatten the curve, but it will extend economic weakness to Q3. The recovery will occur at a constant rate. Real GDP growth will be -5.8% in Q1 followed by -33.3% in Q2. Growth will be minimal, but positive in Q3 at 0.1% and 2.9% in Q4.

Conference Board 2020 US Real GDP Growth - April 9, 2020				
Quarter 2020	May Reboot	U-Shaped	Summer V-Shaped	W-Shaped
Personal Consumption		-8.3%		
Residential Investment		-2.9%		
Capital Spending		6.8%		
Net Exports		-1.0%		
Annual Real GDP	-3.6%	-6.5%	-6.6%	-7.4%
Source: The Conference Board and cber.co.				

Summer V-Shaped – The peak will be in early May and there will be a deep contraction, led by consumption. There will be a sharp recovery in Q3 and Q4.

W-Shaped – This will start out like the V-shaped recovery, There will be a resurgence of the virus in the fall. Social distancing policies will be put in place again and the economy will contract in Q4.

Source: The Conference Board, cber.co.

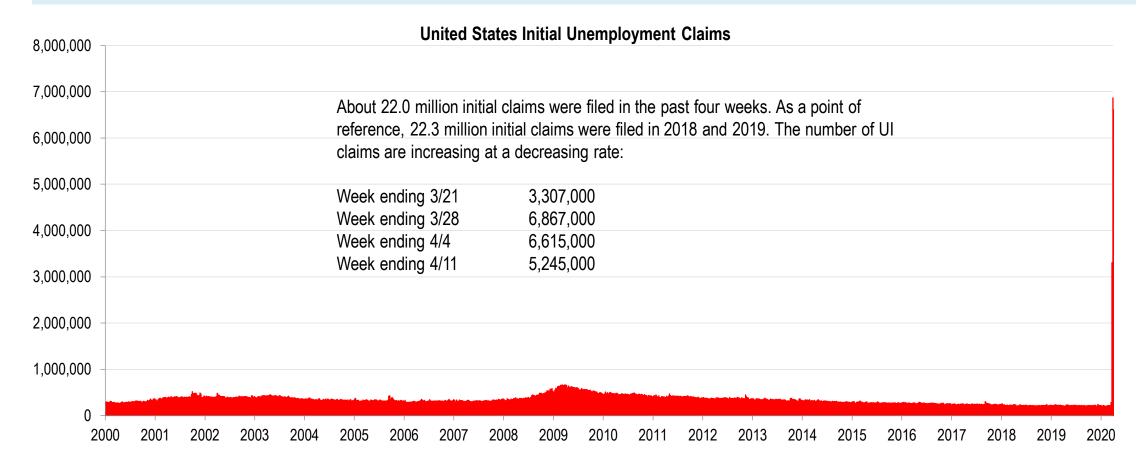
Unemployment Initial Claims

United States and Colorado

The Unemployment Initial Claims are the primary source of timely employment data showing how fast and severe U.S. and Colorado employment has declined. This data is available on a weekly basis and has a lag of one to two weeks.

Initial Unemployment Claims

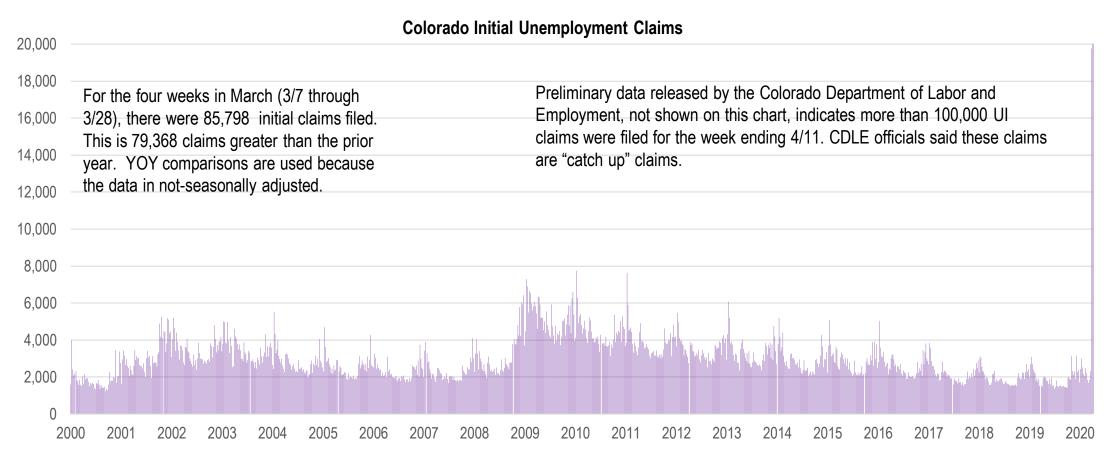
United States Seasonally Adjusted



Source: FRED, Department of Labor, SA, cber.co.

