CHAPTER 18

Inflation

During the American War of Independence the familiar patterns of trade were disrupted, and the people of Philadelphia faced rapidly rising prices for coffee, tea, sugar, flour, and whiskey. A meeting to protest the price increases was addressed by Daniel Roberdeau, a leader of the Philadelphia militia:

> I have no doubt but combinations [monopolies] have been formed for raising the prices of goods and provisions, and therefore the community, in their own defense, have a natural right to counteract such combinations and to set limits to evils which affect themselves.[1]

And defend themselves they did. A committee of private citizens was formed to control the prices at which merchants sold their goods. Its members included Thomas Paine, author of *The Rights of Man* and one of the guiding spirits of the American Revolution. Even before the meeting at which Roberdeau spoke, men armed with clubs had visited shops and compelled merchants to rescind their price hikes.

At about the same time, bakers across the Atlantic in Paris took advantage of a shortage of bread to raise prices. There the citizens took advantage of the chaos of the French Revolution to break into the bakeries and seize loaves, in many cases leaving as payment exactly enough to cover the lower customary price of bread (and, incidentally, not touching the elegant pastries).

When prices go up, tempers rise, too. Paying more for something than you did last year is upsetting. It is also very common. Very few items cost less today than they did 10 or 20 years ago. The few exceptions are usually new products, such as DVD players,

[1] Quoted in Eric Foner, *Thomas Paine and Revolutionary America* (Oxford: Oxford University Press, 1976), p. 166.

whose prices tend to fall as more of them are produced and both competition and technical change reduce their costs of production. The prices of most other things generally go up.

It was not always so. A loaf of bread cost more—in dollars and cents per pound of bread—in Thomas Paine's Philadelphia than it did in the early 20th century. Wheat flour sold wholesale for about $10 per 100 pounds in Philadelphia in 1800. A century later the price had fallen to less than $2 per 100 pounds. Plain cotton cloth sold wholesale for about 17 cents a yard in Philadelphia in 1800; it sold for about 6 cents a yard in 1900. In the intervening years the price had gone as high as 50 cents a yard during the Civil War, when the high level of demand for uniforms and tents and the disruptions in the supply of cotton drove up the price.

Having fallen throughout most of the 19th century, the prices of both cotton cloth and flour have risen at least tenfold since the beginning of the 20th century. It is also a fact that prices in general have risen more rapidly since the end of the 1960s than in any comparable period since price increases have been systematically tracked.

Inflation is a general increase in prices, often measured by the CPI (Consumer Price Index).

The **Consumer Price Index (CPI)** is a measure of the average prices a typical family pays for the goods and services it buys.

Deflation refers to a general fall in prices as measured by the Consumer Price Index. It is the opposite of inflation.

When most prices are going up, *inflation* is taking place. Is inflation occurring right now? To determine whether inflation is occurring one must calculate an average of a large number of prices. Generally, this is done with something such as the *Consumer Price Index* (CPI) in the U.S. The CPI is a measure of the prices paid by a typical family for the goods they buy. When the CPI increases from year to year, inflation is occurring.

The "index" in the CPI refers to the fact that the average of prices at a certain time is set equal to 100, and then the price level at any other time, before or after, is compared with where it was then. Currently, the benchmark for the CPI is the average of prices over the period from 1982 to 1984. The CPI benchmark was set at 100 in July of 1983, and in January 2004 the CPI was at 185. This means that there was an annual rate of inflation of 2.9 percent in the U.S. during the intervening years.

When the CPI declines from one year to the next, it is called *deflation.* Deflation can be just as damaging as inflation because if prices are falling while costs are not falling—or not falling as fast—a lot of businesses will go under, people will lose their jobs, incomes will fall, aggregate demand will contract, and the whole economy may go into a tailspin.

Inflation means that the buying power of a family's dollar is falling. Each dollar buys less at the grocery store, at the gas pump, or wherever people make purchases. Other price indexes measure the prices of subcategories of goods. Examples include the medical care price index, the higher education price index, the used car price index, the raw materials price index, the index of food prices, and many more. In addition to the CPI there is also a wholesale (or "producer") price index. This measures the prices received by producers when they sell to stores or other intermediaries. Whichever index is used, inflation is measured by how fast an average of prices is rising.

This chapter focuses on *inflation as the result of unsettled conflicts over the distribution of income among employers, workers, raw material suppliers, governments, and others.* If one of these players were indisputably dominant, inflation could generally be kept under

control. But if there is any question about who is dominant, the resulting conflicts are likely to result in inflation. This central idea is expressed in six key points:

1. The amount of inflation varies over the course of the business cycle and also between business cycles.
2. More rapid inflation, which typically takes place toward the end of a business-cycle expansion, is called *cyclical inflation*. It takes place because of the upward pressure on unit labor costs and unit materials costs that occur when unemployment is low.
3. *Structural inflation* occurs when the price level increases rapidly throughout the whole course of a business cycle. Structural inflation takes place because governments, businesses, and families are attempting to live beyond their means and are able to borrow so as to spend more than their incomes. Structural inflation is a relatively new phenomenon, dating back only a century.
4. The *unemployment-inflation trade-off* describes the tendency during a business cycle for inflation to rise when unemployment falls, and for inflation to fall when unemployment rises. *Stagflation* refers to a combination of slower economic growth (stagnation) and generally rising prices (inflation). The term was coined to characterize the hard times of the 1970s.
5. Inflation is costly because it makes economic outcomes unpredictable. It inflicts unforeseen costs and confers windfall benefits on people in arbitrary ways. Controlling inflation is costly also, since it often implies either high levels of unemployment and underutilization of productive capacities, or governmental controls on prices that may themselves produce arbitrary and unpredictable effects and inefficiencies.
6. The particular mix of unemployment and inflation experienced by a country affects its income distribution, with higher levels of unemployment implying greater inequality. For this reason people in various income groups and classes often have different interests concerning inflation and unemployment, with well-off people generally benefiting from lower inflation and more unemployment and the less well-off benefiting from more inflation and less unemployment.

