

# Flation

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“**F**lation”—not inflation, not deflation—is lifted from the title of a book by Abba P. Lerner.<sup>1</sup> For the past 35 years in the United States and, indeed, in most of the world, policymakers and the public in general have been focused on the issue of *inflation*—that is, the continual upward drift in prices of the overwhelming fraction of goods and services produced in the economy. Sometimes the drift was more of a gallop. For most of this period, the upward trend was also characteristic of the prices of assets such as land, houses, and equities. Inflation, prevalent though it has been in our recent economic experience, has not been the norm for most of U.S. history. In the early 1930s, exactly the opposite experience occurred: *deflation*, or a continual downward drift in the prices of goods, services, and assets.

Deflation has a frightening history. Simultaneously with the deflation of the early 1930s, the U.S. unemployment rate soared to about 25 percent in 1933 at the depth of the Great Depression. Although deflation ended in 1933, the damage to the economy was so great that poor economic conditions persisted until the United States became involved in World War II in 1941. Moreover, the economic history of the 1990s in Japan is characterized by deflation. The Japanese economy has stagnated, and unemployment there has risen today to levels not seen in over 40 years. From these and other episodes around the world, many people associate deflation with “hard times.”

The purpose of this analysis is not to get into a discussion of whether a little deflation is compatible with prosperity, although within limits it may be. The more important point is that, without question, substantial deflation is inconsistent with prosperity. Thus, deflation is every bit as serious an issue as inflation; however, the U.S. economy today does not run any significant risk of deflation.

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Obviously, not everyone agrees with this judgment. Based on a few recent observations of month-to-month price changes, some commentators have used the “D” word to express their concern about the current state of the U.S. economy. The objective in this paper is to explore this subject and, we hope, make a contribution to public understanding of the issue.

First, we will elaborate on what we believe is the appropriate objective for Federal Reserve policy. Second, we will explain the generally accepted definitions of inflation and deflation, and discuss the fundamental sources of these phenomena. Third, we will review aspects of price behavior in our economy and discuss how data should be interpreted to determine the inflationary or deflationary state of the economy. Finally, although the issue concerns the behavior of the aggregate price level, we will examine some particular sectoral price changes to help better understand the aggregate price level.

## THE APPROPRIATE POLICY OBJECTIVE FOR THE FEDERAL RESERVE

Our monetary policy framework is this. First and foremost, the central bank must maintain a commitment to price stability. An operational definition of price stability is an environment in which the inflation rate, properly measured and averaged over several years, is zero. All of our inflation data are subject to measurement errors. Experts in such measurements generally agree that current price indexes, despite statisticians’ best efforts, still leave inflation measures that have some upward bias. Hence, in terms of the various inflation indexes, we can say that price stability prevails when broad price indexes exhibit small positive average values for measured inflation and that year-to-year fluctuations around that average are well contained.

If the price level comes unstuck, yielding inflation or deflation, all sorts of other problems will arise. Nevertheless, within the confines of the goal of price stability, the central bank has some flexibility to lean against fluctuations in output and employment. However, the central bank ought not to pursue the goal of stabilizing economic activity so aggressively that it runs any substantial risk of compromising the goal of price stability.

Finally, in leaning against fluctuations in growth and employment, the central bank ought not to

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<sup>1</sup> Lerner, Abba P. *Flation*. New York: Quadrangle Books, 1972.

have goals for levels of the economy's growth and unemployment rates per se. Within a wide range, no one knows what the economy's equilibrium rate of growth is or what rate of unemployment will clear the labor market in the long run. The biggest risks of a major monetary policy mistake occur if a central bank attempts to target the levels of real variables.

Achieving the objective of price stability, as defined above, will yield a highly stable economy. When the market has confidence in Fed policy, short-run changes—that is, over a few months or even a few quarters—in the rate of inflation or deflation will tend to be self-reversing rather than self-reinforcing.

