

The Big Four: September Retail Sales Sees All Time High

October 16, 2020

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of Advisor Perspectives

Note: With the release of September Retail Sales and the Consumer Price Index, we've updated this commentary to include the latest Real Retail Sales.

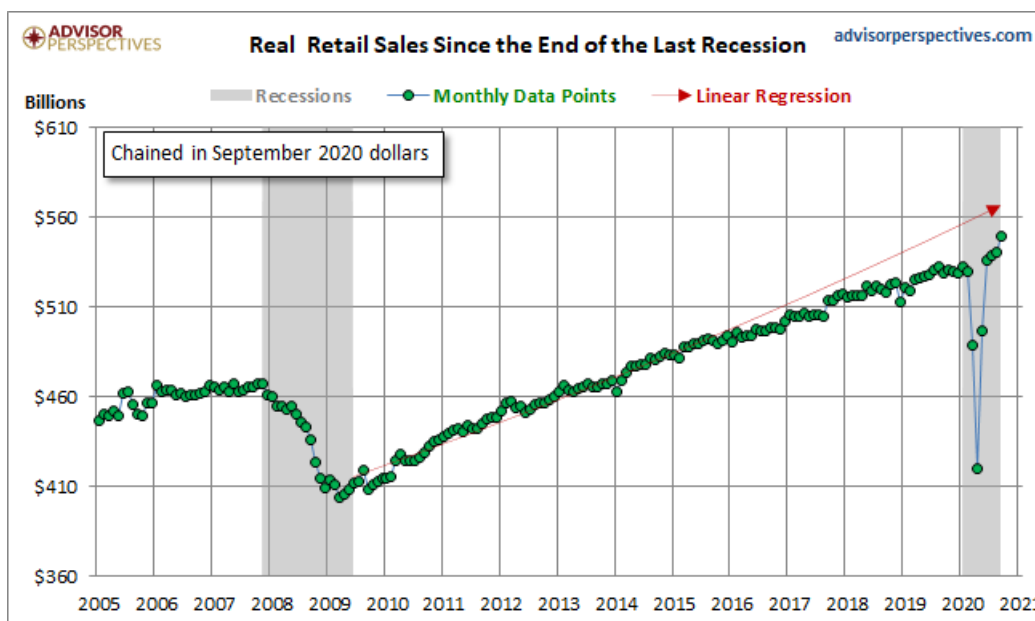
Official recession calls are the responsibility of the NBER Business Cycle Dating Committee, which is understandably vague about the specific indicators on which they base their decisions. This committee statement is about as close as they get to identifying their method.

There is, however, a general belief that there are four big indicators that the committee weighs heavily in their cycle identification process. They are:

- **Nonfarm Employment**
- **Industrial Production**
- **Real Retail Sales**
- **Real Personal Income (excluding Transfer Receipts)**

The Latest Indicator Data

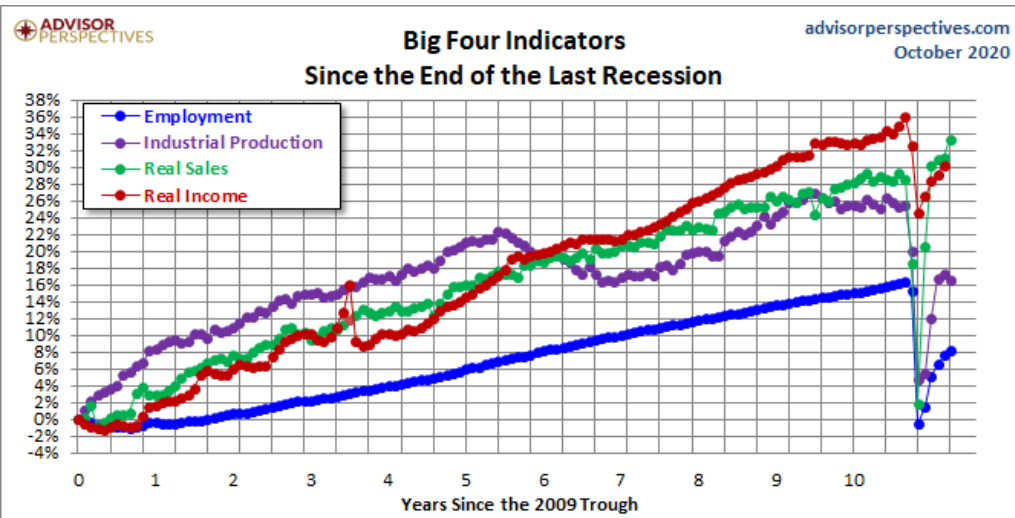
Month-over-month nominal sales in September increased by 1.91%. Real Retail Sales, calculated with the seasonally adjusted Consumer Price Index, increased by 1.70%. The chart below gives us a close look at the monthly data points in this series since the end of the last recession in mid-2009. The linear regression helps us identify variance from the trend.



We see that this indicator has been rising below trend since the end of 2015.

The Generic Big Four

The chart and table below illustrate the performance of the generic Big Four with an overlay of a simple average of the four since the end of the Great Recession. The data points show the cumulative percent change from a zero starting point for June 2009. We will update this chart and table to reflect the current recession when a real trough is confirmed (there may be more in store).