The amount of inflation is called the *rate of inflation*. It is the percentage rate of change of prices. Suppose that two years ago a typical family bought their usual goods and services for $1,000 a month, on average, but last year it had to pay $1,060 a month to buy the same goods and services. The rise would show up as a 6 percent increase in the consumer price index, because 1,060 is 6 percent higher than 1,000. The rate of inflation would thus have been 6 percent between the two years.

As we have seen, inflation was not always a part of life in America. In the past, deflation was just as common. A consumer price index does not exist for the earlier years, but a wholesale price index exists for almost the whole of the history of the United States, relying on the data we have on the prices of cotton, flour, and many other goods.

We present a composite index in Figure 18.1 showing what one would expect from the prices of cotton cloth and flour mentioned above. Prices generally did not rise much before

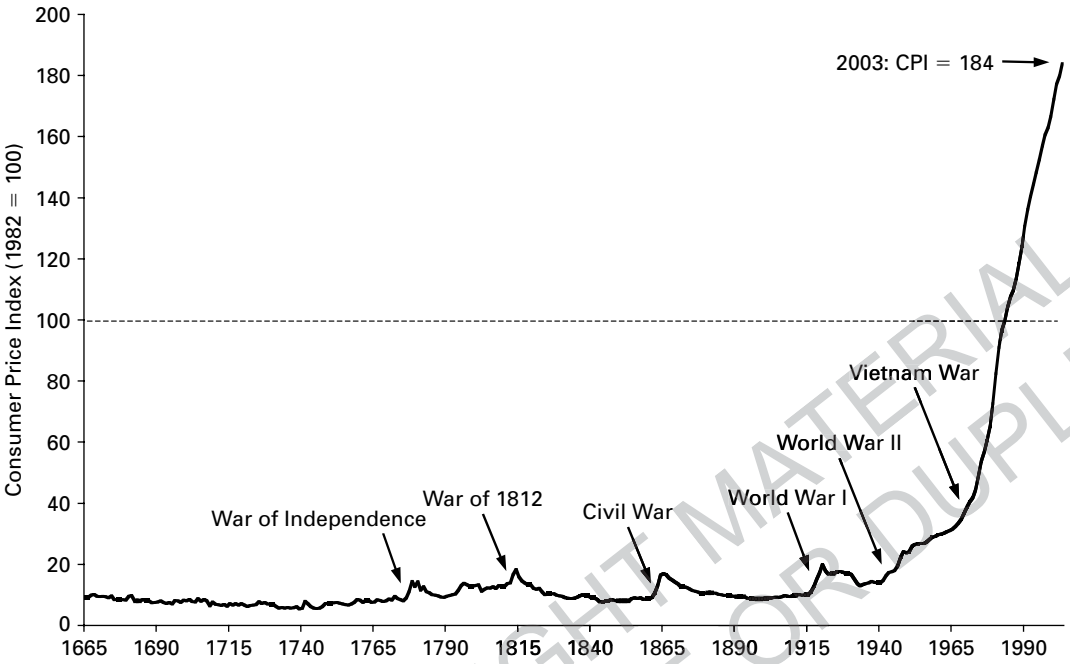

FIGURE 18.1 Inflation in the U.S., 1665 to 2003. This figure shows how prices, on average, have changed—most of the time rising—between the middle of the 17th century and the early years of the 20th century in the U.S. economy. The figure shows that the occurrence of a war, whether in the 18th century or the 20th, usually results in a significant rise in prices. Even the onset of World War II brought about a rise in prices in spite of the fact that prices were officially frozen and a government bureaucracy—the "Office of Price Administration"—was established to control prices.

Sources: John J. McCusker, "How Much Is That in Real Money?" *Proceedings of the American Antiquarian Society*, 2001, Table A-1, Column 6, for all data prior to 1912; Council of Economic Advisors, *Economic Report of the President 2003*, Tables B-60 to B-62; data-conversion calculations by Professor Robert Sahr, Political Science Department, Oregon State University, available at http://oregonstate.edu/dept/pol_sci/fac/sahr/sahr.htm#_Price_Levels.

World War I except during and just after wars. Over long periods prices fell. From 1665 to 1739, for example, prices fell by 40 percent, and from 1814 (just after the War of 1812) to 1845 prices fell by more than half. Prices again fell by half following the Civil War, with the result that in 1900 prices were actually lower than they had been 235 years earlier. In the 20th century, however, and particularly since the Great Depression of the 1930s, prices have risen steadily. At the end of the last century, prices were 20 times higher than they had been at its beginning!

TOO MUCH MONEY CHASING TOO FEW GOODS

Inflation occurs when, at the current or prevailing prices, demanders want to purchase more goods than suppliers have or are willing to sell at those prices. This is the grain of truth behind the popular explanation of inflation as "too much money chasing too few goods."

