

# The Big Four Economic Indicators: September Employment

## October 5, 2020

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of Advisor Perspectives

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.

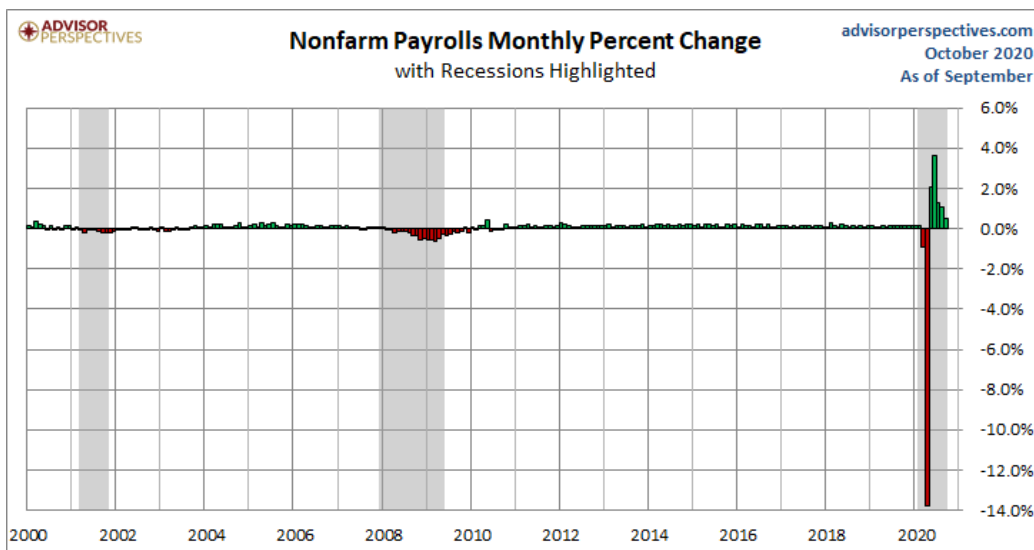
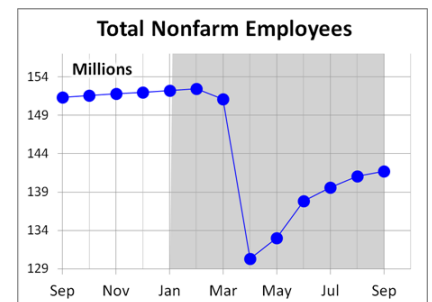
There is, however, a general belief that there are four big indicators that the committee weighs heavily in their cycle identification process. They are:

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

### The Latest Indicator Data

This commentary has been updated to include Friday morning's release of Nonfarm Employment. September's **661K increase** in total nonfarm payrolls had revisions that resulted in 145K more jobs than previously reported. The *Investing.com* consensus was for 850K jobs gained and the unemployment rate to decrease to 8.2%.

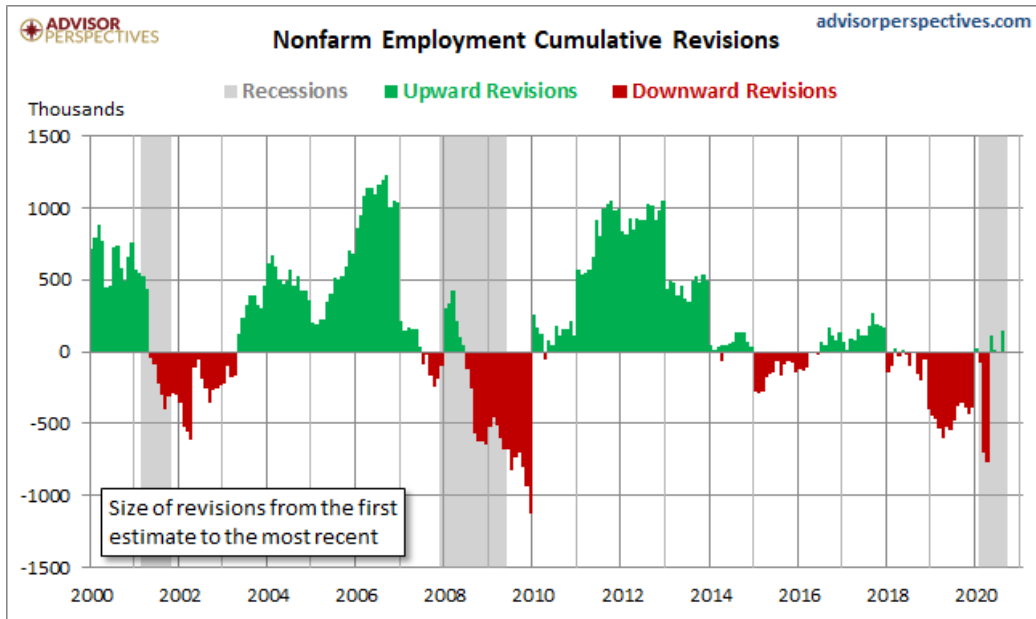
The chart below shows the monthly percent change in this indicator since the turn of the century, a period that includes two recessions. We've included a 12-month moving average to help visualize the trend.