Initial Unemployment Claims

Colorado Not Seasonally Adjusted



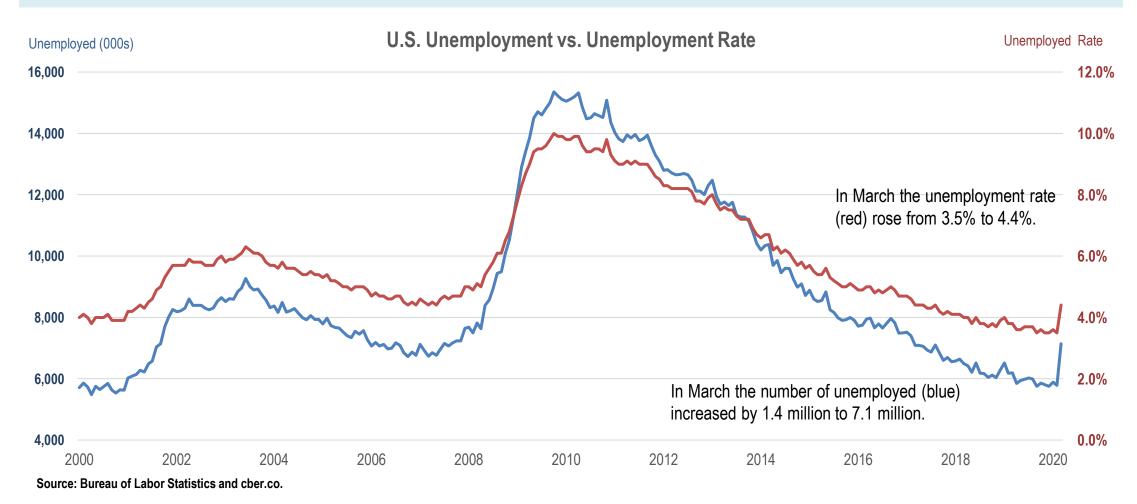
Source: FRED, Department of Labor, NSA, cber.co.

Number of Unemployed and Unemployment Rate

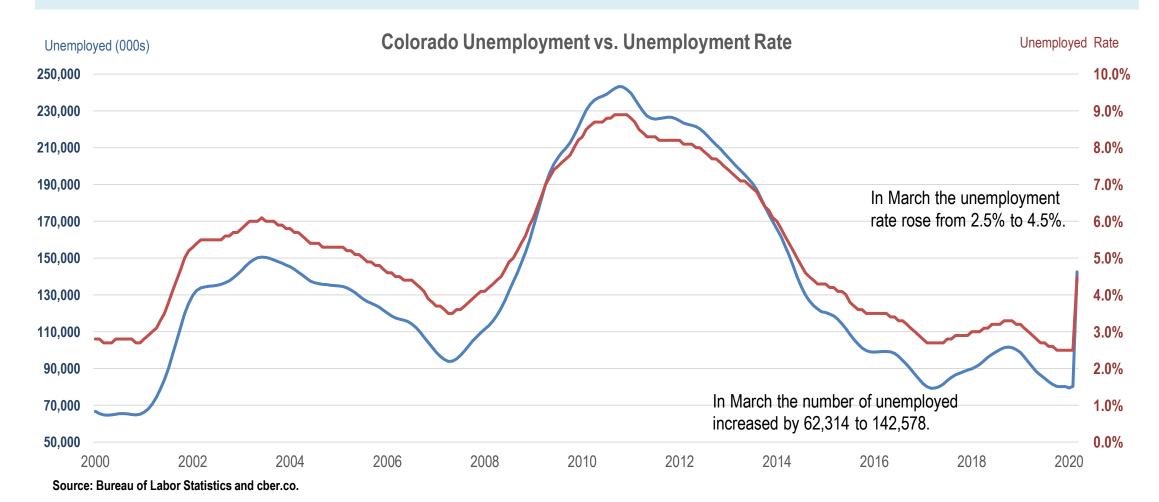
United States and Colorado

In March the unemployment rate for the United States jumped from 3.5% to 4.4% and the number of unemployed workers increased by 1.4 million to 7.1 million. In Colorado the unemployment rate increased from 2.5% to 4.5% and the number of unemployed workers increased by 62,314 to 142,578.