A dollar bill (or a credit card) in the hands of a potential spender represents a claim on some goods or services. Whether that dollar is in the hands of a family about to purchase groceries, a businessperson considering building a new plant, or a public school superintendent planning to buy additional textbooks makes no difference. In each case the person with the dollar is in a position to claim (by buying) the goods in question.

Whether demanders want to purchase more or less than suppliers have to sell at current prices depends, first, on the demanders' spending intentions and, second, on the availability of money and credit enabling them to carry out their intentions. Demanders' decisions regarding how much to spend will be limited, at least to some extent, by their present incomes, savings, wealth, and other circumstances. Of course, demanders—consumers, businesses, governments at all levels, and foreign buyers—can spend less than, exactly the same as, or more than their current incomes. To spend more than their current incomes they will have to borrow or, what is essentially the same thing, to buy on credit. In the U.S. consumer debt doubled in the decade between 1993 and 2003, going above $2 trillion for the first time at the end of 2003. Three out of five U.S. families have credit card debt, and the amount of credit card debt owed by the average American cardholder is approximately $9,000.

The second issue is whether demanders will be able to obtain enough money or credit to carry out their spending plans. Even for buyers to spend amounts equal to their current incomes, there will have to be a sufficient amount of money in circulation to support their transactions (this is called the "transactions" demand for money). We do not live in a barter economy! And, as noted, if demanders wish to spend more than their incomes, they will have to borrow, but they may not be able to obtain enough loans from banks or other lenders to make the purchases they want to make. This would be the case, also, if credit were available only on terms that are prohibitively expensive.

Even when people have sufficient resources to carry out their spending plans, there is no guarantee that, when all the claims are added, there will be enough goods to go around. When there are not enough goods to go around, inflation may be the result.

When the total claims of demanders exceed the total market value of the available supply of goods (valued at their current prices), there is no way that all the claims can be met. Unless prices rise, shelves will be bare before people can buy everything they want and can afford to pay for. In this situation some demanders will end up with unspent cash and nothing to buy with it. But if prices rise, as they tend to do when demand exceeds supply (see Chapter 8), the *market value* of the available supply will rise until it is equal to the value of all the claims.

Imagine a hypothetical economy (with dollars as its currency) made up of 10 farmers, each of whom grows a different kind of vegetable. One day each of the farmers sells his or her crop to a farm stand for $1,000. Thus, each farmer earns an income from vegetable sales of $1,000. Imagine, then, that the next day all the farmers go back to the farm stand to buy the other farmers' vegetables (they have no taste for the ones they themselves have grown).

But suppose now that on the way to the farm stand, the farmers recall that in the previous year (because of better weather conditions), they had each grown $1,200 worth of vegetables, sold them, and bought $1,200 worth of other vegetables. Hoping that this year's disappointing crop will not be repeated next year and determined to maintain their previous consumption of $1,200 worth of vegetables, they stop at the bank to get $200 loans, which, added to their $1,000 incomes, will allow them to buy $1,200 worth of vegetables. The

farmers all go through the same thought process, and their friendly banker obliges. So the 10 farmers will now try to spend a total of $12,000 (each has an income of $1,000 plus a $200 loan). However, the amount of vegetables grown this year is worth only $10,000 at the current prices. Because the farmers' claims are now 20 percent larger than their incomes, their total demand ($12,000) exceeds the available supply ($10,000 at the current prices) by 20 percent.

If the farm stand owners do not raise their prices, they will end up with empty shelves, $10,000 in their pockets, and a line of unsatisfied customers wishing they could buy $2,000 worth of additional vegetables. Notice that up to this point we have conveniently assumed that the farm stand owners sold their vegetables for exactly what they paid the farmers for them. But now the farm stand owners see that they can raise their prices and end up with $2,000 more in their pockets (better in their pockets than as unspent money in the pockets of dissatisfied customers). The customers, the farmers, that is, will buy all the vegetables on the shelves. The only question is: how much will they pay for them? To meet all the money claims the farm stand owners will raise the prices of the vegetables. The same quantity of vegetables, which at the old prices was worth $10,000, will now, at the new prices, sell for $12,000. Thus, prices will have risen by 20 percent. When there are not enough goods to meet the demand for them, there will ensue a competition among would-be buyers that will allow those who own the goods to raise their prices.

TWO TYPES OF INFLATION

Economists often speak of two types of inflation, cyclical inflation and structural inflation.

Cyclical Inflation

Cyclical inflation occurs because of the high-employment materials cost push and the high-employment labor cost push described in the previous chapter. With regard to labor costs, as employment rises and unemployment falls, the bargaining position of workers relative to their employers improves. The threat of job loss is now less intimidating because jobs are plentiful and workers are scarce. As a result, workers are able to bargain for higher wages.

Cyclical inflation refers to the price increases that typically accelerate toward the end of a business cycle expansion.

Similarly, as the economy expands the demand for materials—both raw material inputs and capital goods—increases, creating excess demand over supply in the markets for these goods. Sellers of these goods are thus able to raise their prices, and the buyers face a materials cost push that, together with the labor cost push, leads them to raise prices.

When both unit labor costs and unit materials costs rise, the cost increases, as we saw in Chapter 17, will tend to reduce profits (the high-employment profit squeeze). Here we see that such cost increases also tend to create inflation.