### The Problem of Revisions

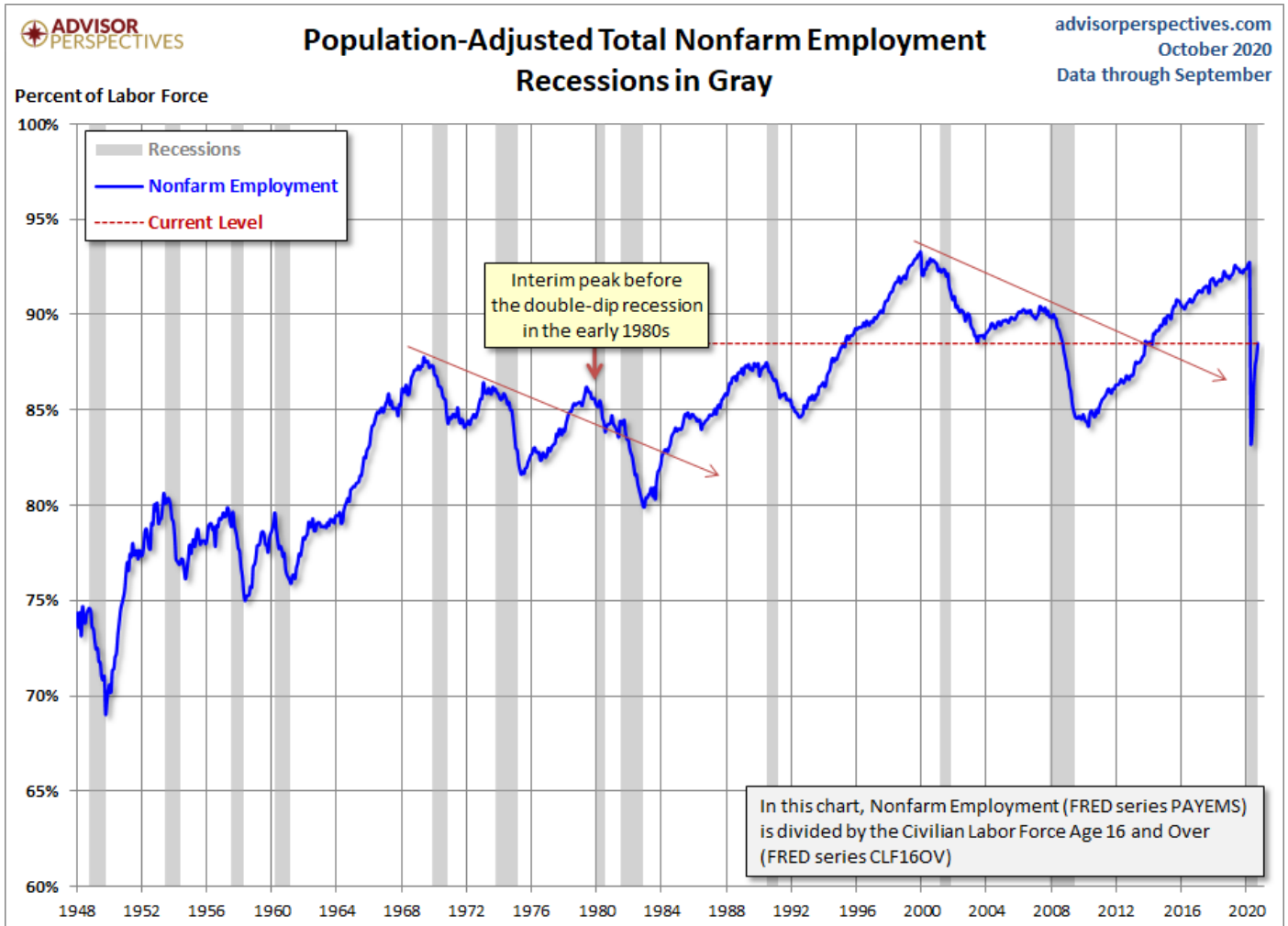
At first glance, this indicator appears to have a strong correlation with the business cycle. However, there is a major problem with this assumption: The data in this survey of business establishments undergo multiple revisions. The initial monthly estimate is subject to a first and second revision, subsequent benchmark revisions and annual revisions that stretch back many years (the most recent includes revisions back as far as February 1990). The cumulative size of the revisions is quite stunning, much of which is owing to the "hindsight" of those annual revisions.

The chart below measures the size of the revisions from the initial estimate to the latest employment report.



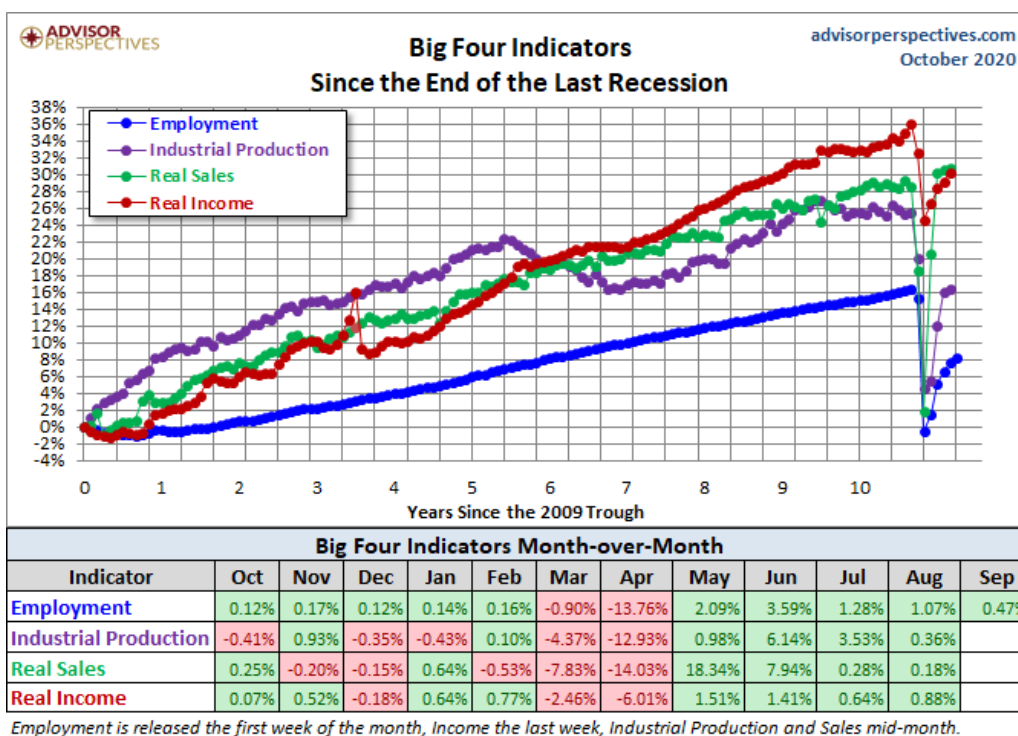
### The Problem of Population Growth

Another problem with the Nonfarm Employment data is that it isn't adjusted for population growth, which reduces its usefulness in illustrating secular trends. The chart below incorporates a population adjustment by dividing the Nonfarm Employment (FRED series PAYEMS) by the Civilian Labor Force Age 16 and Over (FRED series CLF16OV). The current level is about where we were in 2013.



### The Generic Big Four

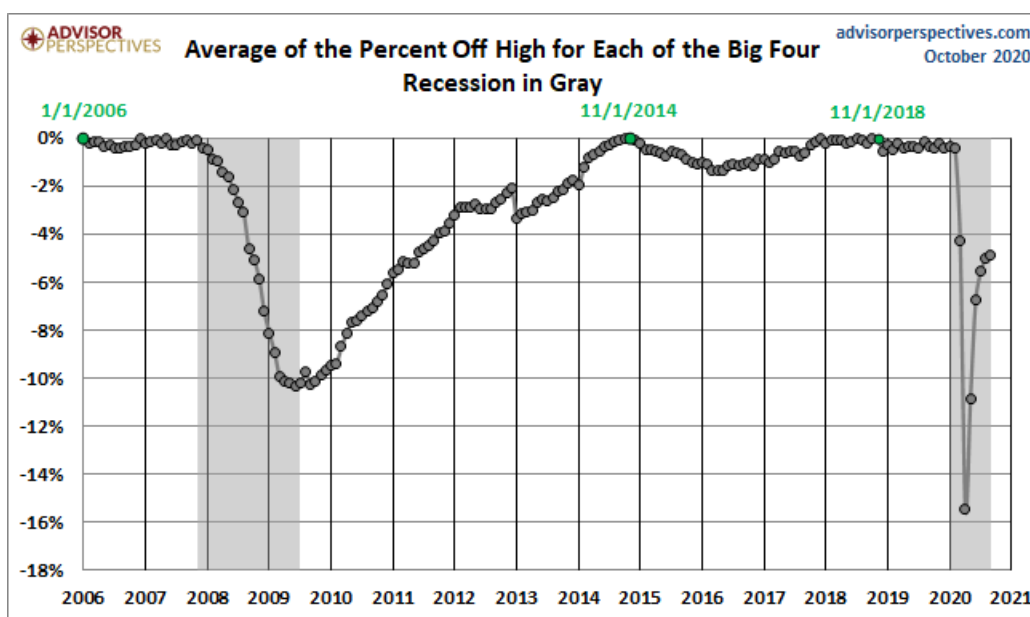
The chart and table below illustrate the performance of the generic Big Four with an overlay of a simple average of the four since the end of the Great Recession. The data points show the cumulative percent change from a zero starting point for June 2009. We will likely need to start a new chart with March 2020 as the starting point as a result of the COVID-19 pandemic. We will wait a bit until we have more data.