U.S. Unemployment and Unemployment Rate



Colorado Unemployment and Unemployment Rate



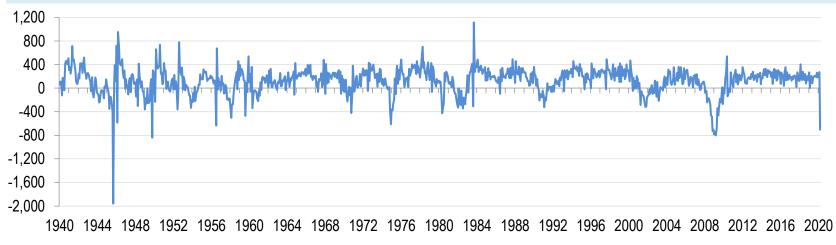
Employment

United States and Colorado

BLS produces labor statistics that show changes in wage and salary employment. The U.S. reports are released near the first of the month for the prior month. For example, the U.S. data for March was released the first week in April. The March data will be revised with the release of the April data during the first week of May. A similar process is used for the state data; however, it is released during the second half of the month. The data for the United States reflects a significant decline in the number of workers, whereas the data for Colorado does not reflect a comparable decline. Based on the Colorado unemployment rate and U.I. claims data, the March wage and salary employment will be revised downward in future revisions. This analysis looks at both SA and NSA for the U.S. and Colorado.

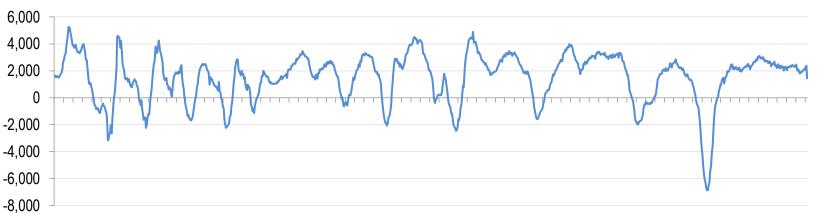
United States Employment

Seasonally Adjusted and Non-Seasonally Adjusted Data



Seasonally Adjusted (M-O-M)

The SA data allows for month-overmonth comparisons. The change in SA employment from February to March was -701,000. This is a significant change, but not as great as during the 2007 recession and during 1946 and 1949.



1940 1944 1948 1952 1956 1960 1964 1968 1972 1976 1980 1984 1988 1992 1996 2000 2004 2008 2012 2016 2020 Source: Bureau of Labor Statistics and cber.co.

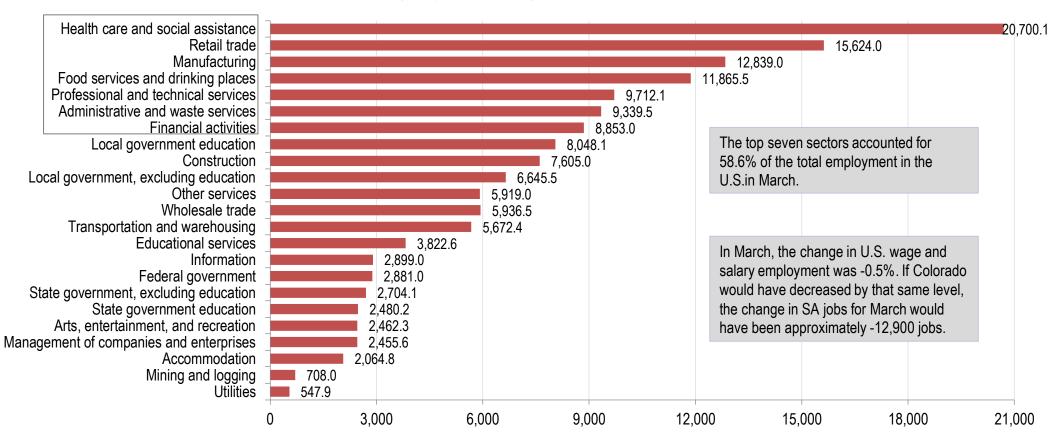
Non-Seasonally Adjusted (Y-O-Y)

It is necessary to use year-overyear comparisons for NSA data. The February YOY change in employment was 2.3 million and the YOY change was 1.4 million for March. This difference between March and February is -926,000.