Recall (from Chapter 12) that the price of the output, P_z, is equal to unit labor costs (*ulc*) plus unit materials costs (*umc*) plus unit profits (*up*). Thus,

$$P_z = ulc + umc + up \tag{18.1}$$

Unit costs ($uc = ulc + umc$) rise during a business cycle expansion (see previous chapter), and then two things can happen: either a firm will suffer a reduction in unit profit, or it will raise its price. In most cases both will happen.

Any increase in price will, of course, be limited by the amount of competition the firm faces. If the firm has many competitors, raising its price will probably result in a significant drop in its sales. In this case the firm would be better off not raising its price much and simply accepting a reduction in unit profit.

However, when the firm has few competitors or when most competitors are facing the same cost pressures and are therefore all eager to raise their prices, it may be possible for a firm to raise its price without losing market share. In this situation firms will try to maintain their unit profits by raising prices.

In either case some inflation will result during the expansionary phase of a business cycle. The opposite happens during a recession. With unemployment rising and demand for materials falling, unit costs begin to fall, or to rise less fast. This leads to less rapid inflation, or even (once in a while) to deflation.

The **inflation-unemployment trade-off** describes the tendency during a business cycle for inflation to rise when unemployment falls and for inflation to fall when unemployment rises.

The result is that the rate of inflation is correlated with the phase of the business cycle. The ups and downs of the economy result in ups and downs of the inflation rate. Moreover, there tends to be a *trade-off* between inflation and unemployment: when unemployment goes down (during the business cycle expansion), the rate of inflation tends to go up, and when unemployment goes up (during recessions), the rate of inflation tends to go down.

The *inflation-unemployment trade-off* is presented in Figure 18.2. The downward slope of the line in this figure indicates that unemployment and inflation are negatively correlated: more of one is generally associated with less of the other.

In the 1970s and early 1980s, however, many countries, including the U.S., experienced more of *both* unemployment and inflation. This was due, mainly, to the formation of the Organization of Petroleum Exporting Countries (OPEC) and the success of this cartel in restricting the supply of oil and driving up its price. Because of the resulting rise in gasoline prices and cost increases for all enterprises using oil as an input, inflation took off. Because more inflation was occurring in the economy no matter what the rate of unemployment, the trade-off line shifted upward and to the right: all combinations of inflation and unemployment were worse than they had been before. In that period inflation was not "cyclical" inflation: the higher inflation rates could not be attributed to cost increases associated with a business cycle expansion.

The inflation-unemployment trade-off curve can also shift downward (or to the left) as indicated by the dotted line in Figure 18.2. Such a shift might occur as a result of the kind of "handshake" discussed in the previous chapter. If business and labor could come to an agreement whereby business pledged job security (or support for full-employment macroeconomic policies) in return for labor's willingness to accept relatively modest wage increases even in times of low unemployment, low inflation could be achieved without high unemployment. In this situation the economy could be at a point such as C in the figure, where there would be less inflation than at point A (with very low unemployment) and less unemployment than at point B (where the rate of inflation would be lower than at

FIGURE 18.2 The inflation–unemployment trade-off. The curves in this figure illustrate the process of cyclical inflation. Higher unemployment is associated with lower inflation, and vice versa. Hence, there is a *trade-off* between inflation and unemployment: having less of one requires having more of the other. Most people would like to have less of both, but we can have less of one only with more of the other. If the solid line in the figure represents the current inflation–unemployment trade-off, we are limited to moving up and down it between points such as A and B. The dashed line represents a *shift* of the inflation–unemployment trade-off curve itself. Such a shift might result, for example, from a drop in the price of oil, or it might be brought about by institutional changes such as the ones described in the "Institutions for Achieving Full Employment" section of Chapter 17. At least some of the points on the dashed line, such as point C, are unambiguously better than points A and B on the solid curve because they represent lower rates of *both* inflation and unemployment. A movement along the original trade-off curve may or may not be desirable, depending on how much one dislikes inflation or fears unemployment. But a movement to a point on a lower trade-off curve will usually be an improvement.

point A). Thus, the dotted inflation-unemployment trade-off curve in Figure 18.2 represents a set of choices more advantageous than those represented by the solid line.

Figure 18.3 shows how the inflation-unemployment trade-off worked in the U.S. between 1959 and 2002. Each point in the figure represents a particular combination of a rate of inflation and a rate of unemployment. The first panel in the upper-left corner shows the combinations of inflation and unemployment for each year between 1959 and 1969 (the 1960s). During these years inflation was clearly "cyclical": the economy moved up and down a very well-defined inflation-unemployment trade-off curve, with high inflation occurring when the unemployment rate was low, and vice versa.

The next panel in the upper-right corner shows what happened in the U.S. between 1969 and 1979 (the 1970s). In this period the inflation rate spiraled outward because, for reasons suggested earlier, the inflation-unemployment trade-off curve itself shifted upwards. Higher inflation and higher unemployment occurred together.