## THE DEFINITION AND SOURCES OF INFLATION AND DEFLATION

At the beginning of the great inflation of 1965-80, there was a wide disparity of professional opinion about the fundamental source of inflation or deflation in an economy. One proposition came to be known as the "monetarist view." This view held that sustained inflation or deflation was always a monetary phenomenon; that is, that the only source of long-run positive or negative trends in the general level of prices in an economy is the creation of an excess or insufficient supply of money balances relative to the growth of the productive capacity of that economy. Milton Friedman of the University of Chicago was the most publicly visible proponent of this proposition. The Federal Reserve Bank of St. Louis, in particular the president of the Bank at that time, Darryl Francis, and the Research staff were vocal advocates of this proposition in the policy arena during the late 1960s and early 1970s. A reading of the Memorandum of Discussion of the Federal Open Market Committee (FOMC) for this period makes clear that there were sharp debates over these issues. The FOMC is the Fed's main monetary policy-making body, and the public record of that period shows that Darryl Francis was a vigorous advocate of the monetarist view.

The proposition that the central bank is the source of ongoing inflation or deflation was a distinct minority view 35 years ago. In the FOMC, Darryl Francis was usually the only one expressing this view. The development of economic theory and the economic history of the past three decades have produced a major change in both professional thinking and public attitudes toward the sources of inflation and deflation. Economists are now largely

in agreement that if the central bank does not achieve the goal of price stability, no one else can. Many central banks around the world, starting with the Reserve Bank of New Zealand in 1990, have acknowledged this responsibility and have adopted explicit numeric inflation targets.

This view also spread into public thinking about inflation in the United States. Paul Volcker, former chairman of the Board of Governors of the Federal Reserve System, is widely credited for the disinflation that occurred in the United States in the early 1980s. Chairman Greenspan is applauded for the additional progress in the 1990s that brought the U.S. inflation rate to the lowest level in almost 40 years.

Today the Federal Reserve accepts its responsibility for the trend rate of inflation. However, a central bank is not responsible for month-to-month wiggles in the inflation statistics. Nor should a central bank attempt to react to short-run variations, since the sources of such noise are beyond its control and likely to average out over a period of a few months or at most a couple of years. One obvious reason for not reacting to short-run developments is that an unknown part of these changes in the reported inflation rate is purely measurement error, or statistical noise.

Professional opinion has also changed about the source of deflation in the 1930s. It is now widely acknowledged that, at a minimum, the intensity of the Great Depression was magnified by the failure of the Federal Reserve to provide sufficient liquidity to the economy in the face of widespread bank failures. The Federal Reserve in turn has learned from that experience. When the U.S. economy has been threatened by liquidity crises in recent years—such as the stock market crash of 1987, the Asian crises and Russian default of 1998, and the terrorist attack of September 11, 2001—the Fed has moved rapidly to inject large amounts of liquidity into the economy. Liquidity crises have been averted, inflation has remained low and stable, and deflation has not occurred.

Experience elsewhere has not been as benign. Over the period from 1981 through 1990, the Japanese economy grew at an annual rate of 3.7 percent and the inflation rate (measured by the gross domestic product [GDP] price index) averaged 1.5 percent per year. The situation in Japan in the 1990s has been remarkably different. The Japanese economy has struggled in and out of recession, and real growth from 1991 to 2000 averaged only 1.1 percent. Over the same period, very low inflation

has turned into deflation. From 1991 to 1996, the Japanese consumption deflator rose at an average annual rate of only 0.5 percent; for 1996 to 2000, the rate was -0.2 percent. Asset prices fell dramatically. The decline of the Nikkei equity price index from a value of close to 40,000 in late 1989 to its recent level of less than 10,000 is common knowledge. What is not as well known outside Japan is that land and real estate prices over the past decade have experienced equally dramatic declines as those seen in equity markets. In April 1993 an index of housing prices in Japan stood at 42.35 million yen. By April 2001 it had fallen to 36.52 million yen, an annual average rate of decline of 1.7 percent.<sup>2</sup> The index of residential land prices reached a peak in March 1991 of 109.7 and fell to 81.7 by September 2001, an annual average rate of decline of 2.4 percent. The decline in commercial land prices was even larger. From a peak of 111.7 in September 1991, the index of these prices fell to 49.1 in September 2001, an annual average rate of decline of 5.6 percent.<sup>3</sup> In terms of the impact on Japan's output and employment, the large deflation of asset prices was probably more important than the gentle deflation of goods prices.