United States Employment by Sector

March 2020 Seasonally Adjusted (Sorted by Sector Size)

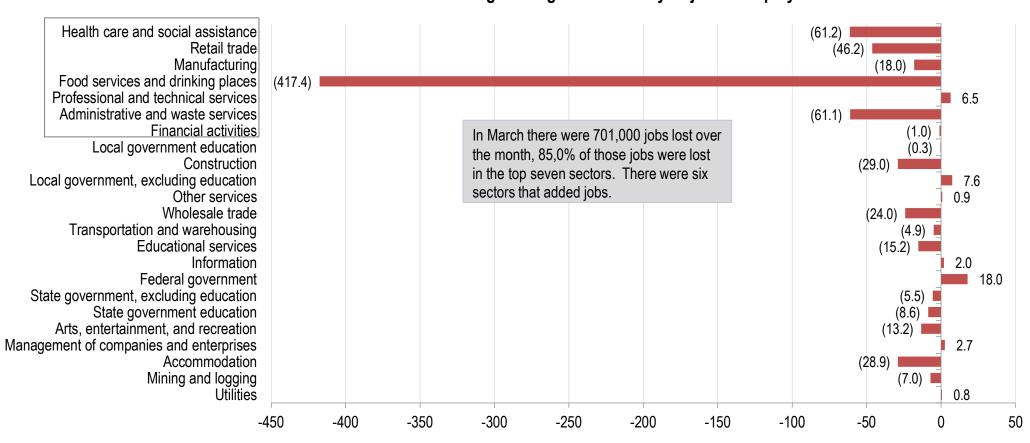
Seasonally Adjusted Employment (Thousands)



Change in Employment by Sector

(Sorted by March Sector Employment Size)

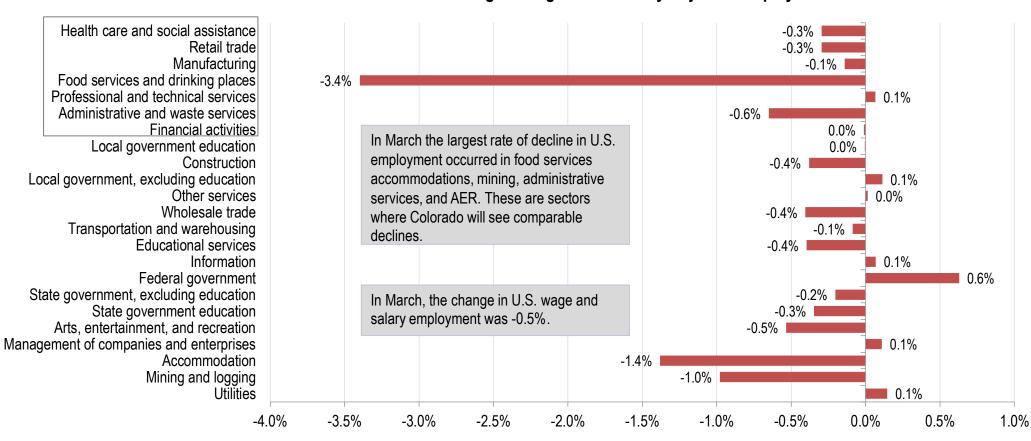
Over the Month Percentage Change in Seasonally Adjusted Employment



Percentage Change in Employment by Sector

(Sorted by March Sector Employment Size)

Over the Month Percentage Change in Seasonally Adjusted Employment



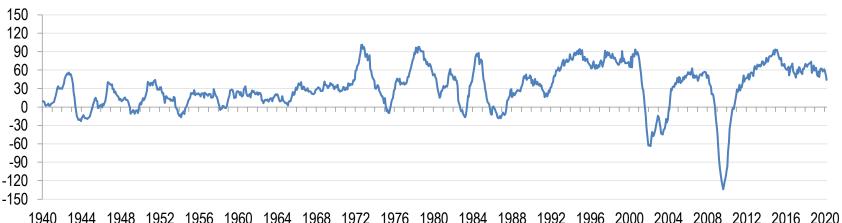
Colorado Employment

Seasonally Adjusted and Not Seasonally Adjusted



Seasonally Adjusted (M-O-M)

The SA data allows for month-overmonth comparisons. The change in SA employment was –3,900 for March.



Non-Seasonally Adjusted (Y-O-Y)

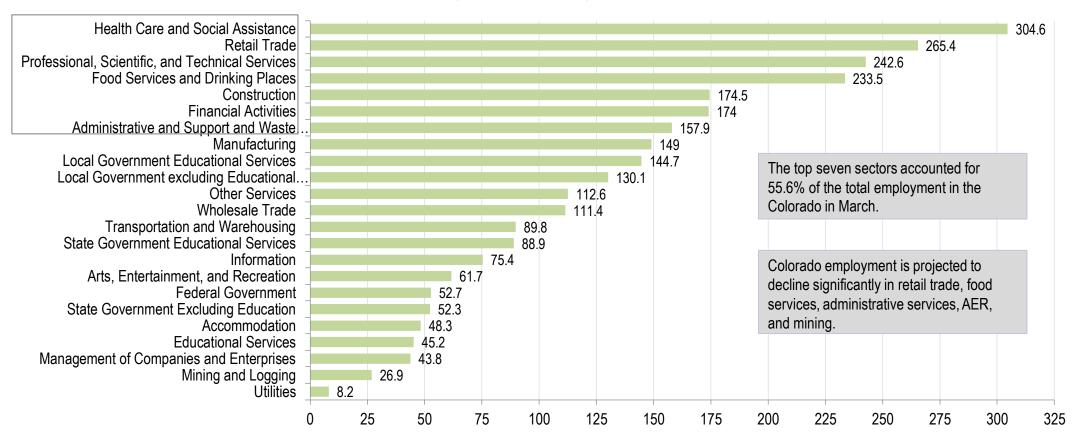
It is necessary to use year-overyear comparisons for NSA data. The February YOY change in employment was 51,300 and the YOY change was 43,900 for March. This decline in the change in employment between March and February was 7,400.