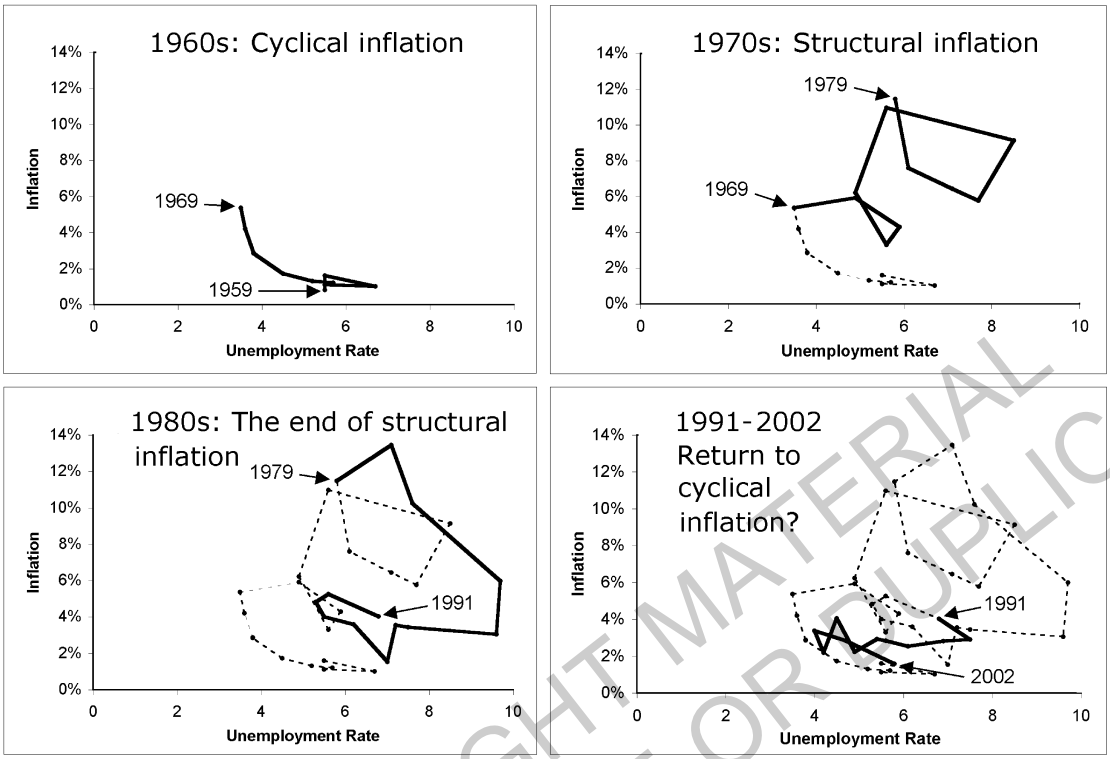

FIGURE 18.3 Cyclical and structural inflation in the U.S., 1959 to 2002. As in Figure 18.2, rates of inflation are plotted on the vertical axis and rates of unemployment on the horizontal axis in each panel of this figure. The difference is that the panels in this figure present actual data from the U.S. economy for the last four decades of the 20th century and for the first two years of the present one. The lines in each panel connect a series of dots, each dot representing the rate of inflation and the rate of unemployment for a particular year. Although it is hard to see them all, the upper left panel has dots for each of the years from 1959 through 1969, with a line drawn from the dot for one year to the dot for the next year; the next panel has lines connecting the dots for the years from 1969 to 1979; and so on. The lines in each panel show the prevailing pattern of inflation and unemployment for the decade represented in the panel. Note how closely the shape of the line in the upper left panel resembles the shape of the lines in Figure 18.2; given this resemblance we can say that there was a particular inflation–unemployment trade–off in the 1960s. During this decade the economy seemed just to move up and down this trade–off curve. The decade of the 1960s can thus be categorized as a decade of "cyclical inflation" because the rates of inflation and unemployment seemed to vary in a predictable fashion over the course of the business cycle, with more inflation occurring when unemployment was low, and vice versa. The decade of the 1970s was just the opposite; this was a time of "structural inflation" (see text of this chapter). In this decade inflation and unemployment, far from moving up and down a discernable trade–off curve, seemed often to move in the same direction, with high inflation occurring at the same time as high unemployment. Indeed, the points in this panel for the second half of the decade lie generally above and to the right of the points representing its earlier years. The third panel, the one for the 1980s, shows that the combinations of inflation and unemployment recorded then, though not consistently moving along a particular trade–off line, did move back to the vicinity of the cyclical trade off curve of the 1960s, with the last five years of the decade seeming to move along a new trade–off curve. This suggests that in the 1980s we saw "the end of structural inflation." Finally, the last panel, the one for the years 1991 to 2002, provides evidence for the conjecture that the U.S. economy is returning to something like the cyclical inflation–unemployment trade–off pattern of the 1960s.

Source: Council of Economic Advisors, *Economic Report of the President* (Washington, D.C.: U.S. Government Printing Office, various years) available at http://www.whitehouse.gov/cea/pubs.html or at http://gpoacess.gov/eop/download.html.

Stagflation refers to the combination of slower economic growth (stagnation) and generally rising prices (inflation) that characterized the hard times of the 1970s.

In the 1970s the U.S. economy was stagnating (that is, growing slowly), unemployment was high, and inflation was occurring nonetheless. So a new word entered our vocabulary: *stagflation*, referring to the combination of a stagnating economy and inflation. This term is generally used to describe the performance of the American economy during the 1970s.

As indicated in the next panel of Figure 18.3, the one in the lower-left corner, the 1980s saw the inflation-unemployment trade-off curve shift back downward. One explanation is that the conservative economic policies introduced after the election of Ronald Reagan as president strengthened business while weakening labor. (President Reagan's first act was to fire striking air traffic controllers, thereby sending a message to labor unions that they would not have a sympathetic ear in the White House.) In any case, whatever trade-off existed in 1979, it seems that a much lower trade-off came into effect during the 1980s.