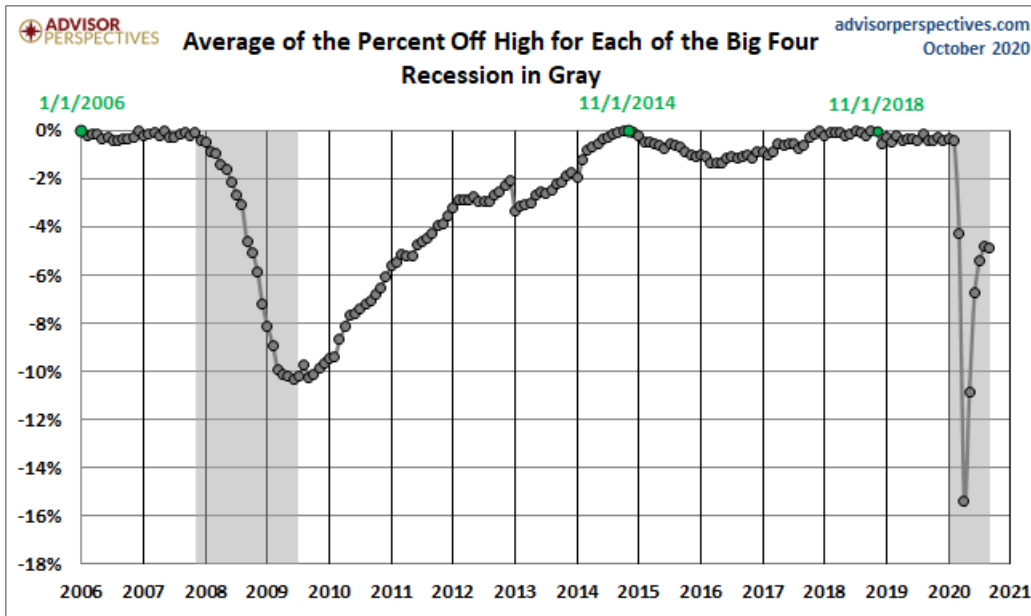
Big Four Indicators Month-over-Month

Indicator	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Employment	0.12%	0.17%	0.12%	0.14%	0.16%	-0.90%	-13.76%	2.09%	3.59%	1.28%	1.07%	0.47%
Industrial Production	-0.41%	0.93%	-0.35%	-0.43%	0.10%	-4.37%	-12.68%	0.73%	6.17%	4.19%	0.44%	-0.63%
Real Sales	0.43%	-0.20%	-0.15%	0.64%	-0.53%	-7.83%	-14.03%	18.34%	7.94%	0.54%	0.20%	1.70%
Real Income	0.07%	0.52%	-0.18%	0.64%	0.77%	-2.46%	-6.01%	1.51%	1.41%	0.64%	0.88%	

Employment is released the first week of the month, Income the last week, Industrial Production and Sales mid-month.

Assessment and Outlook

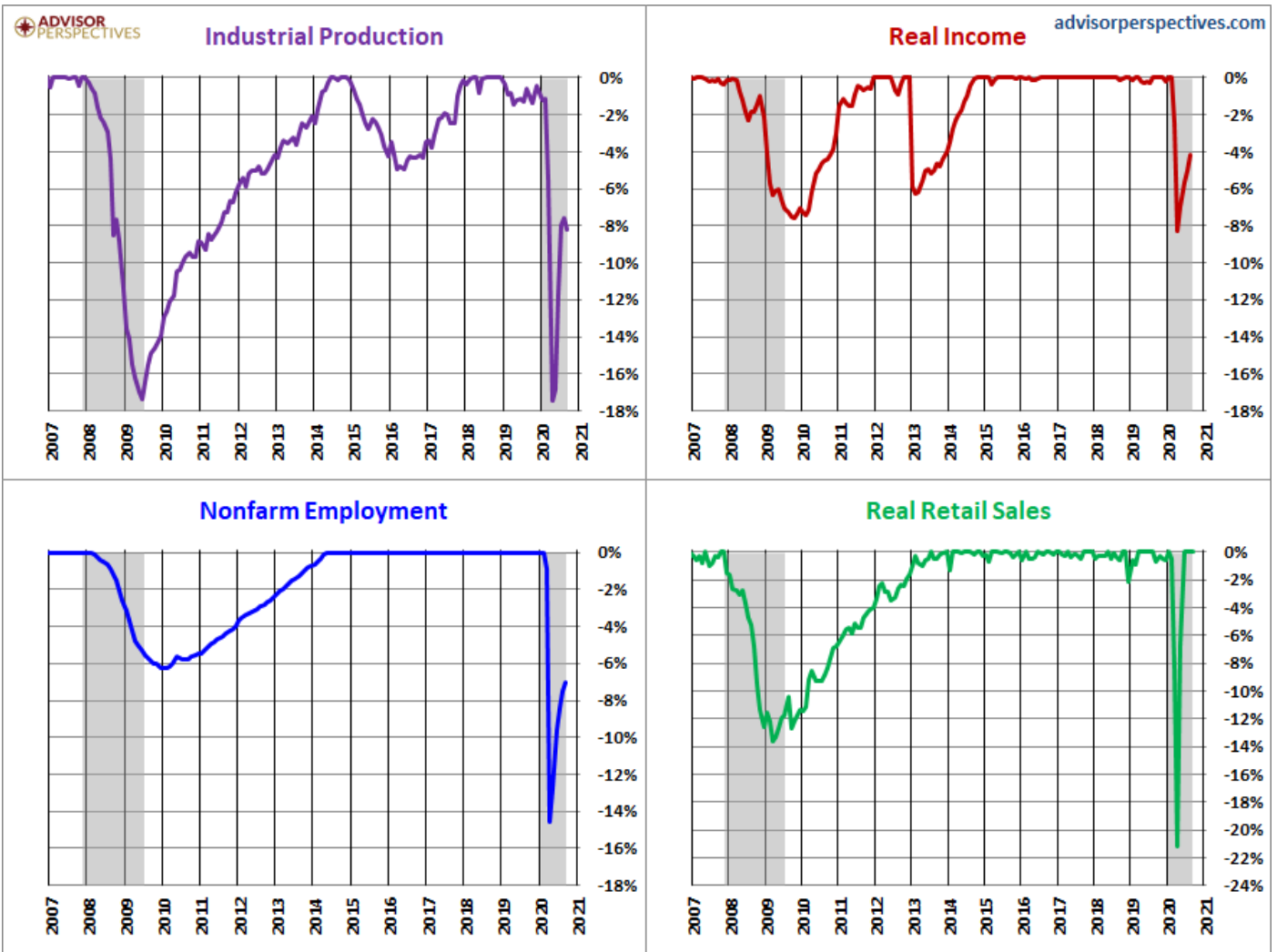
Here is a percent-off-high chart based on an average of the Big Four. The average of the four set a new all-time high in November of 2018. We extrapolate the figures that have yet to be released for the month to determine whether we've hit another all-time high once that data is fully released.



The next update of the Big Four will be the latest read on Personal Income for September.