Source: Bureau of Labor Statistics and cber.co. Note: Seasonally adjusted data is only available for Colorado beginning in 1990.

Colorado Employment by Sector

March 2020 Not Seasonally Adjusted (Sorted by Sector Size)

Not Seasonally Adjusted Employment (Thousands)



Fake News? Colorado Employment Data

The Colorado Employment Data is NOT Fake News

The Current Employment Statistics (CES) series is like most economists, it tends to underestimate the magnitude of sharp changes in the data. The CES, or wage and salary, series is based on a monthly survey of companies. The quality of the data produced by the survey is better when the survey sample is representative, there are no major disruptions, and when the seasonal adjustment factor is accurate. The initial data is adjusted in monthly and benchmark revisions.

Over the years the BLS has been expected to provide more information, in a more-timely fashion, at less expense to taxpayers and increase accuracy. At times, the accuracy has been compromised to meet the other expectations. For that reason, it is always advisable to evaluate the economy by analyzing different data sets as well as understanding what is happening on the streets.

Colorado Sector Data

This analysis does not include a review of the monthly sector data for March. Based on declines in other labor data, a case can be made the decline in Colorado employment should be much greater than 3,900. The story of the economy is obvious without precise data:

- Gas prices are low, but we have nowhere to go. Low prices at the pump are good for consumers, but bad for the industry.
- Tourism, skiing, tennis, the pool, and the gym are closed.
- Only a handful of restaurants are open for take out.
- Most retail is closed, but the grocery stores are busy.
- Government services and medical access is limited.
- And the list goes on.

It will be great when we reach the point when we change our focus from the decline in employment to the recovery and the number of workers added.

Other U.S. Data

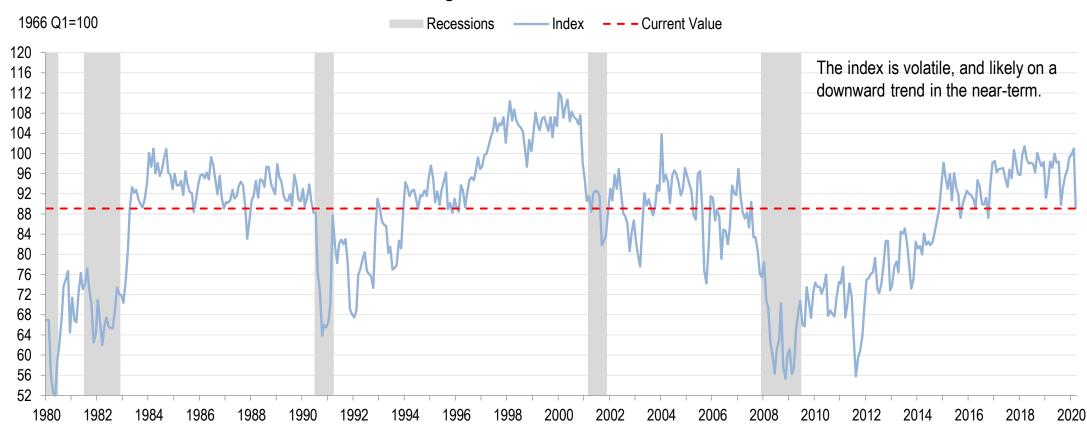
Consumer Sentiment Index, NFIB Small Business Optimism Index, U.S. Light Truck and Auto Sales, Advanced Retail Sales, S&P 500 Index, and WTI Crude Oil Prices

The leading indicators for most segments of the economy showed declines in March that are likely to become more significant in April and they will touch most industries. Auto and retail sales have fallen off the cliff, although a few segments of retail are reportedly doing well. The S&P Index fell 34%, but it has rebounded. The lower prices for oil have caused gasoline prices to decline; however, the shelter-at-home policies have prevented the public from taking advantage of them. The glut of oil will cause financial problems in the oil and gas industry.