Finally, in the period from 1991 to 2002, shown in the remaining panel of Figure 18.3, the inflation-unemployment trade-off curve seems to have flattened out, signaling perhaps a return to cyclical inflation.

Structural Inflation

It is clear from Figure 18.3 that the business cycle and the inflation-unemployment trade-off do not explain very much of the inflation that has occurred since 1970. Inflation rates were high at every stage of the business cycle. In fact, the highest rate of inflation in the 1970s occurred during the depths of a severe recession, in 1974 and 1975. What seems to have been at work, then, was *structural inflation*.

Structural inflation, like cyclical inflation, is a result of unresolved conflict over the distribution of income, and like cyclical inflation it occurs because claims on goods exceed supplies at the going prices. The fundamental difference between cyclical and structural inflation is that the conflicts that cause structural inflation are those arising not from the business cycle, but rather from more fundamental structural aspects of society. That is the reason we call the inflation *structural*, and it is also why the inflation happens over the course of a whole business cycle instead of only during the cycle's late expansion phase.

Structural inflation occurs when the price level increases rapidly throughout the course of a business cycle.

A **political stalemate** is a situation in which none of the major economic actors—banks, large corporations, labor unions, the major political parties, the government—has the power to impose its will on the others.

Structural inflation occurs typically when political conflict is high and no group has the upper hand. Structural inflation has erupted in the years prior to major revolutions, such as the French Revolution in the 18th century and the Russian Revolution in the early 20th century. During such periods traditional political structures are disrupted as new groups seek power.

Structural inflation also happens under more normal circumstances. The presence of a *political stalemate* is crucial to structural inflation both in usual and in extraordinary times. A political stalemate is a situation in which none of the major economic actors—banks, large corporations,

labor unions, the major political parties, or the government—has the power to impose its will on the others.

If a political stalemate coincides with a reduction or reversal in the growth of output over a period of many years, structural inflation is likely to result. The conditions for structural inflation can be summarized as follows:

Economic stagnation + political stalemate = structural inflation

Political stalemate and economic stagnation create the conditions for inflation, which, as explained above, occur when the total claims on goods and services in the form of money and credit in the hands of businesses, families, and governments exceeds the supply of available goods valued at their current market prices. The stalemate explains why the claims are excessive, and the stagnation explains why the supply of goods is limited.

Given the excess of claims over supplies at current prices, there are three possible outcomes. The prices of the goods could rise until the value of the existing supply of goods is equal to the total claims on the goods. This is the inflationary process we described in the example with the 10 farmers. But there are two other possibilities: first, the amount of claims in people's hands might be reduced, and second, the amount (rather than the prices) of goods might be increased. These last two possibilities are ways that inflation could be avoided, or at least moderated.

However, reducing the claims in the hands of governments, businesses, and families often is not easy to do. No group wants to give up its claim on the output, and often each party is powerful enough to prevent any reduction in either its income or in its access to credit.

Of course, if some group in the society is powerful enough, it can insist on keeping its claims and force the other groups to give up theirs. This could be done, for example, if very high interest rates discouraged families and businesses from borrowing while the government maintained a constant level of (deficit) spending. Before the 1940s very high rates of unemployment periodically resulted in major cuts in the incomes of workers and hence in reductions in the total claims on goods and services. But clearly such harsh outcomes are not popular. Under conditions of political stalemate, a reduction in claims is not likely to happen.

In the 1980s, with the growing political influence of business and the declining power of other groups, including workers (see Chapter 7), the political stalemate of the 1970s was broken. Much of the reduction in inflation since 1980 is the result of the wage stagnation brought about by the fall in the relative strength of labor unions and of workers in general.

Increasing the amount of goods available also would dampen inflation. And if the demand for many goods exceeds the supply, we would expect not only that prices would rise, but also that the amount produced would increase. This generally happens, but it may happen very slowly and not in sufficient quantity to meet the level of claims for goods. If businesses have a gloomy forecast for profits in the future, as they well might under conditions of political stalemate and economic stagnation, they may be reluctant to hire more workers and to produce more goods, even if there is excess demand. If output does not expand to meet the claims for goods, prices will rise. This is why economic stagnation is part of the explanation of structural inflation.

WHY WORRY ABOUT INFLATION?

The reason why people often worry about inflation is that a sustained rise in the price level erodes the buying power of a salary or wage. For this reason we need to have a way of thinking about the buying power of given amounts of income.

Economists use the term *real* to mean *corrected for inflation*. When we talk of an increase in the *real wage*, we mean an increase in the actual (money) wage large enough to more than keep pace with inflation.

The **real wage**, or **real income,** refers to wages or income corrected to take account of the effects of inflation.

To understand what is wrong with inflation, we must ask two questions. First, what are the effects of inflation on the distribution of income? And second, does inflation affect real incomes?

Concerning the first question, inflation has an uneven and unpredictable effect on the distribution of income. Inflation distributes its costs (and sometimes benefits, too) very unevenly and arbitrarily. An elderly couple living on a pension with a fixed money income will find that the buying power of their income will fall as inflation takes its toll; their next-door neighbors who borrowed a large sum of money may benefit handsomely, because they can repay their debt with money worth less than the amount they initially borrowed. The distributional results of inflation often seem unfair because they are so uneven.

