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Have Recessions Become Shorter?

Until recently, it was widely believed that business cycle fluctuations in the U.S. were less severe after World War II than they were before. The improvement often has been credited to active monetary and fiscal policies that manage aggregate demand. However, this view has been questioned by recent studies that pay special attention to the details of the prewar economic data that were overlooked by earlier researchers. In fact, some studies that use newly constructed data have found little evidence of a decline in the variability of output in the postwar period (Walsh 1989). In addition to this research on the severity of business cycles, others have examined possible changes in average business cycle duration. If macroeconomic policies that manage aggregate demand have been successful, then they should have extended expansions and shortened contractions.

This *Letter* reviews the current debate on the duration of business cycles. One recent study finds that expansion periods are longer and contraction periods are shorter in the postwar period using the historical National Bureau of Economic Research (NBER) business cycle reference dates. However, a subsequent study concludes that this finding is mainly a statistical artifact due to inconsistencies in the way business cycle peaks and troughs were dated by the NBER in the prewar and postwar periods.

Are business cycles smoother?

The apparent stability of the macroeconomy in the postwar period relative to the prewar period was first seriously challenged by Christina Romer (1986). Romer's studies focused on key macroeconomic measures such as Gross National Product (GNP), the Index of Industrial Production (IP), and the unemployment rate. She shows that the quality of data for the prewar period was poor compared to the postwar period—in terms of both the scope of individual series collected and the accuracy of their measurement. Romer carefully reconstructed these and other prewar and postwar macro series to make them more comparable, and found much less difference in the volatility between the two periods than the uncorrected data indicated.

Have postwar expansions become longer and contractions shorter?

An alternative way of defining business cycle stability is in terms of the duration of cyclical phases. That is, if the postwar stabilization policies were successful, then, on average, postwar expansions should be longer, and contractions shorter, than those of the prewar period.

Diebold and Rudebusch (1992) provide new evidence on duration. To avoid the measurement problems uncovered by Romer, they use the reference business cycle chronology compiled by the NBER. This is based on not just one but several data series to determine the direction of general business activity and therefore the turning point (a peak or trough) in a business cycle. Durations are measured by the length of time between a trough and the following peak for expansions, and vice versa for contractions.

Diebold and Rudebusch use data from 1854 to 1938 for the prewar period and from 1945 to 1990 for the postwar period. Their study does find a marked shift in the average duration of expansions and contractions across the two sample periods. The average length of expansions increased from 26.5 months in the prewar period to 49.9 months in the postwar period, while the average length of contractions fell from 21.2 months in the prewar period to 10.7 months in the postwar period. Such shifts are statistically significant and are not very sensitive to various changes in the prewar sample period covered. For example, the average length of expansions for the period from 1854 to 1929 was 25.3 months, and it was 25.5 for the period from 1854 to 1914. The main difference between the two sample periods is that the second one does not include WWI and the Great Depression. The comparable lengths of contractions were 20.5 and 22.5 months, respectively, for the same two sample periods.

Another look

A study by Watson (1993) explored potential explanations for the postwar changes in the length of expansions and contractions using various output, employment, and financial market data. The

basic strategy was to examine individual series to see if they exhibit the same kind of duration characteristics as the NBER business cycle chronology. He considered three possible explanations for the change in the duration of NBER defined cycles. First, shocks to the economy may have been smaller in the postwar period. Second, the composition of output may have shifted from sectors that are cyclical (manufacturing, for example) to those that are less cyclical (such as services). Third, the apparent stabilization may be due to the way prewar and postwar business cycle dates were chosen by the NBER.