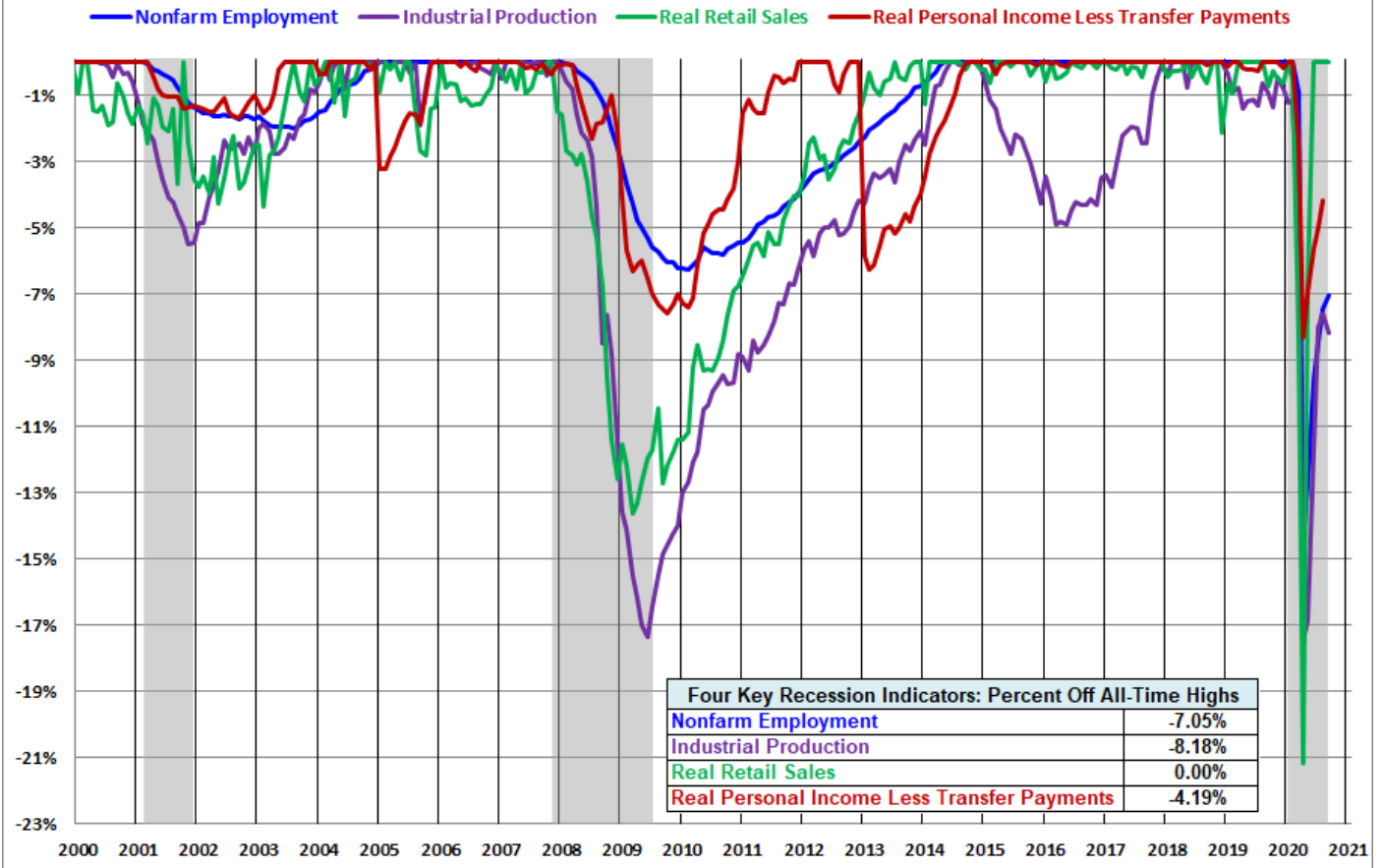
Background Analysis: The Big Four Indicators and Recessions

The charts above don't show us the individual behavior of the Big Four leading up to the 2007 recession. To achieve that goal, we've plotted the same data using a "percent off high" technique. In other words, we show successive new highs as zero and the cumulative percent declines of months that aren't new highs. The advantage of this approach is that it helps us visualize declines more clearly and to compare the depth of declines for each indicator and across time (e.g., the short 2001 recession versus the Great Recession). Here is our four-pack showing the indicators with this technique.



Now let's examine the behavior of these indicators across time. The first chart below graphs the period from 2000 to the present, thereby showing us the behavior of the four indicators before and after the two most recent recessions. Rather than having four separate charts, we've created an overlay to help us evaluate the relative behavior of the indicators at the cycle peaks and troughs. (See the note below on recession boundaries).