Consumer Sentiment Index

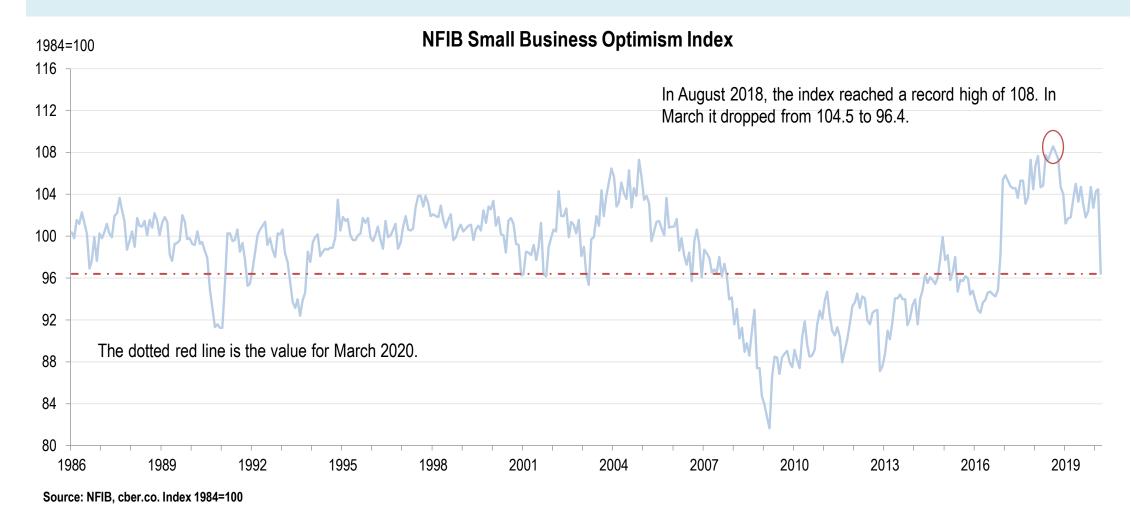
University of Michigan

Michigan Consumer Sentiment Index



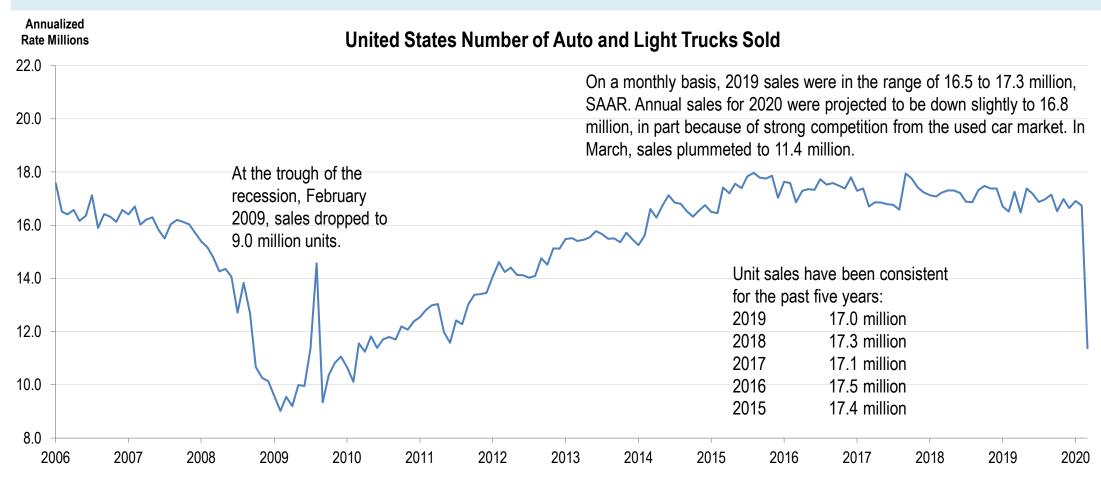
Source: University of Michigan, cber.co.