## Assessment and Outlook

The US economy was slow in recovering from the Great Recession, and the overall picture was been a mixed bag. Employment and Income were relatively strong. Real Retail Sales have been rising but below trend. Industrial Production was slow to recover and finally showed signs of improvement in the last year.

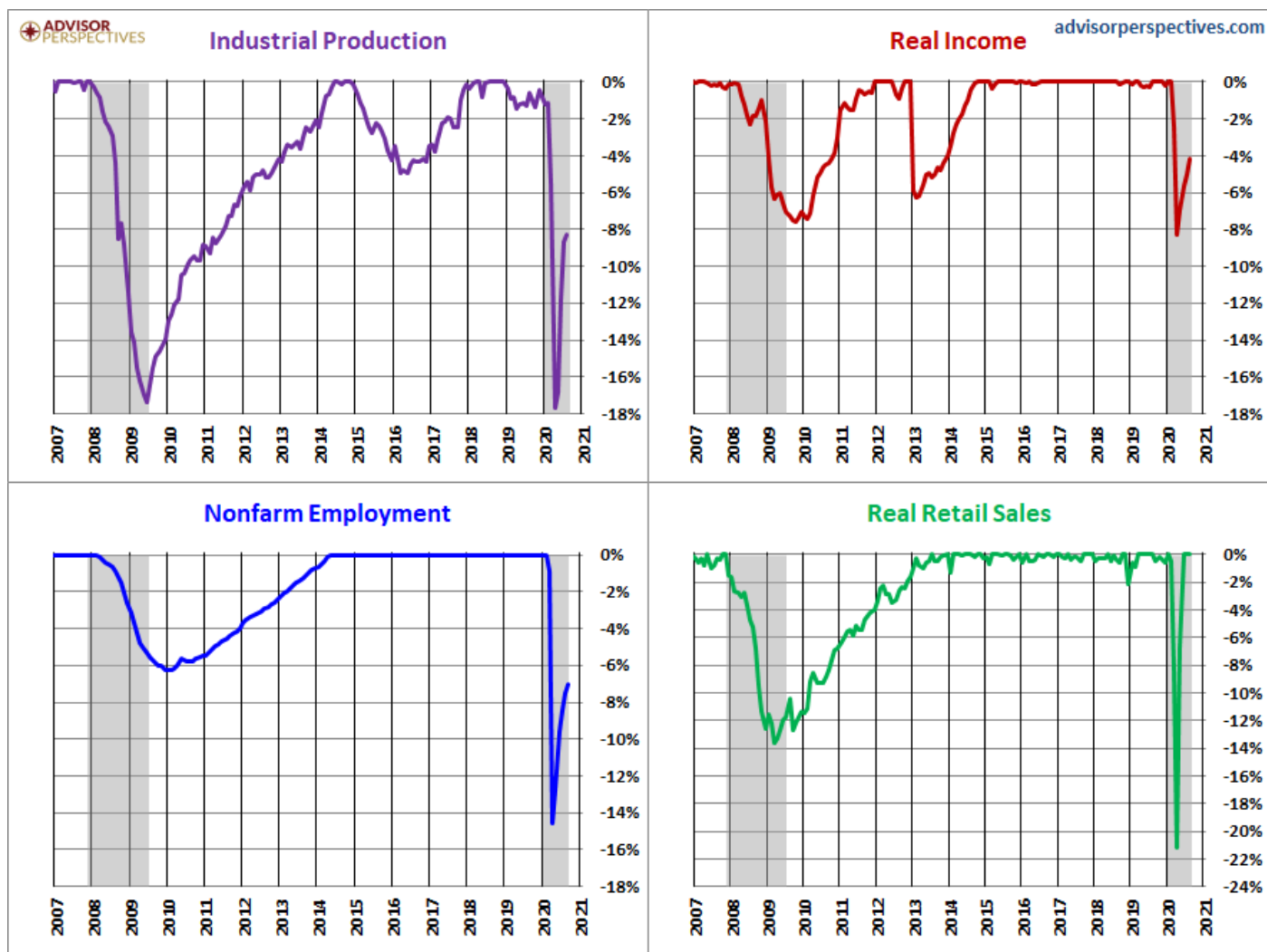
Here is a percent-off-high chart based on an average of the Big Four. The average of the four set a new all-time high in November of 2018.