What is responsible for the incredible difference in the performance of the Japanese economy between the 1980s and 1990s? Japan's money stock (using Japan's own preferred measure, M2 + CDs) grew at an average annual rate of 7.9 percent from 1981 through 1990, but only at 2.3 percent per year over the decade from 1991 through 2000. A conclusion consistent with research on this issue is that the ongoing stagnation and deflation that the Japanese economy has experienced in the past decade is likely related to an insufficient supply of liquidity by the Bank of Japan. Slow money growth is not the whole story, but is certainly a significant part of it.

## RECENT PRICE BEHAVIOR IN THE U.S. ECONOMY

Public discussion of inflation in the United States generally is focused on the consumer price index (CPI) published monthly by the Bureau of Labor Statistics. The monthly change in the overall CPI is the so-called "headline" inflation number. The CPI is very visible; it has been widely reported for years and is used to construct cost-of-living adjustments in union wage contracts and Social Security benefits.

Sometimes reference is also made to a "core" inflation rate, usually measured by the CPI excluding prices of food and energy products. The rationale for excluding food and energy prices is that they can be quite volatile, and hence longer-term inflation trends can be obscured when they are included.

Starting in 2000, the FOMC chose to focus on a different measure of inflation: changes in the price index for personal consumption expenditures in the national income accounts. This measure of inflation, which for convenience we will call the "consumption price index," is reported monthly by the Bureau of Economic Analysis of the Department of Commerce. Although this index receives less public attention than the CPI, it is preferred by the FOMC because the methodology used in its construction reduces the measurement bias relative to that in the CPI; also, the coverage of goods and services in this index is believed to better represent consumption patterns. For example, prices of medical services are included in the CPI only to the extent that such services are paid directly by consumers. Prices of all medical services are included in the consumption price index whether those services are paid for directly by consumers or are paid for on behalf of consumers by third parties such as insurance companies.

In recent years, inflation as measured by the consumption price index has been lower than that measured by the CPI.<sup>4</sup> Although the following discussion will refer primarily to the consumption price index, no important issues depend on whether the focus is on that index or the CPI.

What should we expect to observe in an economy where price stability prevails? If it were possible to measure the average level of prices with little or no bias in such an economy, then over a period of time an average measured inflation rate very close to zero should be observed. From month-to-month or quarter-to-quarter, positive or negative changes of the inflation index will occur, but over time these would average out to about zero.

<sup>2</sup> The Housing Loan Progress Association. "Price Survey of the Housing Market." <<http://jin.jcic.or.jp/stat/stats/>> .

<sup>3</sup> National Land Agency.

<sup>4</sup> In August 2002 the Bureau of Labor Statistics introduced a new measure of consumer prices—the chained consumer price index for all urban consumers (C-CPI-U). Monthly data are available from December 1999. The objective of the new index is to reduce the substitution bias that is present in the CPI-U. Between December 1999 and December 2000 (the only period for which final estimates of the C-CPI-U are available), the inflation rate measured by the C-CPI-U differs from that measured by the consumption price index by only 0.1 percent.

What about prices of individual goods and services under such conditions? There would likely be a dispersion of changes in the prices of individual goods and services around zero. In fact, prices of some goods and services could be continually falling, while prices of other goods and services could be continually rising. It is perfectly normal to experience divergent trends of individual prices under conditions of overall price stability. Thus, trends in the prices of individual goods or services cannot be used to judge whether an economy is experiencing inflation or deflation.

An important influence on inflation data in the United States over the past three years has been the behavior of energy prices on world markets. In 1998, energy prices collapsed as world demand dropped dramatically in response to the crises in Asian economies. Petroleum inventories rose unexpectedly and major producers, including OPEC nations, cut production to stabilize prices and adjust inventories. In 1999 and 2000, energy prices rose sharply as economic activity boomed in the United States and other major industrialized economies at a time when world inventories of oil were particularly low. Leading up to 2002, as the U.S. economy sank into recession and economic growth slowed in Europe, energy demand growth slowed and energy prices on world markets fell again.

