



## U.S. Historical Experience with Deflation

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Since the financial crisis began in the summer of 2007, the U.S. core consumer price index (CPI) inflation rate has declined from over 2 percent to about 1 percent per year—an unusually low rate compared with recent history. Some analysts worry about a sustained fall in the general price level—*deflation*.

Many people associate deflation with difficult economic times—slow growth and/or high unemployment—such as in Japan since the early 1990s or in the United States during the Great Depression. Yet, not all deflationary periods are associated with hard times. For example, in the United States from 1876-79, the price level fell on average almost 5 percent per year while average output growth exceeded 7.6 percent.

What causes deflation? Central banks can influence the money supply to determine the average inflation rate over a long period, but other factors can affect the inflation rate over shorter periods. These include technological improvements that reduce production costs and/or changes in demand for cash and other safe assets, perhaps associated with a financial crisis.

The vertical lines on the chart mark the approximate dates of the 1890, 1893, 1907, and early-1930s financial crises. These crises led to bank failures and a reduced money supply as depositors withdrew money, preferring to hold cash. The severe contractions and deflationary episodes that followed these crises have shaped the U.S. perception of deflation. Inflation, output, and (as noted) the money supply fell during or shortly after each crisis.<sup>1</sup> The international experience has been similar; deflation is often associated with poor output growth and high unemployment.

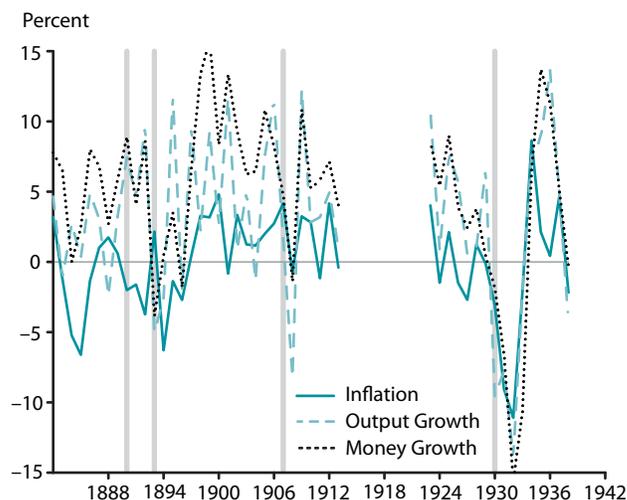
Economists debate the extent to which deflation directly harms the economy or is merely a symptom of a negative shock, such as a financial crisis, that reduces economic activity. Regardless, deflation can be harmful. In particular, unexpected deflation can cause the same sort of effects as lower-than-expected inflation, which causes businesses to pay higher real wages for workers and borrowers to repay more (in inflation-adjusted terms) than they intended. As

a result, businesses may economize on workers and borrow less, which tends to depress output and employment.

**The severe contractions and deflationary episodes that followed 19th century U.S. banking crises have shaped the U.S. perception of deflation.**

Expected deflation, however, can affect the economy too—through the real interest rate (defined roughly as the nominal interest rate minus the inflation rate). Nominal interest rates cannot be negative because people would rather hold cash than lend at negative rates. The real cost of borrowing, however, can be positive even if the nominal interest rate is zero. For example, if prices fall by 2 percent

**CPI Inflation, Output Growth, and Money Growth (1882-1938, annual rates)**



NOTE: The period around World War I (1915-1922) is excluded. See Backus and Kehoe (1992).

per year, loans must be paid in dollars that have appreciated 2 percent in value. A floor on the real cost of borrowing can make consumers and businesses reluctant to invest and, consequently, reduce economic activity.

The recent decline in the U.S. inflation rate has been modest compared with past U.S. deflationary periods. Nevertheless, further declines in the inflation rate appear to be unwelcome by U.S. policymakers. The Federal Reserve is committed to maintaining price stability—consistent with its dual mandate—which observers often interpret as maintaining an average inflation target of 2 percent per year. ■

<sup>1</sup> The data were obtained from Backus, David K. and Kehoe, Patrick J. “International Evidence on the Historical Properties of Business Cycles.” *American Economic Review*, September 1992, 82(4), pp. 864-88. For the United States, they define output as gross national product (GNP), the price level as the GNP deflator, and the money stock as M2.