To investigate whether shocks have been smaller in the postwar period, Watson calculated average cyclical durations for a large number of individual data series that were measured consistently over the two sample periods. Examining individual series eliminates the chance of a possible bias in aggregate data due to the difference in the number of the components included in the aggregation in each sample period. Watson's results did not support the notion that shocks have been smaller in the postwar period. For example, in the construction sector, he analyzed the prewar Building Plans series for 1868–1929 and the postwar Building Permits for 1947–1990, and calculated their average durations for the two sample periods. Peaks and troughs in each series were determined by a procedure that closely imitates the NBER dating method. For the construction index, the resulting average durations of the prewar expansions and contractions were 19.1 and 16.6, respectively, whereas for the postwar period they were 18 and 19.8 months, respectively. The results were similar for the other series examined.

Watson did find evidence of a shift in the composition of employment from the prewar to the postwar period. The share of manufacturing employment in the U.S. economy fell from 34.7 percent in 1948 to 17.3 percent in 1990, whereas the share of service employment rose from 11.5 percent to 25.6 percent in the same period.

Despite the evidence of a shift, its implications for cyclical duration are not so clear, since the manufacturing sector was far less cyclical during the prewar than the postwar period. Manufacturing employment grew at an average rate of 2.4 percent for the prewar period and 0.4 percent for the postwar period. The NBER chronology identifies a downturn period when there has been a decline in the *level* of a series. According to this convention, a series with lower average growth will appear to be more cyclical. In this sense, the manufacturing sector has become more cyclical in the postwar period due to its slower average growth. This factor tends to offset the effect of the manufacturing sector's decline as a share of overall employment in the postwar period.

After running statistical experiments that control for the differences in the average growth pattern, Watson found that the resulting data did not exhibit any significant shift in the average duration of prewar and postwar expansions and contractions. Thus, the possibility that an increase in the proportion of less cyclical sectors in the postwar period has caused the shift in average duration is not supported.

This leaves the third explanation, namely, that NBER researchers chose the prewar reference dates in a way that is notably different from the postwar method of reference date selection. This difference could have arisen for two reasons. First, the prewar data may have been processed differently from the postwar data in determining the NBER chronology. For example, certain statistical properties of the data are sensitive to whether a trend in the data is removed or not. It turns out that prewar NBER researchers used detrended data in determining the reference dates, while postwar researchers did not. This change in procedure accounts for some of the difference in the cyclical durations.

Second, prewar NBER researchers relied on sectoral data, which were more cyclically volatile than the aggregate economy. To test this explanation, Watson repeated the NBER business cycle dating for the postwar period using only the same (or closely matched) series that were used by the prewar NBER researchers. Measured in this way, the postwar average durations of contractions and expansions turned out to be 15.6 and 28.9 months, respectively—not significantly different from the 20.5 and 25.3 months of the NBER prewar average contraction and expansion durations. However, they are substantially different from 10.7 and 49.9 months of the postwar contraction and expansion durations of the official NBER reference business cycle dates based upon the current procedure.

Conclusion

It once was widely believed that policies to manage aggregate demand had reduced the volatility of business cycles in the postwar period. Now,

however, this belief is being questioned, since new evidence finds little difference in the volatility of the prewar and postwar economy.

These findings open another debate about the nature of business cycles and about why aggregate demand policies have not been effective in moderating them. According to one view, these demand management policies were *potentially* effective, but they were not successfully implemented. According to another view, known as "real business cycle theory," demand policies could not have altered the nature of business cycles, because cycles are not so much the result of demand shocks, but the result of supply shocks, such as technological progress, relative changes in input factor prices such as oil. So, while the question of the relative volatility of prewar and postwar business cycles seems to be moving toward a resolution, the question of the nature of business cycles and the appropriate policies to moderate them remains to be explored.

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MONETARY POLICY OBJECTIVES FOR 1993

On July 20, Federal Reserve Board Chairman Alan Greenspan presented a mid-year report to the Congress on the Federal Reserve's monetary policy objectives for the remainder of 1993. The report reviews economic and financial developments in 1993 and presents the economic outlook heading into 1994. For single or multiple copies of the report, write to the Public Information Department, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco, CA 94120, phone (415) 974-2246 or fax (415) 974-3341.

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