The average inflation rate over the four years 1994 through 1997 was 2.7 percent per year as measured by the consumption price index. The average inflation rate over the four years from 1998 through 2001 was 1.7 percent per year. The core inflation component of the consumption price index has fallen from 2.1 percent in the earlier period to 1.6 percent in the latter period. The conclusion from these observations is that there has been a small reduction in trend inflation, whether measured by the total or the core consumption price index, over the past four years.

No estimates of the biases in the index are so large as to suggest that the true rate of inflation is now negative—that is, the U.S. economy is not in a deflationary situation. What, then, is the origin of the “deflation threat” that has been featured in some economic and newspaper commentaries? Some of these discussions appear to concentrate unduly on particular prices and on short-run data collected in the immediate aftermath of the September 11 terrorist attacks. The change in the price index for personal consumption expenditures for September 2001 compared with August 2001 was reported at  $-0.4$

percent. The decline is attributable to falling energy prices and to a statistical artifact of the decision made by the Bureau of Economic Analysis in measuring insurance claim payments as a result of the September 11 attacks. The December 2001 consumption price index showed a decline of 0.2 percent for the month and led to further press speculation about deflation. Again, it is necessary to emphasize that a focus on very short-term movements in the price indexes can lead to misinterpretation of the underlying trends of inflation or deflation in an economy.

## CHANGES IN RELATIVE PRICES

One of the great strengths of the U.S. economy is that prices of individual goods and services fluctuate freely. These price changes allow markets to signal how our productive resources can be allocated most efficiently. The disparity among inflation rates for particular goods and services over longer periods of time is significant. From 1980 to 2000, the overall consumption price index rose 95 percent. Consider price behavior in a half-dozen categories within overall personal consumption expenditures. Prices of personal computers and peripheral equipment stand out: such prices are estimated to have fallen by 99 percent since 1980. Note that despite this dramatic price decline, people do not talk about the computer industry suffering from deflation. This is a growth industry, driven by dramatic innovations and increases in efficiency.

Prices of durable goods are estimated to have increased by 20 percent since 1980, considerably slower than the general inflation over this period. Prices of nondurables are estimated to have increased by 65 percent since 1980; nondurable goods prices have risen more than durable goods prices, but still considerably less than the overall rate of inflation. Prices of food and beverages are estimated to have increased 79 percent since 1980, somewhat slower than the overall rate of inflation.

Consider some examples at the other extreme. Since 1980, prices of tobacco and smoking products are estimated to have increased 480 percent and prices of medical services by 197 percent. In the tables that show prices by various sectors, wide differences in experience such as those mentioned here can be seen.

Are falling prices, or prices that increase slowly relative to the general rate of inflation, indicative of “hard times” for particular industries? Sometimes, but certainly not always. Consider personal comput-

ers and consumer electronics in general (the latter is included in the durable goods component of the consumption price index). These are goods that have demonstratively high income and price elasticities. What that means is that the amounts consumers buy increase a lot as incomes rise and/or prices fall. Over time, as consumer incomes have increased and prices have fallen, the size of the market for these high-elasticity products has increased dramatically. Color TVs, camcorders, VCRs, DVDs, and personal computers, to name a few such products, are all now common household items in the United States. Many consumers can remember when these products were either unknown or owned by relatively few households.

This is an important point: expansion of the markets for certain products occurred simultaneously with a fall in prices. Price deflation for these goods was not inconsistent with prosperity in the industries producing them. Indeed, declining prices were essential to expanding these markets. The fall in prices was the result of rapid productivity increases from innovations in the production of these items and/or their components. Firms found it profitable to cut prices and expand production. Workers in these industries found their improved productivity rewarded in higher wages. Consumers, workers, and shareholders all have benefited, even though prices have fallen substantially over time.

