How Economists Define and Determine Recessions: A Primer

Howard Wall, July 31, 2022

The notion of dividing the business cycle into distinct recession and expansion phases can be traced through Burns and Mitchell (1946), which itself was the result of decades of preliminary work:

> Business cycles are a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals which merge into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; in duration business cycles vary from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar character with amplitudes approximating their own.

Over time, the definition evolved and you can find several variations in general use among economists. The National Bureau of Economic Research's (NBER) definition is representative: "a significant decline in economic activity that is spread across the economy and lasts more than a few months." There is no serious dispute among economists that this, or something like it, is the definition of a recession. You can find some sloppy descriptions in some intro textbooks that say or suggest otherwise, but I have news for you: Your textbooks were full of incorrect and sloppy things that are there so your professor could take a shortcut around the more-complicated correct thing, or because the author was just being sloppy.

Although there is no serious dispute about the definition, there has been and continues to be disputes about how to implement the definition. The NBER has a business cycle dating committee that uses a holistic approach taking into account a broad range of variables with no specific rules on how to use them. To obtain monthly turning points, they use:

> (R)eal personal income less transfers, nonfarm payroll employment, employment as measured by the household survey, real personal consumption expenditures, wholesale-retail sales adjusted for price changes, and industrial production. There is no fixed rule about what measures contribute information to the process or how they are weighted in our decisions. In recent decades, the two measures we have put the most weight on are real personal income less transfers and nonfarm payroll employment.

Separately, they determine quarterly turning points using the quarterly averages of these variables alongside real GDP, which is not available monthly.

There is a largish literature that has tried to replace the committee approach with a rules-based approach that can be replicated and applied consistently over time. For example, the Bry-Boschan algorithm applied to quarterly GDP says that a peak quarter (the last quarter of expansion) is one for which the level of real GDP is higher than the previous two quarters and the subsequent two quarters. A symmetric rule is applied to obtain the trough (the last period of recession).

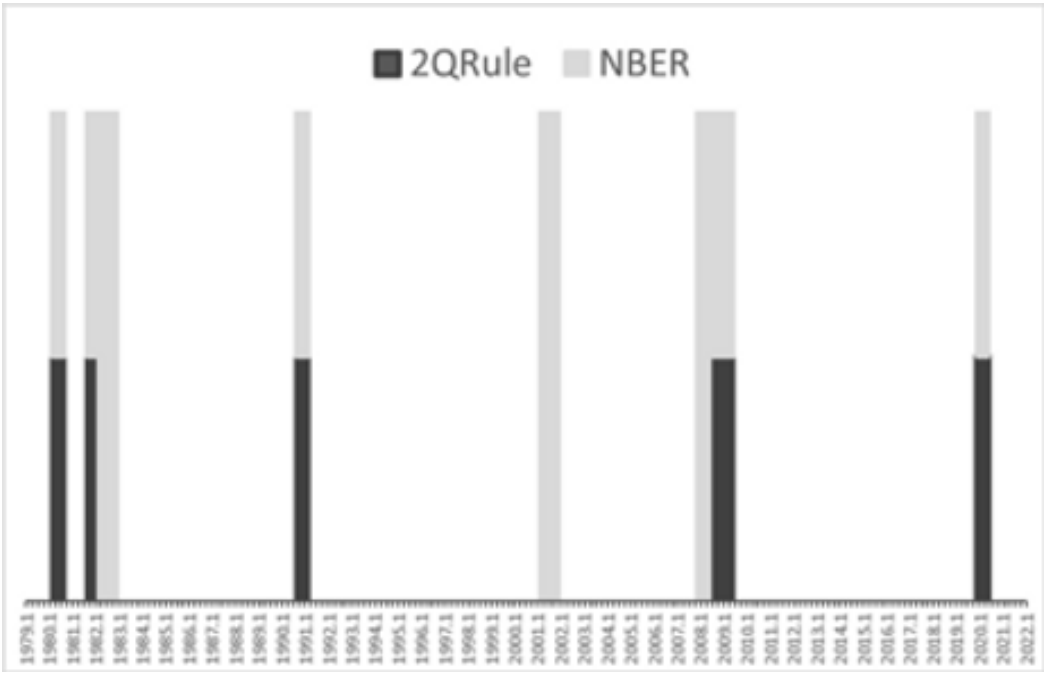
A second alternative to the NBER is the Markov-switching approach of Jim Hamilton, which is applied to real GDP growth. Put simply, it splits the data into high and low growth phases (expansion and recession), each with its own average growth rate. If a quarter's growth rate is closer to the estimated recession growth rate, it is potentially a recessionary quarter. The algorithm considers whether neighboring quarters also tend to be close to the low growth rate.