## Background Analysis

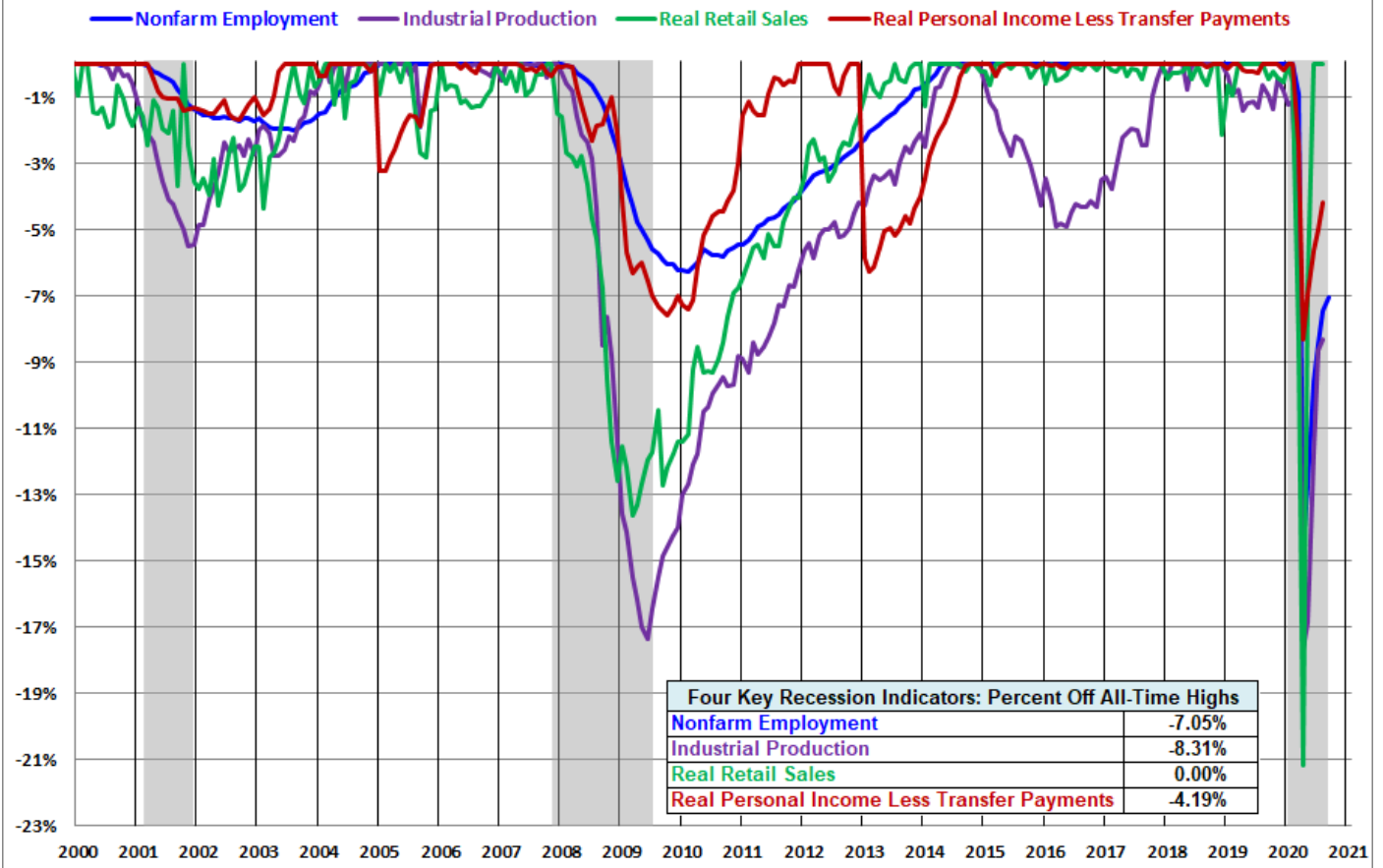
The charts above don't show us the individual behavior of the Big Four leading up to the 2007 recession. To achieve that goal, we've plotted the same data using a "percent off high" technique. In other words, we show successive new highs as zero and the cumulative percent declines of months that aren't 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 and now. 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

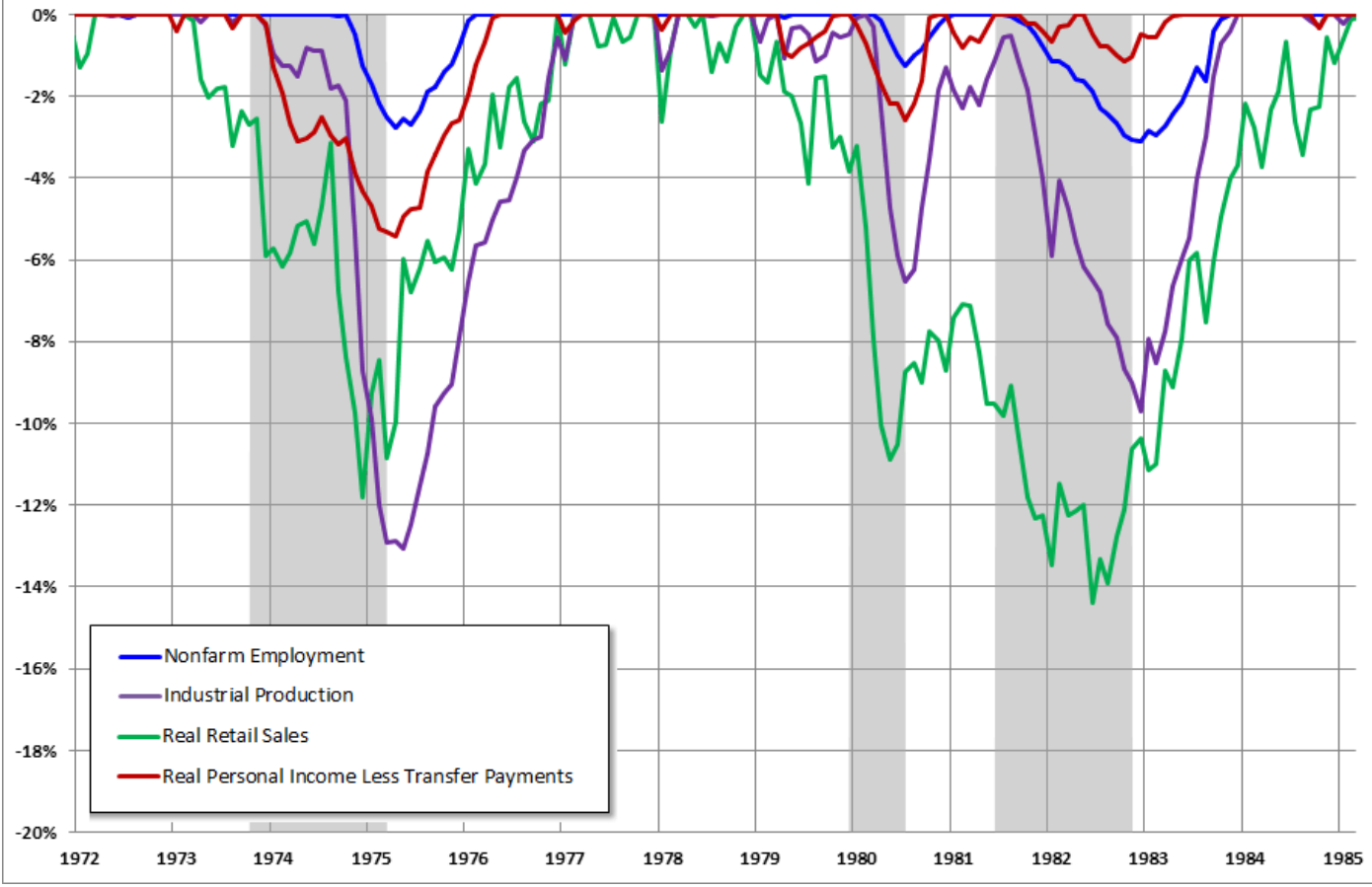


The chart above is an excellent starting point for evaluating the relevance of the four indicators in the context of two very different recessions. In both cases, the bounce in Industrial Production matches the NBER trough while Employment and Personal Incomes lagged in their respective reversals.

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.