The 21st Century Percent Off All-Time Highs, Recession in Gray

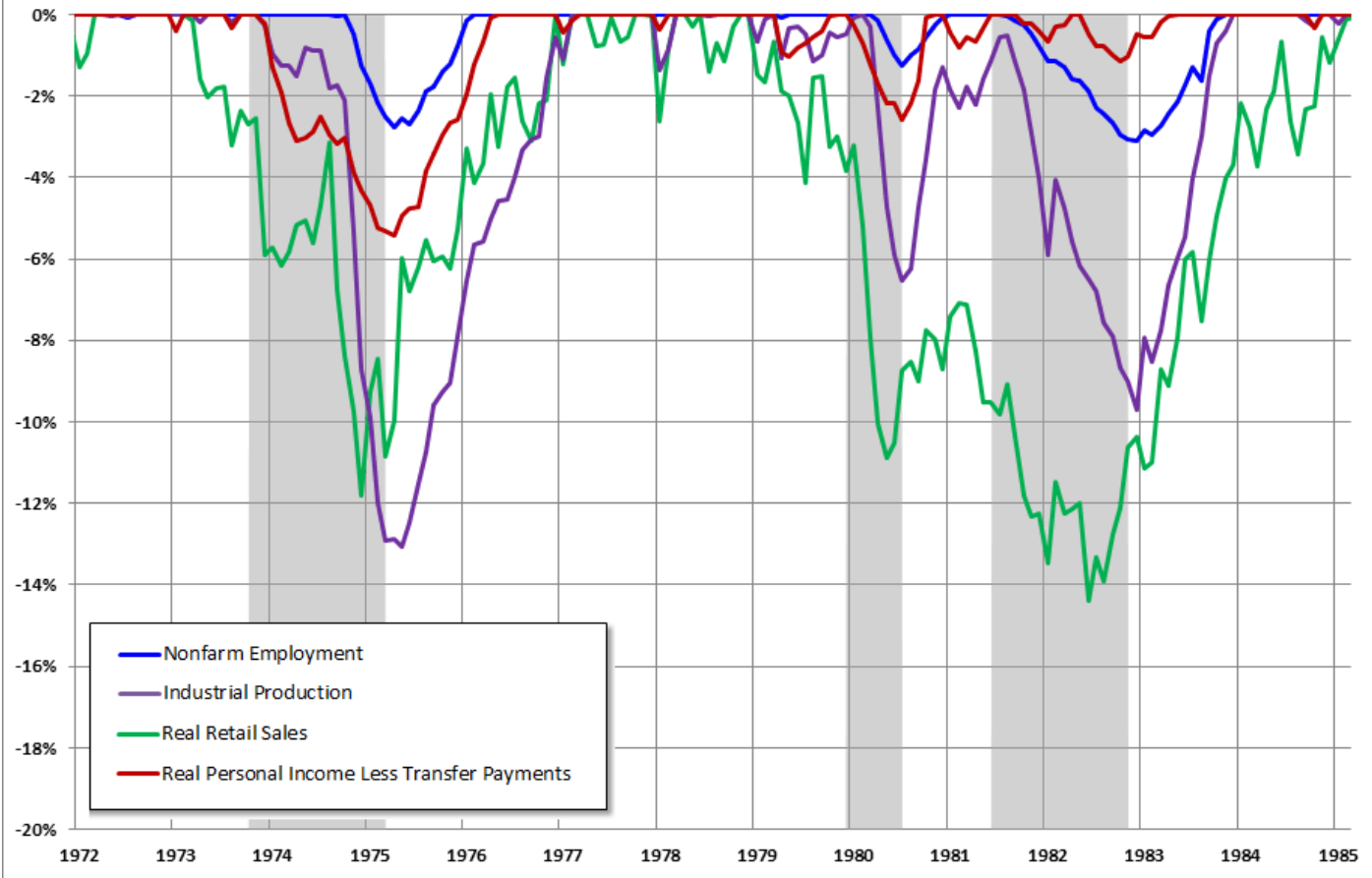


The chart above is an excellent starting point for evaluating the relevance of the four indicators in the context of two very different recessions. In both cases, the bounce in Industrial Production matched the NBER trough while Employment and Personal Incomes lagged in their respective reversals.

As for the start of these two 21st century recessions, the indicator declines are less uniform in their behavior. We can see, however, that Employment and Personal Income were laggards in the declines.

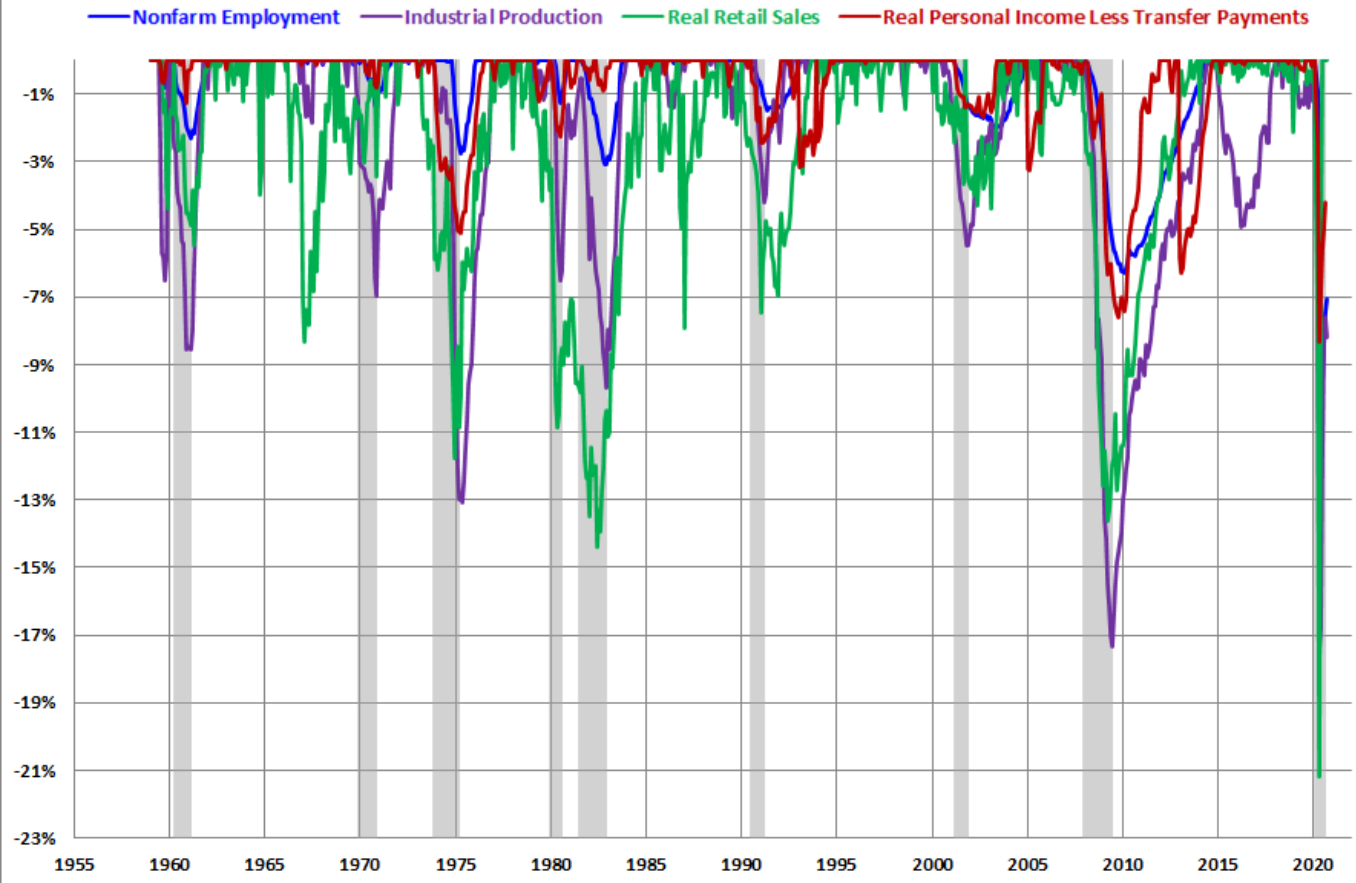
Now let's look at the 1972-1985 period, which included three recessions — the savage 16-month Oil Embargo recession of 1973-1975 and the double dip of 1980 and 1981-1982 (6-months and 16-months, respectively).