The Bry-Boschan and Markov-switching approaches are the two most common alternatives to the NBER, and they have their strengths and weaknesses. Nevertheless, the NBER committee and its recession dates have taken on officialish status. It is not an exaggeration to say that whenever an economist inside or outside government refers to a recession in the US, he or she is almost certainly using the NBER recessions. There is no serious alternative to them for the United States.

Related to economists' approach to recessions is a rule of thumb suggested in the 1970s by Julius Shiskin. The Shiskin rule is that a recession occurs whenever there are two consecutive quarters of negative real GDP growth. I don't know how this rule of thumb came to be called the definition of recession in the press and in some dictionaries, but it is not economists' definition of a recession. For one thing, the definition is as above, and the Shiskin rule is meant to be a way of implementing the definition. It is not intended as a definition itself. Second, it just isn't generally used by economists except as a red flag that a recession might be happening. As far as I know, no one collects the dates from the Shiskin rule to study the business cycle, which is what happens with the NBER dates. The Shiskin rule dates are not posted in any data repositories like FRED at the St. Louis Fed. The NBER dates and the Markov-Switching dates are, however. In short, there is no evidence that the Shiskin rule has any widespread use among economists for determining recessions.

One reason that it doesn't have widespread use is that it isn't a very good rule. Its objective is to be a simple implementation of the definition of a recession, which it is. It uses GDP, the broadest measure of the economy, and recognizes that a recession should last multiple periods. But a single quarter's estimated GDP growth is subject to multiple revisions even within the year it is first released. The first estimate of the growth rate for the first quarter of 2022, for example, has already been revised twice, and will be revised again in September. These revisions can wreak havoc on the Shiskin rule as a quarter flip flops between being called a recession or expansion as more-complete estimates are released.

More fundamentally, although GDP is the broadest single measure of economic activity, it does not capture the breadth of activity described in the definition of a recession. For example, it does not account for employment growth, which doesn't always line up with GDP growth. In addition, one quarter of positive GDP growth can disrupt the sequence of recessionary quarters and make it appear that a recession didn't happen. For example, you can have three quarters of growth that are, in order: negative, then barely positive, and then negative. This period would not be deemed a recession according to the Shiskin rule, even if all other aggregate variables were falling throughout.



Because so many non-economists consider the Shiskin rule to be the definition of a recession, it is worth looking at how its recessions and those of the NBER compare. The simple chart depicts the six recession periods since 1979 as determined by the NBER and the Shiskin, or 2-Quarter, rule. As

you can see, the two approaches are identical on a quarterly basis for three of the recessions, but there are significant differences for the other three. I don't want to get too bogged down, so let's look at just 2001 to illustrate the differences between the two approaches and why economists do not use the Shiskin rule.

According to the NBER, there was a recession in 2001 during the second and third quarters. According to the Shiskin rule, however, the economy was in expansion because, although real GDP growth was negative in the second quarter, it was positive in the third quarter. The chart below, however, shows that payroll employment and industrial production were both falling continuously during the two quarters. The NBER committee decided that the weight of the evidence was that the economy was in recession throughout the two quarters. In short, by the definition "a significant decline in economic activity that is spread across the economy and lasts more than a few months," there was a recession in 2001 and the Shiskin rule would have called it an expansion.

As a final note, I should add that, although it is not used widely in the US, the Shiskin rule is used in the UK, Canada, and elsewhere. The EU has created its own NBER-type committee, however, and one has been proposed for the UK. Perhaps the rule works better elsewhere, but it doesn't work well in the US and it is not used by economists when examining and describing the US economy.

Takeaways relevant for the current debate about recessions:

- The Shiskin rule is not how economists define recessions. One way to put it is that the Shiskin rule is a popular definition of recession, but not the technical or professional one.
- For economists, policymakers, and almost every person who analyzes the national economy, the recessions determined by the NBER are considered definitive and/or official.
- The Biden administration has been correct in describing the NBER approach as the preferred approach. They have not changed the definition of recessions. They might have chosen the NBER approach because it made them look better, but they did not make it up or change a thing about it.