National Economic Trends

THE FEDERAL RESERVE BANK of ST. LOUIS

Comparing Business Cycles Over the Long Run

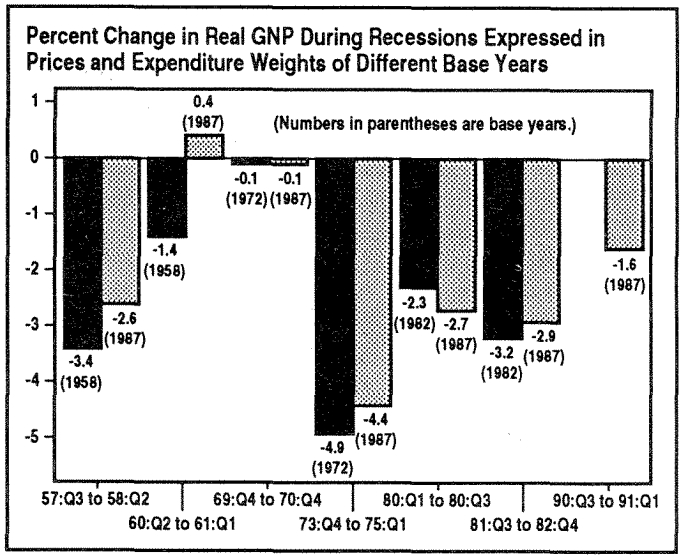
A nation's real output is the quantity of all types of goods and services produced in a given year valued at the market prices of a base year. Economists frequently examine real output changes over business cycles to find out how a current recession compares with previous recessions. For example, economists might say the 1990 recession was mild compared with previous recessions but that the recovery has been slower. It is difficult, however, to compare real output cycles over long periods because the prices of all components of output do not change at the same rate. When some prices rise faster than others, that is a relative price change.

If the base year for calculating real output is changed, the estimates of real output for any given period will change because the relative prices of different types of goods and services will be different in the base years. A longer span of time between the base period and the given period increases the importance of relative price changes. The base year should be close to the given year to provide a meaningful estimate of real output in the given year.

Over the business cycle, certain components of output such as investment or consumer durables vary much more than others. In the United States, the relative price of investment has been falling since 1982. The estimated output series becomes smoother because the volatile investment component receives less weight in the measurement of output. The chart shows the change in real gross national product (GNP), from peak to trough, during the last six recessions measured using two sets of base years, a base year near the recession and 1987.[1] In four of the last six recessions, use of 1987 weights and prices decrease the estimated loss of GNP during the recession. The recession of 1960 is not a recession at all if 1987 is used as the base year for prices. The only recession which appears deeper using 1987 prices is the recession of 1980. Michael Ulan (1994) suggests that the credit controls used to restrict investment spending may have contributed to this exception.

The difficulty of comparing real output performance across recessions is closely related to the larger, well-known problem of comparing measures of real output across long horizons. Relative price changes suggest that comparisons of real output over long periods of time should be viewed as approximations.

—Christopher J. Neely



[1]The chart is excerpted from Michael Ulan, *Business Economics* (April 1994). The data are from the Bureau of Economic Analysis (BEA).

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