Concerning the second question, inflation clearly has negative effects on real incomes. Because inflation is unpredictable, it makes it very hard to plan for the future. It makes it difficult for families to plan for such things as retirement income and college expenses. Businesses will also have difficulty allocating funds for the purchase of equipment costing millions of dollars if they do not know how much their money will be worth in the future. Thus, inflation results in poor planning, mistaken planning, and sometimes no planning at all. The consequence of poor or inadequate planning is waste.

But inflation may also have positive effects. We can see the positive effects if we consider the negative effects that result from the methods usually deployed to fight inflation. We know from the inflation-unemployment trade-off that inflation can be reduced by macroeconomic policies that raise the rate of unemployment. Rising unemployment undercuts the bargaining power of labor and slows the rate of wage growth, thereby restraining business costs. And if costs are not rising—and aggregate demand is weak because of high unemployment—prices are not likely to rise, either.

Just the opposite series of events occurs during a period of expansion, whether brought on by a turn in the business cycle or as a result of deliberate expansionary monetary policies. Whatever the reason, people's incomes in expansionary periods typically rise faster than prices do. (It usually takes a while for businesses to decide that price increases will not just cause them to lose market share.) So real incomes tend to rise during periods when unemployment is falling and inflation is picking up.

However, if the cure for inflation is more unemployment (as it seems to have been in the U.S. in the early 1980s), fighting inflation will leave most people with less real income, at least in the short run. Thus, the overall cost to society of fighting inflation with more unemployment may be high. As an economy moves downward along the inflation-unemployment trade-off curve, more unemployment will result in less output, and less output will result in less real income.

MONEY WAGES AND REAL WAGES

Does a raise always improve your life? The answer hinges on, among other things, the distinction economists make between money wages and real wages. The actual dollar amount of a worker's wage, say, $8.50 an hour, is the *money wage.* The *real wage* is a measure of the buying power of a worker's hourly earnings in one year *relative to* the buying power of his or her hourly earnings in another year. As explained in the box "Measuring Total Output" in Chapter 16, pp. 412–413, the term *real* means *corrected for inflation.*

The distinction between money and real wages is made so that we can know whether increases in a worker's money wage keep up with, exceed, or fall behind the rate of inflation. This, in turn, enables us to know whether increases in the money wage represent actual improvements in a worker's standard of living.

If, for example, a worker's wage increased from $8.00 an hour in one year to $8.50 an hour the next year, can we say that this worker had a higher standard of living in the second year? Leaving aside the effect of taxes, the answer to the question depends on how much prices went up between the first year and the second. If prices went up by less than 6.25 percent (the increase in the money wage), then the $8.50 an hour enabled the worker to buy *more* in the second year than in the first year. If prices went up by more than 6.25 percent, however, the worker's buying power was *lower* in the second year than it had been in the first: less could be bought with the $8.50 than could be bought with the $8.00.

Economists calculate real wages by observing the general level of prices in a certain year—the "base" year—and then adjusting money wages by the amount of change in the price level using the *Consumer Price Index* (see the definition and discussion of the CPI elsewhere in this chapter). For the purpose of determining the real wage in a particular year, the index is set so that 1982 = 100. In the table below we provide data for certain years showing average money wages (per hour), the CPI, and average real wages (per hour) for U.S. private sector production workers (that is, excluding government and supervisory workers).

	Average Money Wage	CPI (1982 = 100)	Real Wage (1982 prices)
1972	$3.90	43.4	$8.99
1982	$7.86	100	$7.86
1992	$10.76	142.5	$7.55
2002	$14.95	181.4	$8.24

The data in the first row of this table show that in 1972 the average real wage for production workers in the private sector of the U.S. economy, calculated on

Continued . . .

the basis of 1982 prices, was nearly $9 per hour even though money wages were, on average, only $3.90 per hour. (This was the highest point for real wages between the mid-1960s and the 21st century.)

The decline in real wages between 1972 and 1982 is explained by the fact that in that decade prices went up by 130 percent while money wages rose only 102 percent. Relatively speaking, then, wage-earners could buy more with $3.40 in 1972 than they could with $7.86 in 1982.

The average real wage continued to fall until 1993, reaching its low point of $7.52 in that year. Although real wages have been rising since the mid-1990s, in terms of purchasing power they have not yet regained the ground lost since 1972. The average money wage in 2002 was $14.95 an hour, but the average real wage in that year, $8.24, was still 75 cents an hour less than the $8.99 an hour it had been in 1972 (both figures calculated in 1982 prices).

The importance of the real wage concept is that it allows us to see the *combined* effects of changes in money wages and changes in the general price level. Rising money wages are only as good as the difference between their rate of increase and the rate of increase in the consumer price index. If the former is not greater than the latter, you will be going backward while appearing to be going forward.

Source: Council of Economic Advisors, *Economic Report of the President 2004* (Washington, D.C.: U.S. Government Printing Office, 2004), Table B-47.

Is there another, less costly, way to fight inflation? For example, if we could somehow shift the inflation-unemployment curve inward, that would make possible both lower unemployment and lower inflation. If such a shift of the curve could be achieved, inflation could be reduced without lowering real income. Whether the trade-off curve can be shifted inward is a matter of debate, and the facts do not unambiguously support any one view of the issue.