Four Recession Indicators: 1972-1985 Percent Off All-Time Highs, Recession in Gray



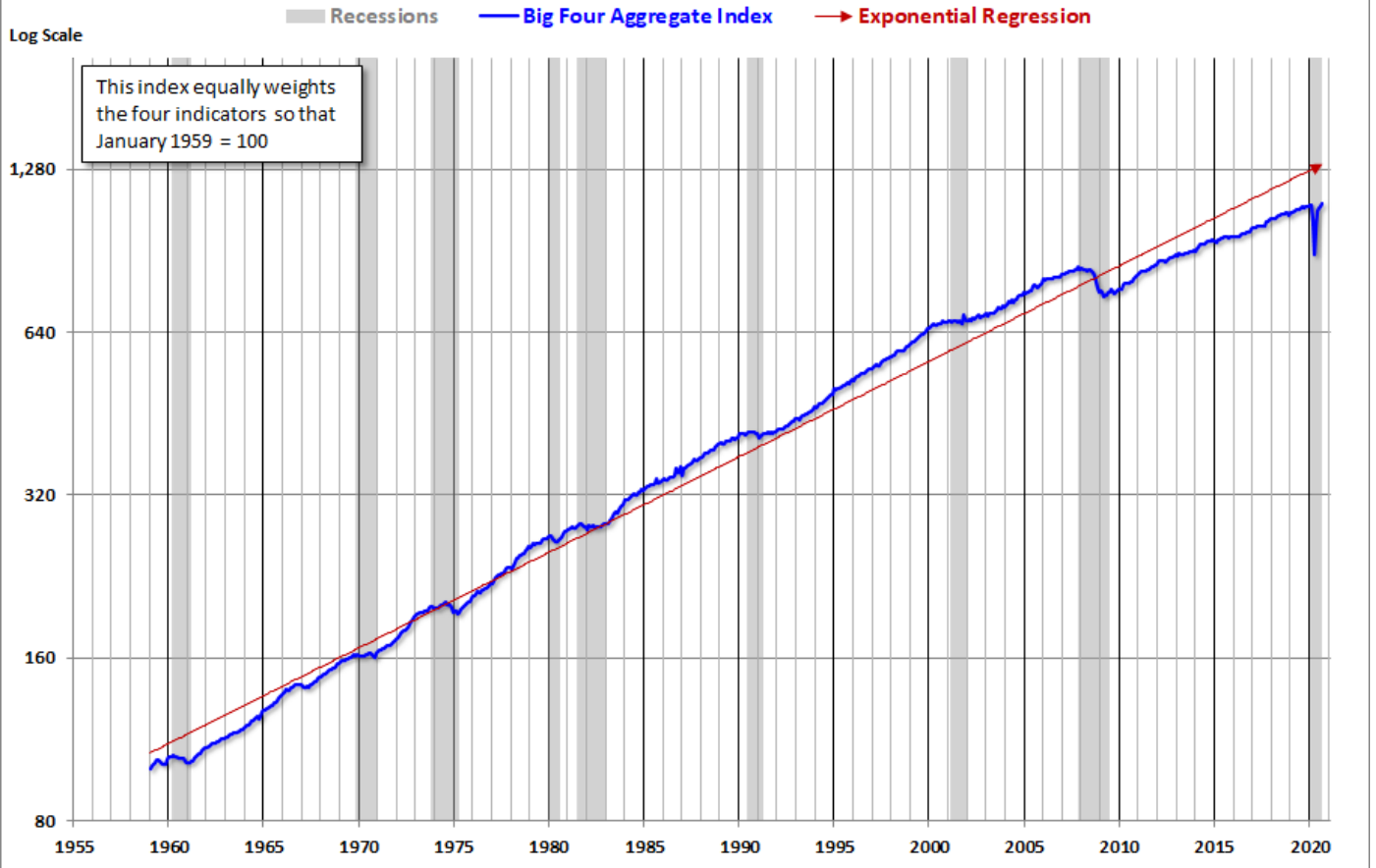
And finally, for sharp-eyed readers who can don't mind squinting at a lot of data, here's a cluttered chart from 1959 to the present. That is the earliest date for which all four indicators are available. The main lesson of this chart is the diverse patterns and volatility across time for these indicators. For example, retail sales and industrial production are far more volatile than employment and income.

Four Recession Indicators Since 1959 Percent Off All-Time Highs, Recessions in Gray



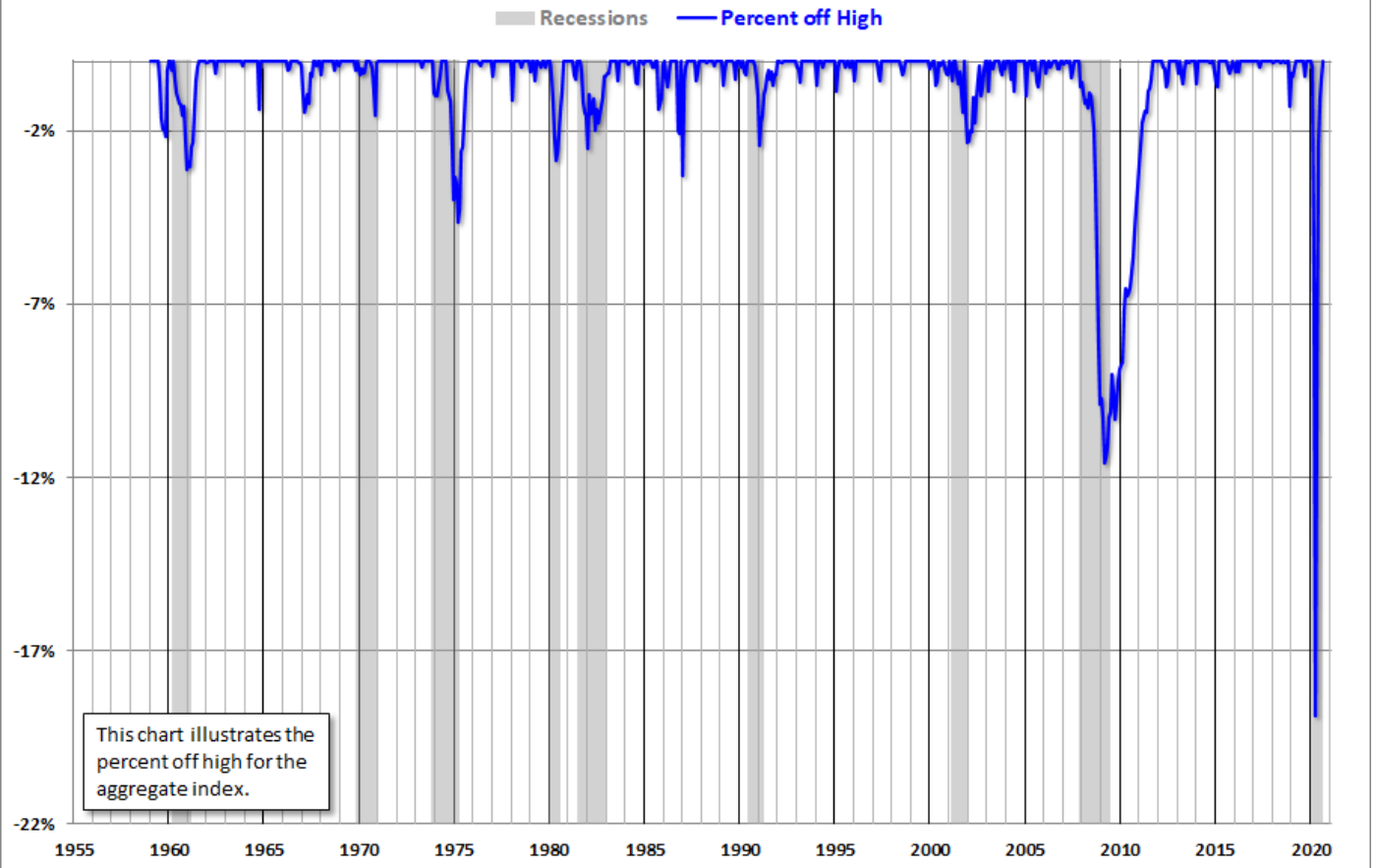
The charts above focus on the Big Four individually, either separately or overlaid. Now let's take a quick look at an aggregate of the four. The next chart is an index created by equally weighting the four and indexing them to 100 for the January 1959 start date. We've used a log scale to give an accurate indication of growth and also added an exponential regression to assist us in seeing the secular patterns of faster and slower growth. As we can readily see, growth of this aggregate indicator has slowed dramatically since the end of the last recession.