NFIB Small Business Optimism Index



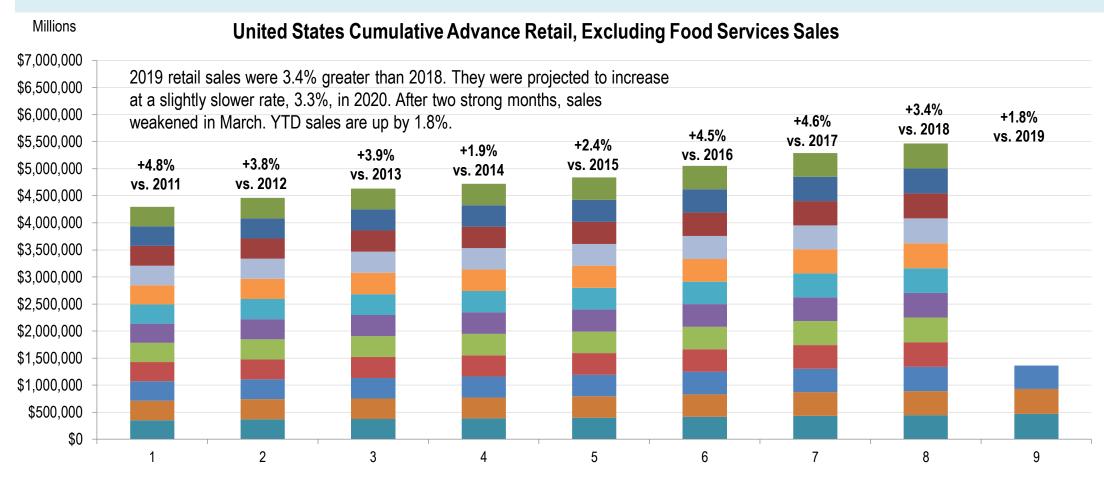
U.S. Auto and Light Truck (ALT) Sales

Monthly (Annualized Rate Millions)



Source: FRED, Federal Reserve Bank of St. Louis, Seasonally Adjusted Annualized Rates (SAAR), cber.co.

Cumulative Advance Retail, Excluding Food Services Sales Monthly



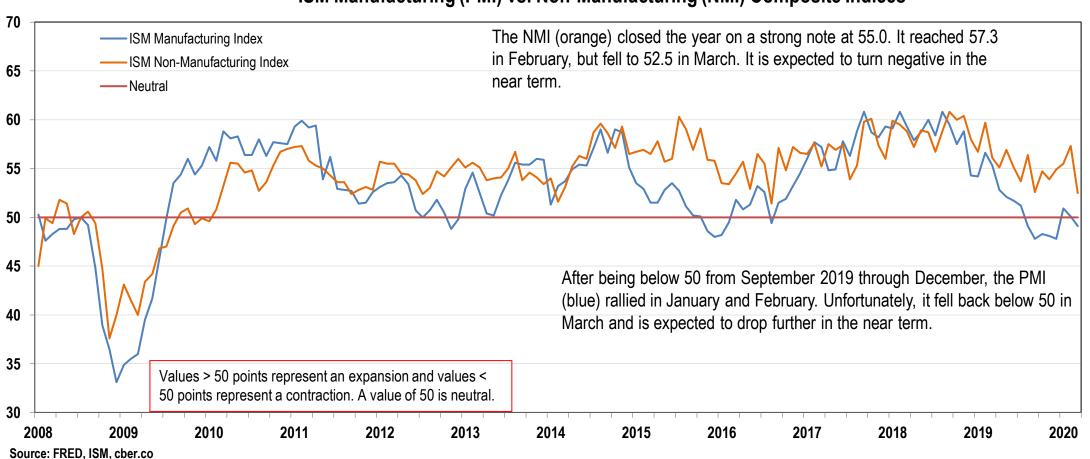
Source: U.S. Census Bureau, FRED, cber.co.

Note: Data is in descending order with December at the top and January at the bottom, not adjusted for inflation.