High-demand elasticities are a critical element in such success stories. In contrast, consider markets for basic agricultural products in the United States. Productivity improvement in U.S. agricultural production over the years has been tremendous. Prices of these products have also fallen relative to goods in general over the long run. However, both income and price elasticities for agricultural products are relatively low. Hence, economic growth and declining prices have not produced large increases in consumption. As a result, fewer and fewer workers have been required over time to produce more than enough output to satisfy both domestic and foreign demand. Farms have gone out of business, the number of people engaged in agricultural production has decreased, and in recent years farm income has been sustained by large “emergency” farm appropriations out of the federal budget. Because of the low price and income elasticities for agricultural goods, deflation in this industry means hard times for many farmers.

Health care provides a really interesting case of relative price changes. In part, the rapid rate of price increase here represents innovation in the

form of new products and/or improved procedures. Such price changes really reflect significant quality improvements. Ideally such quality improvements would be incorporated into the measurement of a standardized unit of medical services. With some consumer durables, such as automobiles, statisticians have been quite successful in measuring quality improvement. In other areas, capturing quality change into the measurement of a standard unit of output is difficult if not impossible.

As an example, consider laparoscopic surgery to remove the gall bladder. Not that long ago, gall bladder surgery required a substantial period of hospitalization, during which patient activity levels were significantly restricted. Today, with laparoscopic surgery, the length of the hospital stay is much shorter and patient discomfort much less. Moreover, the patient can resume reasonably normal activity, including going to work, after a short postoperative period. The patient and/or a third-party payer may pay the surgeon substantially more today to remove the gall bladder than 35 years ago, but does this increase mean that the price properly measured is dramatically higher? A well-constructed price index might adjust for the reduction in the pecuniary cost of confinement—fewer hospital days—from the improved technology. However, it is unlikely that any price index would reflect the improved quality of the procedure represented by the reduced non-pecuniary costs of confinement and the shorter recovery time now available. Hence the reported change in the price index for such a procedure certainly overstates the true rate of price change.

## FLATION AND THE FED

The Fed’s goal is to maintain low and steady inflation, so that expectations of changes in inflation do not enter importantly in the decisions businesses and households make. Using several different measures of inflation expectations, it is clear that long-term expected inflation has changed little in recent years. There is no evidence that changing inflation expectations figure importantly in economic decisions at this time.

Substantial variability in prices of individual goods is consistent with stability in the overall inflation rate. The variability serves to allocate and reallocate resources across different sectors of the economy, according to changes in consumer tastes and differential trends in productivity advancement. Simply put, it is normal that some industries are growing while others are contracting.

A common business problem is to determine a successful pricing strategy. One aspect of pricing strategy is directly relevant to this discussion. When a firm cuts prices to stimulate sales, it may not be successful if its customers believe that even deeper price cuts are around the corner. An expectation of falling prices may, temporarily, reduce rather than increase sales. It is for this reason that generalized deflation can be so dangerous to the economy. A widespread expectation of falling prices may lead to declining demand across much of the economy as people wait for lower prices in the future. Declining demand may force layoffs, which further depress household and business confidence. Conversely, inflation expectations can lead to rising demands and anticipatory buying.

Many analysts seem to view low inflation and high employment as competing goals. That is certainly not the only possible scenario. Maintaining low and stable inflation contributes mightily to overall economic stability. Consider the situation in the weeks following the terrorist attacks of September 11, 2001, when the economic outlook was highly uncertain. The auto industry was successful in selling a record number of cars in October 2001 through price cuts in the form of zero-interest financing. If consumers had reacted by expecting even deeper price cuts and had delayed purchases, the situation in early 2002 would have been very different. Overall, consumers view price cuts in today's environment as a buying opportunity, not as a forecast of further price cuts to come.

Clearly, the stability in the overall price environment—stability in longer-run expectations—is what allows temporary price cuts to work to boost sales and is an important element in stabilizing the general economy. The current U.S. situation does not match cases in the United States and elsewhere that historically have been associated with ongoing deflation. The Federal Reserve pursued an expansionary monetary policy throughout 2001 that has contributed to restoring equilibrium to the U.S. economy. What policy actions will be appropriate going forward will have to be determined as evidence arrives on the strength and durability of the economic expansion. We must be vigilant, but today it is likely that we enjoy flation—no “in” and no “de.”