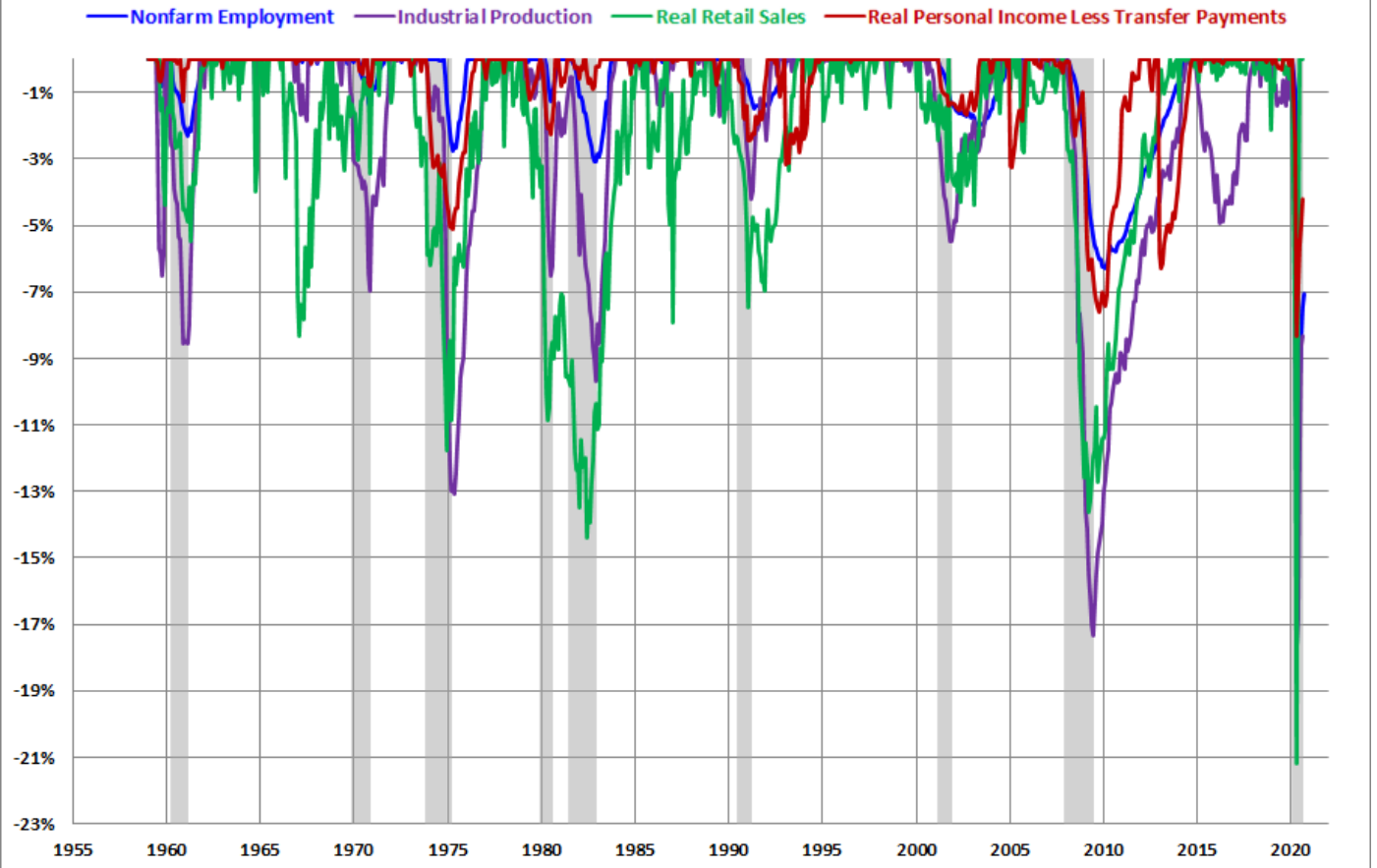
Now let's look at the 1972-1985 period, which included three recessions -- the savage 16-month Oil Embargo recession of 1973-1975 and the double dip of 1980 and 1981-1982 (6-months and 16-months, respectively).

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



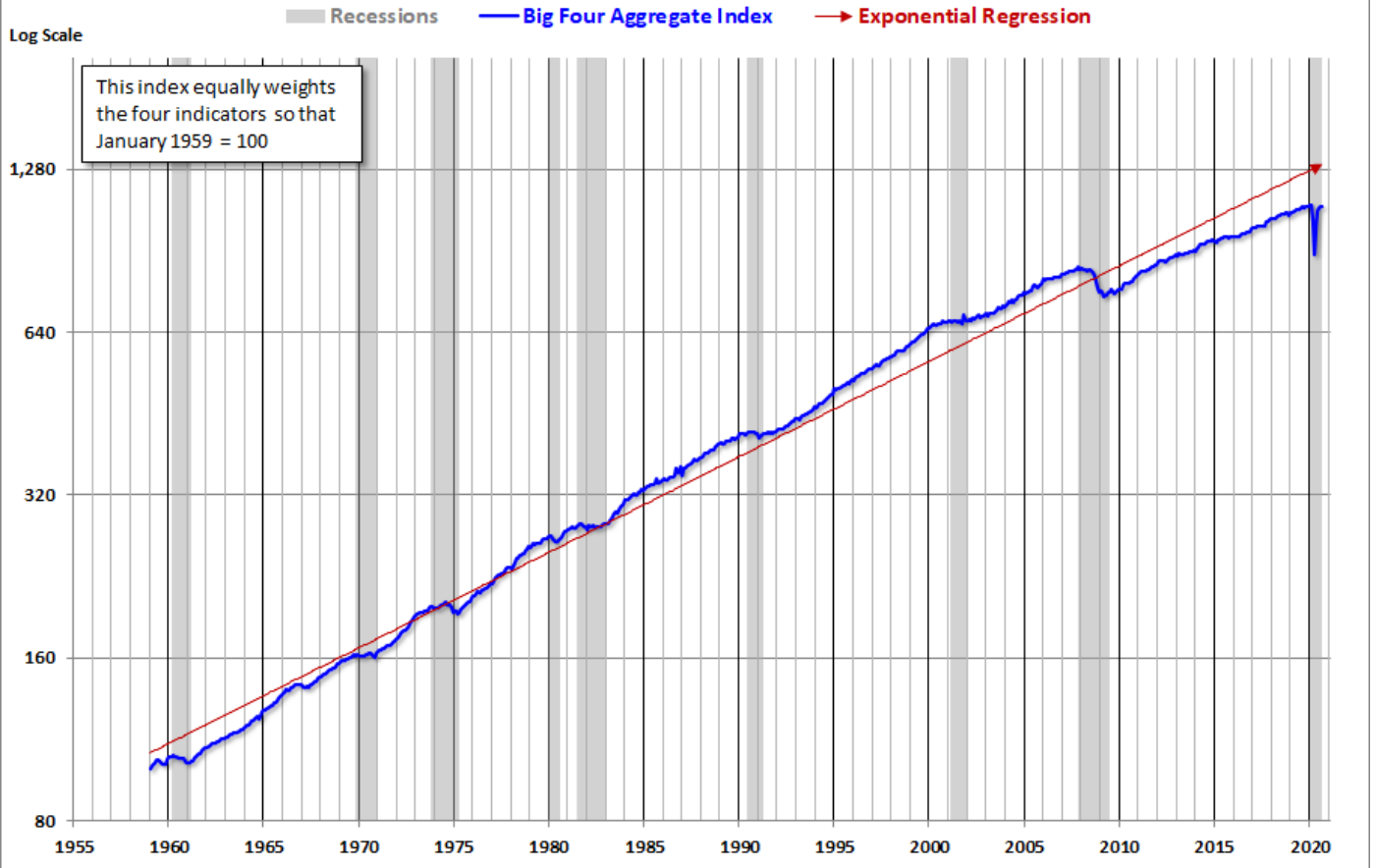
And finally, for sharp-eyed readers who can don't mind squinting at a lot of data, here's a cluttered chart from 1959 to the present. That is the earliest date for which all four indicators are available. The main lesson of this chart is the diverse patterns and volatility across time for these indicators.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