Equal-Weighted Aggregate of the Four Big Indicators Recessions in Gray

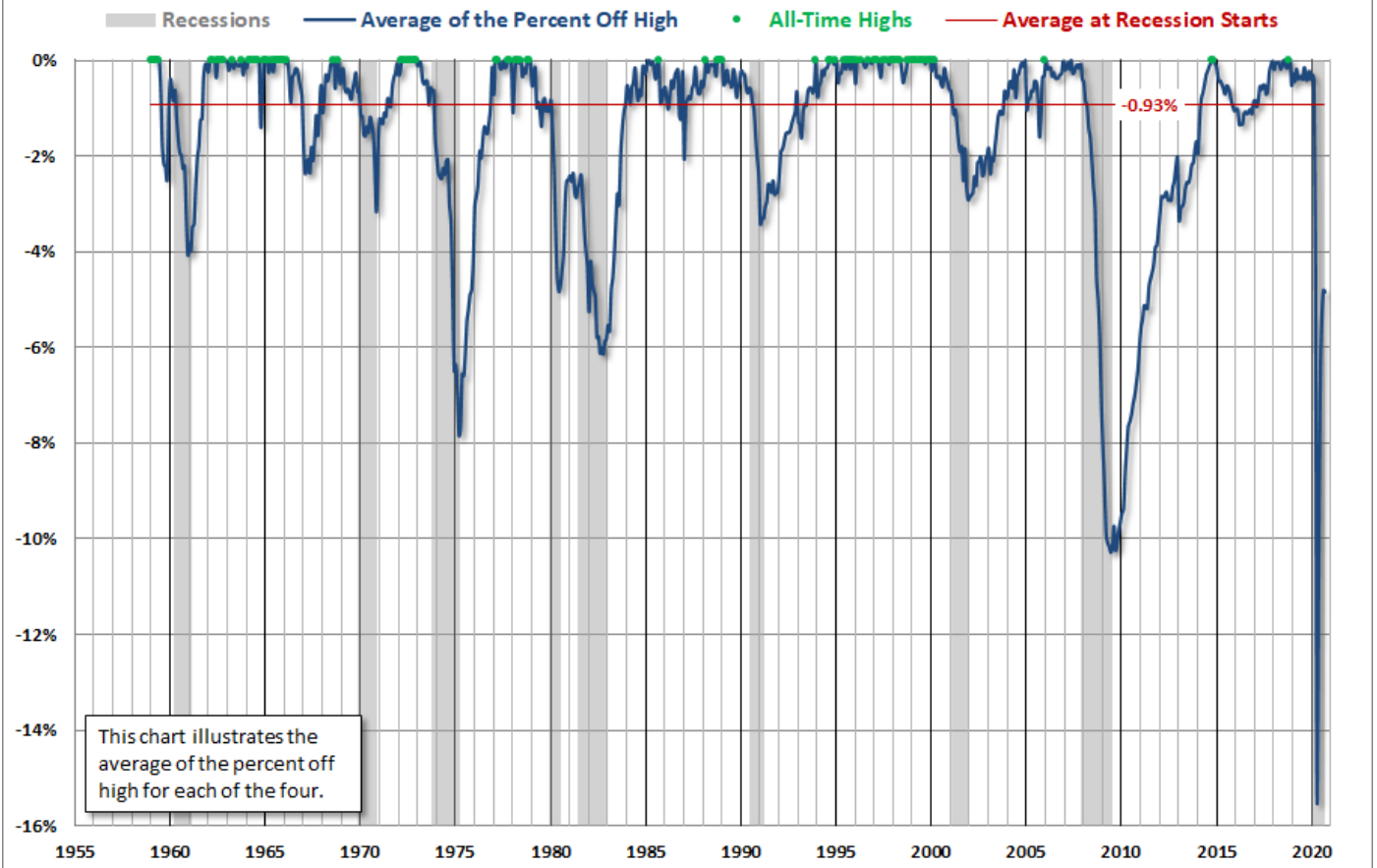


Now let's plot the percent off high for this aggregate index. As we immediately recognize, it is completely worthless as a leading indicator of recessions. The aggregate index set a new high the month before the recession began for five of the eight recessions since the early 1960s.

Equal-Weighted Aggregate of the Four Big Indicators Percent Off Its All-Time High, Recessions in Gray



We can construct a better leading indicator by plotting the average of the percent off highs for each of the four, which is the technique we've used in the next chart. Here we've highlighted the months when all four indicators were at all-time highs. The dashed line shows the -0.93% average of the four at recession starts.



The chart clearly illustrates the savagery of the last recession. It was much deeper than the closest contender in this timeframe, the 1973-1975 Oil Embargo recession. However, it looks like the effects of the COVID-19 pandemic will surpass them both.

Appendix: Chart Gallery with Notes

The indicator discussed in this article is illustrated below in three different data manipulations:

1. A log scale plotting of the complete data series to ensure that distances on the vertical axis reflect true relative growth. This adjustment is particularly important for data series that have changed significantly over time.
2. A year-over-year representation to help, among other things, identify broader trends over the years.
3. A percent-off-high manipulation, which is particularly useful for better understanding of trend behavior and secular volatility.