In the early 1980s inflation was sharply reduced—from 13.5 percent per year in 1980 to 3.2 percent per year in 1983. A restrictive monetary policy sent the economy into a recession and thereby brought down the rate of inflation. The result, however, was a brutal bout of unemployment: in 1982 and 1983 the U.S experienced the highest unemployment rates since the Great Depression of the 1930s. The cost of reducing inflation in those years was huge: economists have estimated that the amount of output that could have been—but was not—produced was about $1.4 trillion worth of goods and services (in 2003 prices). This was greater than the entire money cost to the U.S. (in 2003 prices) of fighting World War II, and it came to about $14,000 per household (again, in 2003 prices). So, in effect, every American household gave up about $14,000 as its contribution to stopping inflation in the early 1980s. Between the mid-1980s and the early 2000s, however, inflation remained quite low despite unemployment rates below those that prevailed in the late 1970s.

Given the difficulties of containing price increases, it is clear that inflation should be added to the list of obstacles to full employment policies that was presented in Chapter 17. When employment is already high and unemployment is fairly low, any additional demand for goods—the result, say, of government deficit spending—will likely push up prices.

Thus, if high levels of employment actually are achieved, people may well be confronted with price increases resulting from the cyclical inflationary pressures identified earlier (rising costs). Although in the early 21st century such pressures are considerably lower than they were in the late 1970s, the pressures for cyclical inflation still exist.

Inflation poses a political challenge to full-employment policies because inflation, like unemployment, is unpopular. The costs of inflation and unemployment depend on who you are, of course. Workers suffer enormous losses from unemployment. Those who lose their jobs lose their incomes, while those who remain employed face insecurity and are forced to moderate their wage demands. Conversely, people with a lot of money tend to lose from inflation: inflation erodes the value of what they have. When prices rise rapidly, for example, banks and other lenders often find, to their dismay, that even with the interest payments they receive on their loans, the real value of the loan repayment is less than what was lent, so no real income is earned. In fact, income is lost.

For this reason movements along the inflation-unemployment trade-off curve are likely to redistribute income between the rich and those who are less well-off. In the U.S over the past three decades, increases in unemployment have typically led to a less equal distribution of income. This has been true even when high unemployment has brought a welcome reduction in inflation.

Debates concerning inflation often focus on issues such as the effects of government deficits, changes in interest rates, and rising or falling foreign exchange rates. But underlying the debates is the familiar question of how income will be distributed. Those who place primary emphasis on the need to fight inflation often advocate policies that will increase the amount of unemployment and redistribute income toward higher-income groups. Other people—not necessarily rich—often support anti-inflationary policies, even if the cost is higher unemployment. Workers with secure jobs and people living on fixed incomes (pensions, for example) often favor fighting inflation. For these reasons, the combination of inflation and unemployment each country actually experiences depends on the power of conflicting groups to bring about distributional outcomes that favor them or their allies.

The extent of the resulting inflation and unemployment depends both on the institutions that regulate the economy and on the economic policies followed by the government. There are really two issues here. The first is the position of the inflation-unemployment trade-off curve: does it allow low levels of both unemployment and inflation (like the dashed line in Figure 18.2), or does it permit only high levels of both (like the solid line in Figure 18.2)? The second issue is where on the inflation-unemployment trade-off curve the economy is located. Do we experience relatively high unemployment and relatively low inflation, or is the opposite true?

The actual levels of unemployment and inflation experienced in a particular country will, of course, depend both on the location of the inflation-unemployment trade-off curve and the position of the economy on it at any given time. In the 1960s and the late 1990s in the U.S., for example, both unemployment and inflation were low, while in the 1970s both were high. In the 1980s inflation was low and unemployment was high. Looking at differences among nations, Austria, Germany, and Japan have had low inflation rates and low unemployment, while Spain has had high levels of both. Sweden's relatively low level of unemployment has been accompanied by a rate of inflation somewhat higher than that in the U.S.

CONCLUSION

Economists do not agree on the reasons some countries do better than others when judged on their ability to maintain low levels of both unemployment and inflation. There is some agreement, however, that where the advocates of business interests are powerful, governments are likely to opt for higher unemployment and lower inflation. The United States and the United Kingdom in the 1980s are examples. And where advocates of working people's interests are more influential, government policies are likely to favor lower unemployment, even at the cost of higher inflation.

The government and its policies are obviously of major importance in determining macroeconomic outcomes, not only concerning unemployment and inflation but also affecting the rate of economic growth and the distribution of income. The government is no less important in influencing microeconomic outcomes, such as the prices at which goods sell and the way markets work. We explain the relationship between the government and the economy in the next chapter.

SUGGESTED READINGS

Peter Bernholz, *Monetary Regimes and Inflation: History, Economic and Political Relationships* (Northampton, Mass.: Edward Elgar, 2002).

Richard D. Duncan, *The Dollar Crisis: Causes, Consequences, Cures* (Hoboken, N.J.: Wiley, 2003).

Ellen Frank, *The Raw Deal: How Myths and Misinformation about the Deficit, Inflation, and Wealth Impoverish America* (Boston: Beacon Press, 2004).

Robert M. Solow and John B. Taylor, *Inflation, Unemployment, and Monetary Policy* (Cambridge, Mass.: MIT Press, 1999).

Joseph E. Stiglitz, *Globalization and Its Discontents* (New York: Norton, 2002), Chapter 4, "The East Asia Crisis: How IMF Policies Brought the World to the Verge of a Global Meltdown."