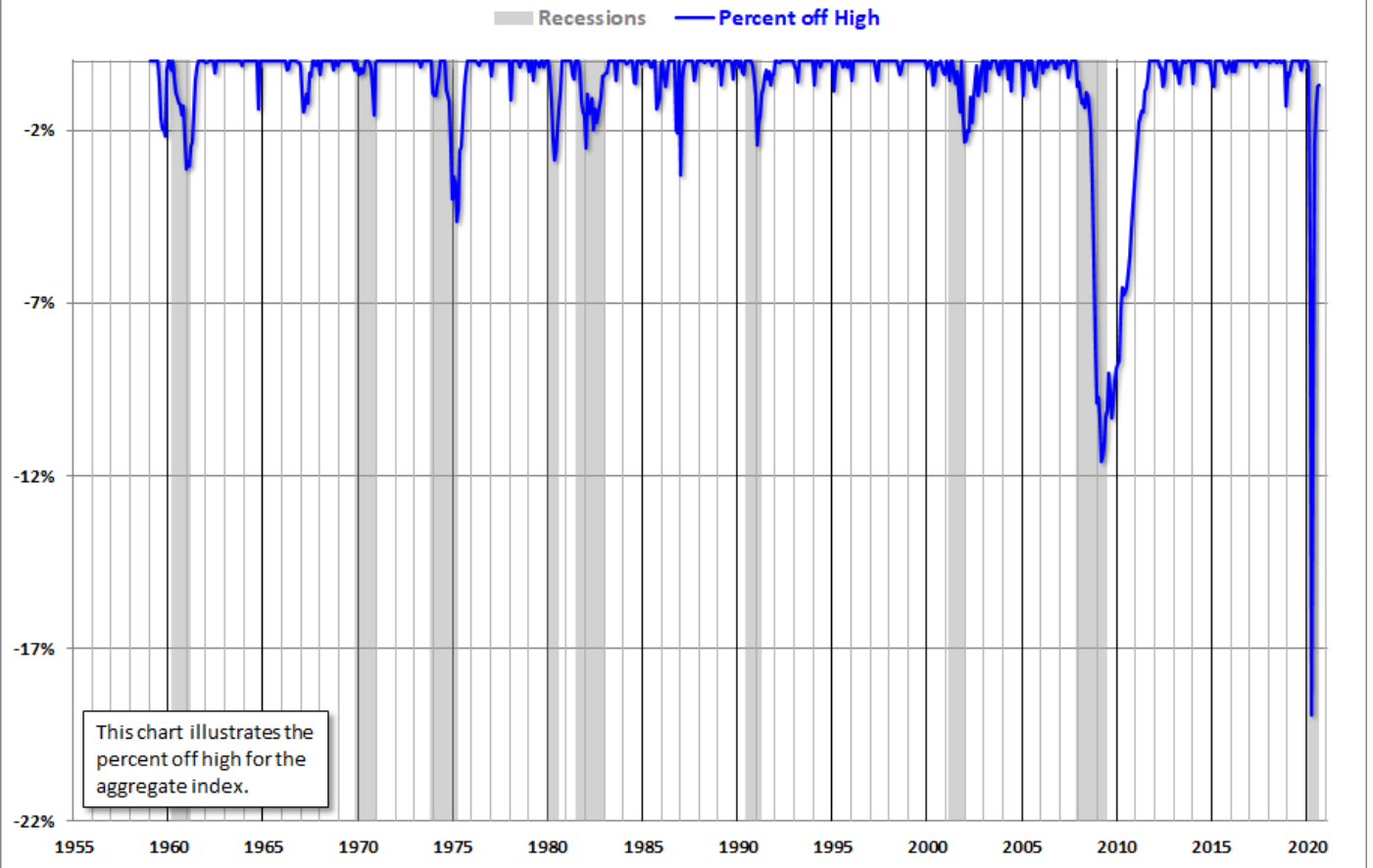
## Equal-Weighted Aggregate of the Four Big Indicators Recessions in Gray



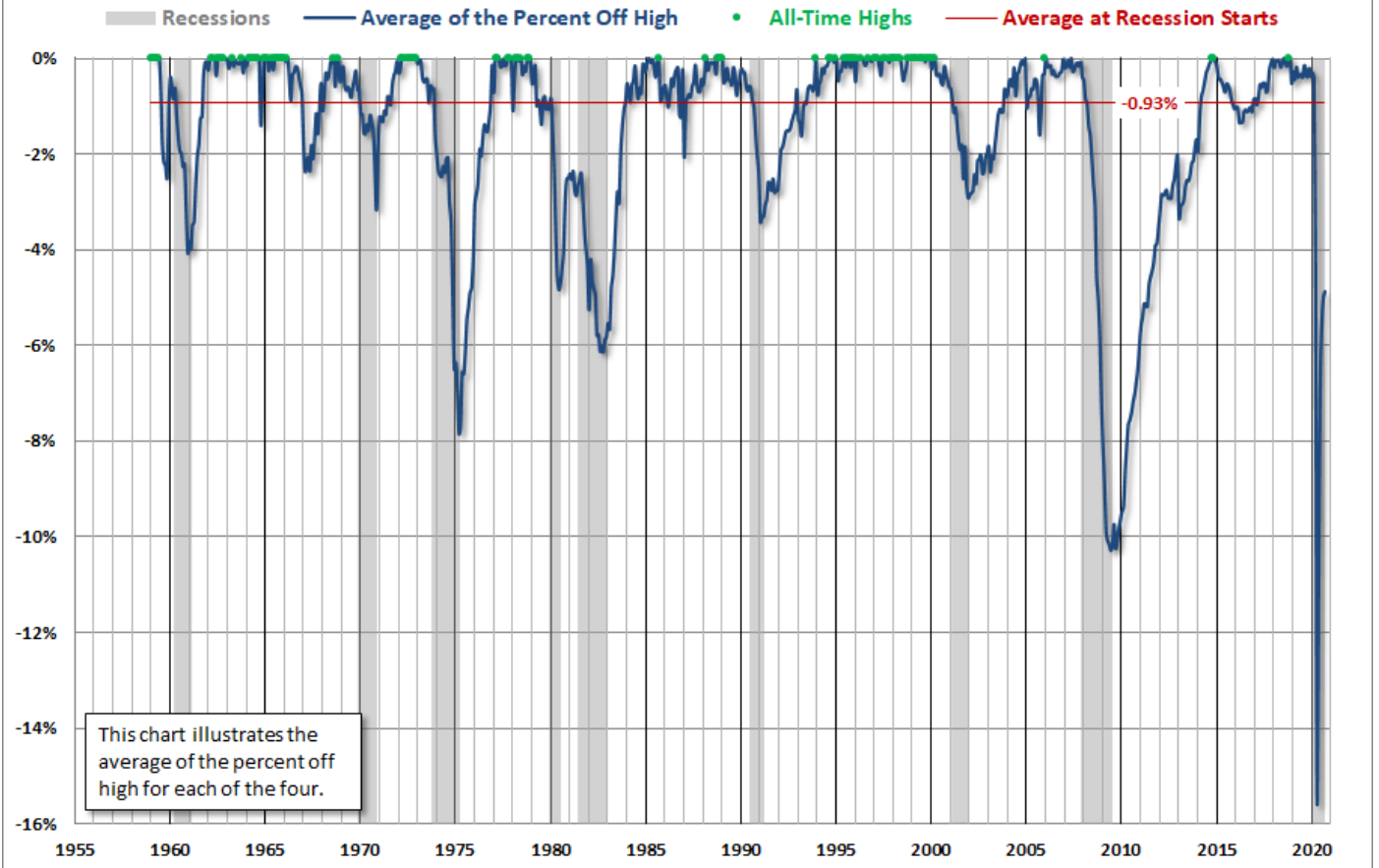
Now let's plot the percent off high for this aggregate index. As we immediately recognize, it is completely worthless as a leading indicator of recessions. The aggregate index set a new high the month before the recession began for five of the eight recessions since the early 1960s.