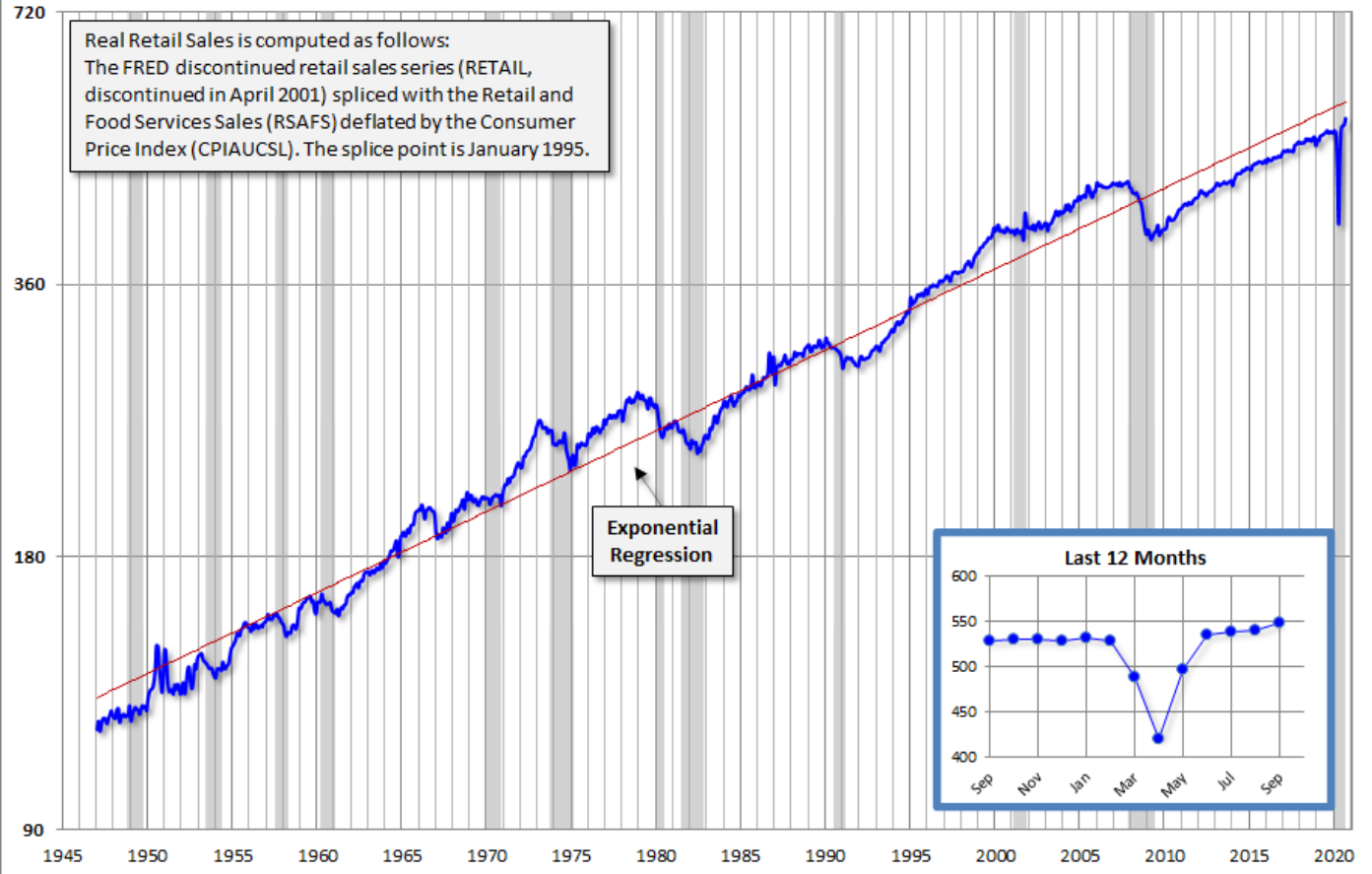
Real Retail Sales

This indicator is a splicing of the discontinued retail sales series (RETAIL, discontinued in April 2001) with the Retail and Food Services Sales (RSAFS) and deflated by the seasonally adjusted Consumer Price Index (CPIAUCSL). We've used a splice point of January 1995 because that date was mentioned in the FRED notes. Our experiments with other splice techniques (e.g., 1992, 2001 or using an average of the overlapping years) didn't make a meaningful difference in the behavior of the indicator in proximity to recessions. We've chained the data to the latest CPI.