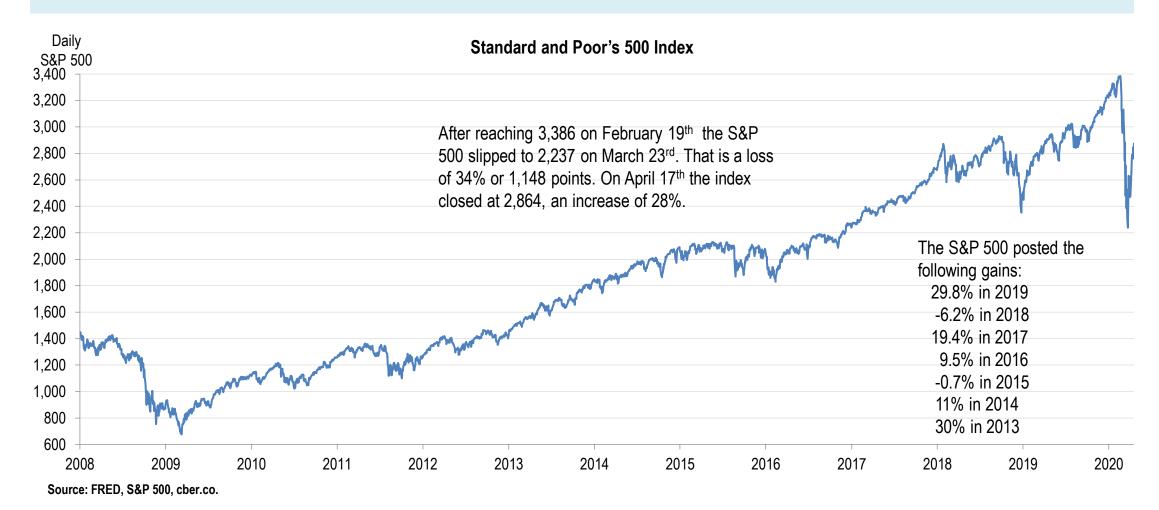
ISM PMI Composite Indices

Manufacturing vs. Non-manufacturing

ISM Manufacturing (PMI) vs. Non-Manufacturing (NMI) Composite Indices

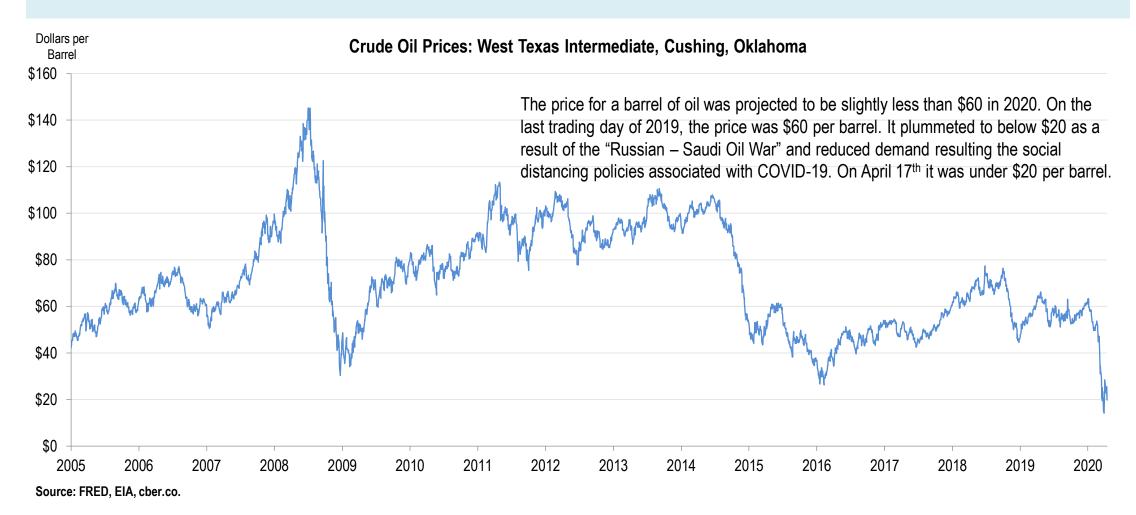


Standard and Poor's 500 Index



Crude Oil Prices

West Texas Intermediate



Summary

Closing Comments

In the near-term the U.S. and Colorado economies will deteriorate significantly. This is not shown by the current release of wage and salary employment data for March. There are some sectors that have added workers; however, most sectors have seen significant job losses. There is no place to hide.

Labor Data

- In March 2020, there were 85,798 initial unemployment claims. Typically, there are about 8,000 during a four-week period.
- In March 2020, the unemployment rate jumped from 2.5% to 4.5%. There was an increase of 62,314 unemployed workers.
- In March, the U.S. lost 701,000 workers, a decrease of 0.46%. If Colorado had lost jobs at that same rate, the state would have lost 12,900 employees.
- The NSA change in Colorado employment for February was 51,300 and it was 43,900 for March. The change in employment for the two months was -7,400.
- Colorado lost 3,900 wage and salary employees in March-based SA data.
 This is a decrease of 0.14%.
- Each of the data sets mentioned above measures the labor market differently. They all suggest the Colorado employment will be revised downward in future revisions.

Comments about the U.S. Economy

- Currently, this is not a financial or economic crisis. It is a health crisis. The Federal Reserve and Congress have taken steps to prevent the health crisis from becoming a financial crisis.
- When we understand the epidemiology of the virus, we will understand what we need to do to support the economy.
- On April 9th, NFIB reported that 70% of small businesses applied for PPP loans and 50% had applied for EIDL assistance.
- First, we have to get people back to work. Then we have to get people back to play. Play is an important part of our economy and our culture.
- Q2 will be ugly.
- Models provide information that allow leaders to ask additional questions.
 To be effective, their limitations should be understood, and they should be used in conjunction with other information to make decisions.

cber.co Review of Colorado Employment Data March 2020

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Gary Horvath has produced annual employment forecasts of the state economy for over 25 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 Economic Development, and Broomfield Economic Development Corporation. Horvath has also been the lead for the photonics/electronics cluster in OEDIT's early stage and proof of concept grant program.