## 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.

### Appendix: Chart Gallery with Notes

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

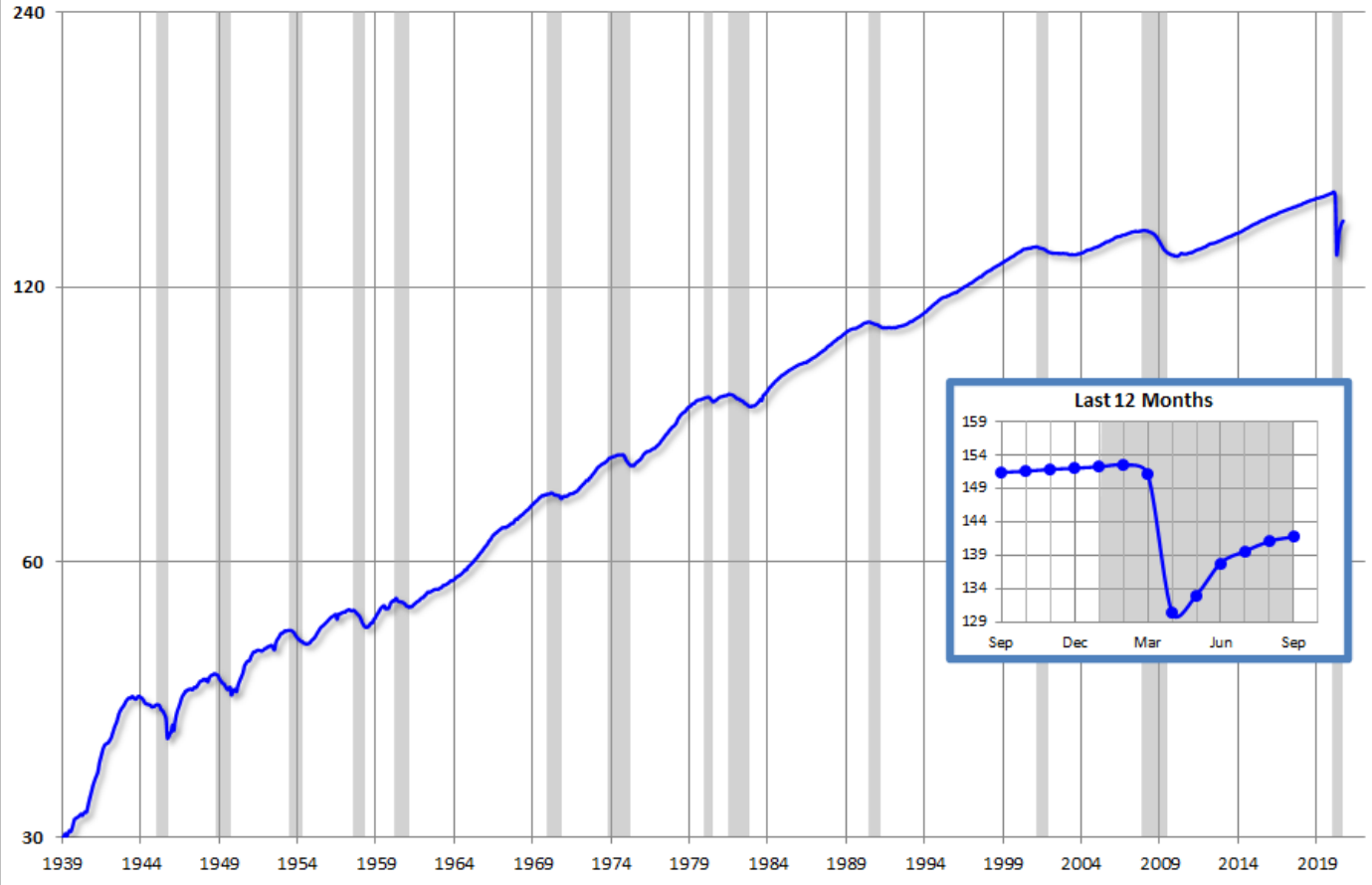
1. A log scale plotting of the complete data series to ensure that distances on the vertical axis reflect true relative growth. This adjustment is particularly important for data series that have changed significantly over time.
2. A year-over-year representation to help, among other things, identify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

### Total Nonfarm Employees

There are many ways to plot employment. The one referenced by the Federal Reserve researchers as one of the NBER indicators is Total Nonfarm Employees (PAYEMS).