Real Retail Sales Growth Since 1947

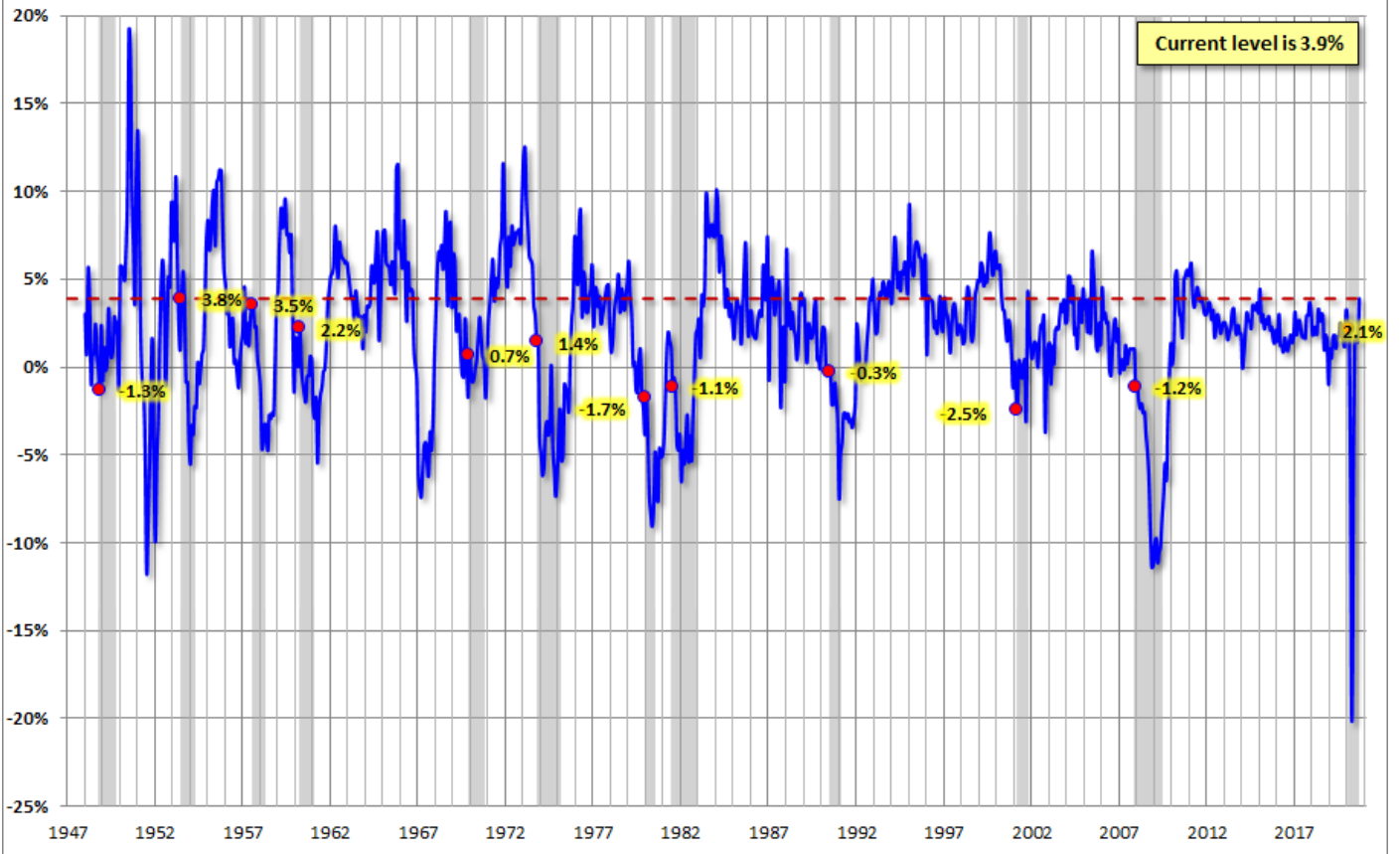
With an Exponential Regression

Billions (Log scale)

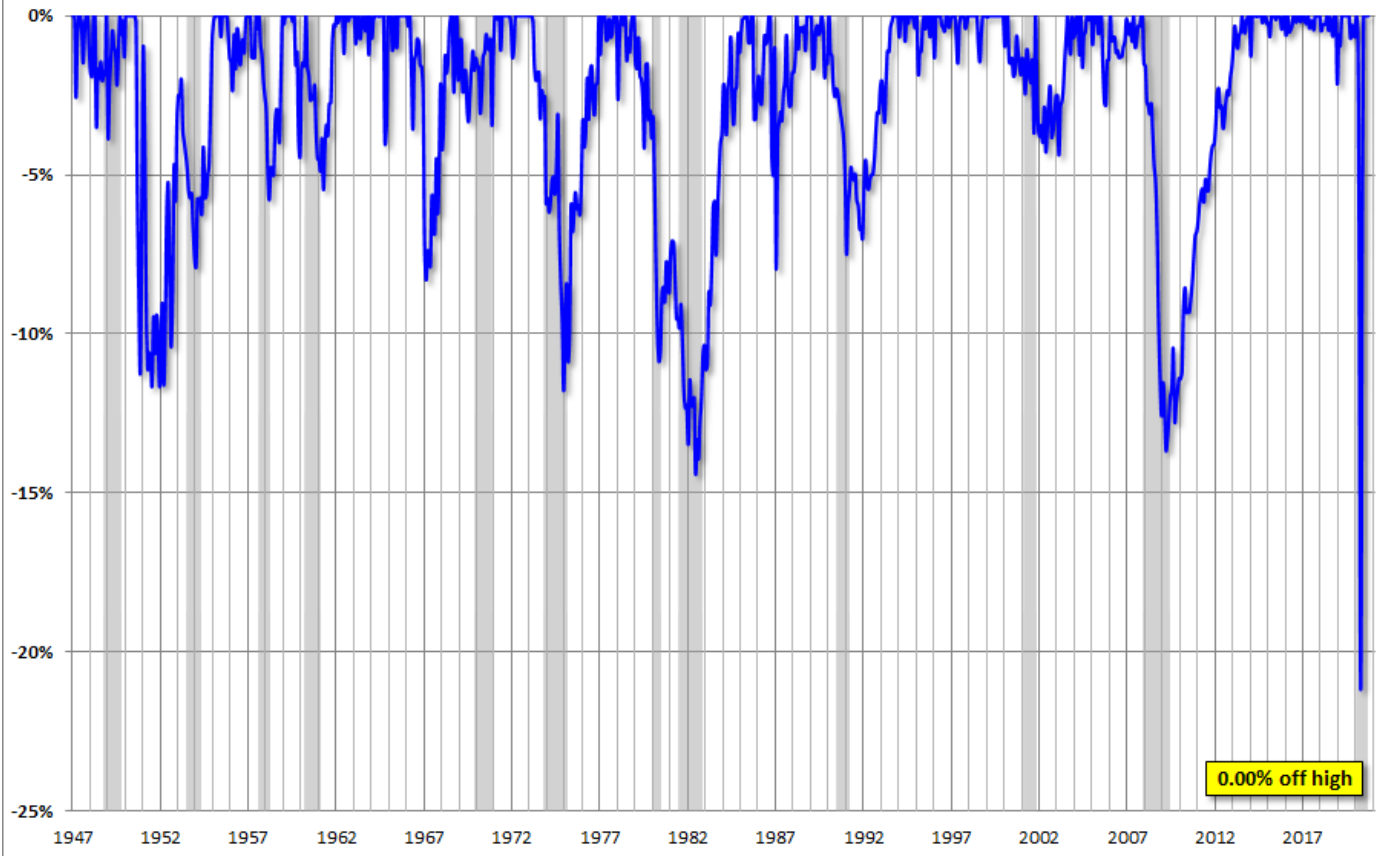


Real Retail Sales Year-over-Year Percent Change Since 1948

Dashed line shows the current level, Dots highlight the month a recession starts



Real Retail Sales Percent Off the All-Time High



A Note on Recessions: Recessions are represented as the peak month through the month preceding the trough to highlight the recessions in the charts above. For example, the NBER dates the last cycle peak as December 2007, the trough as June 2009 and the duration as 18 months. The "Peak through the Period preceding the Trough" series is the one FRED uses in its monthly charts, as explained in the FRED FAQs illustrated in this Industrial Production chart.