# Total Nonfarm Employees Recessions in Gray

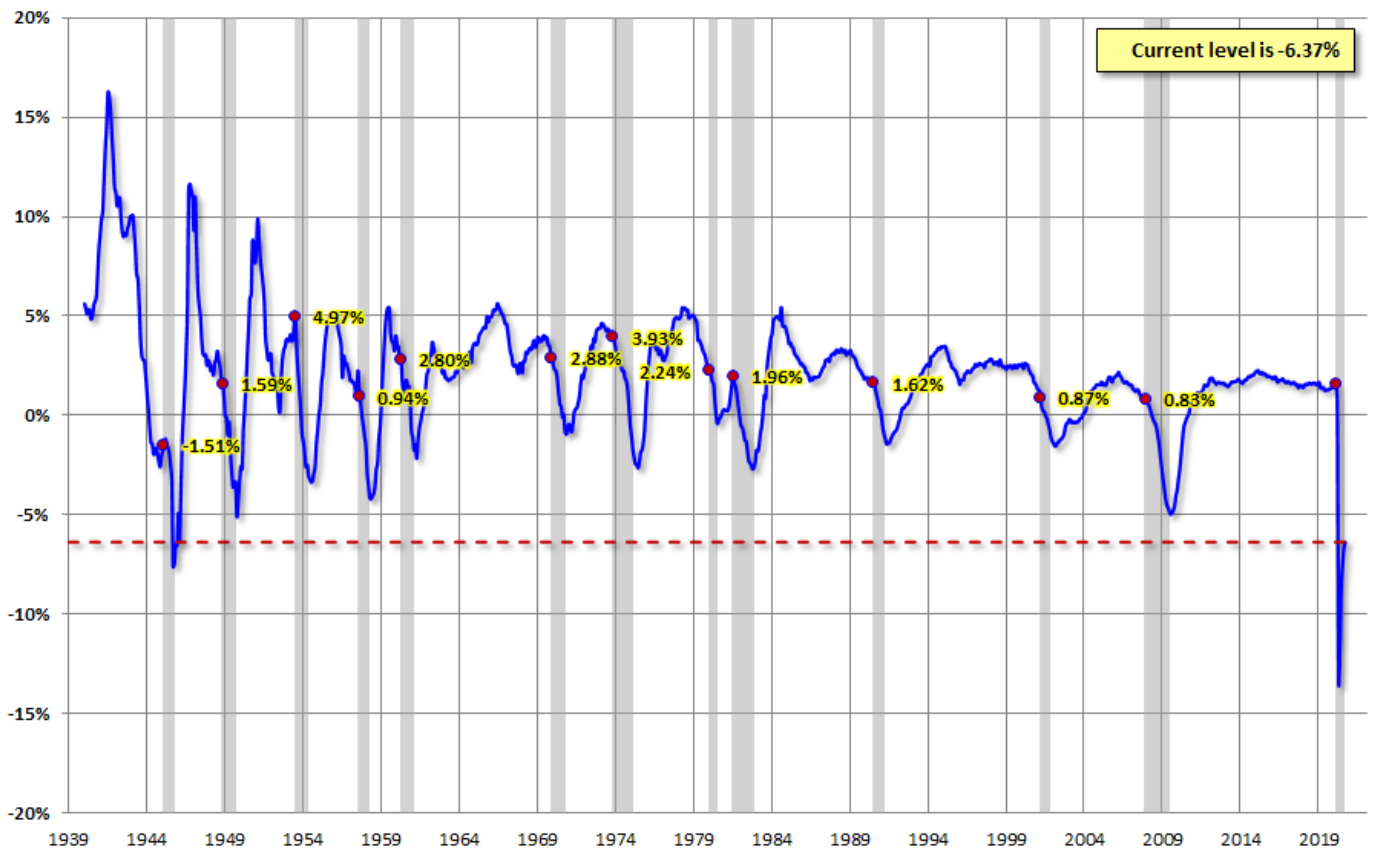
Millions (Log Scale)



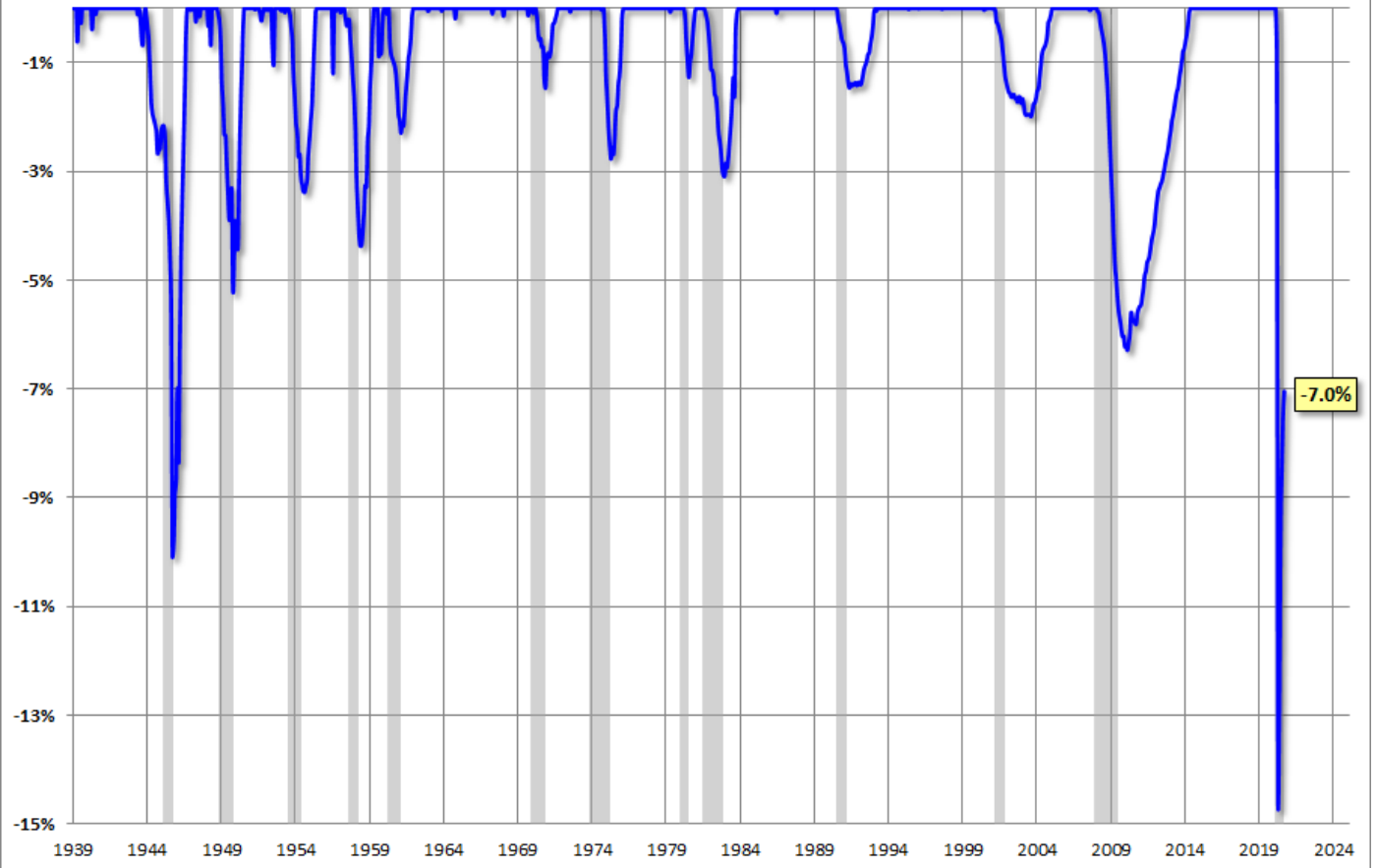
# Total Nonfarm Employees

## Monthly Year-over-Year, Recessions in Gray

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



## Total Nonfarm Employees Percent Off Most Recent High, Recessions in Gray



**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 a duration of 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.