CHAPTER 3

Monetary Policy, Inflation, and Employment

THE ECONOMIC STORY of the late 1960s and the 1970s was a story of rising inflation, slackening growth, and rising unemployment. The challenge of the 1980s is to eliminate inflation, restore growth, and reduce unemployment. Despite differences over the precise combination of policies that will do the job, there is widespread agreement that inflation can and must be reduced if the economy is to operate successfully. The obstacles to successful implementation of an anti-inflation policy have been largely political, although public understanding of this has been complicated by the economic consequences of the oil price shocks of 1974-75 and 1979-80. The proper policy would be one based on a careful weighing of the long-term benefits of ending inflation against the costs which are essentially short run. It is the nature of the political process, however, to focus primarily on the short-run costs of dealing with inflation, as these appear to be more easily quantifiable, and to ignore the more distant but equally important benefits of price stability.

As the acute costs of rising inflation have become more widely recognized, the public has demanded action. That has made possible the implementation of the current set of fiscal and monetary policies aimed at reducing inflation. The decision to end inflation over a period of several years will be sustained by this Administration, even though short-run costs will be suffered before long-term benefits begin to accrue. A broad public understanding of the nature of the immediate but transitory costs and the longer run benefits of reducing inflation can contribute to the overall success of the current policies. On the other hand, any perception that the policies may soon be reversed would cause transitional costs to rise, since upward adjustments in inflation expectations—and, subsequently, prices and wages—would then be realized. In short, any lack of credibility would greatly extend the period of adjustment, thereby increasing the size and duration of short-term costs.

Chapters 1 and 2 reviewed the economic policies and problems inherited by this Administration and the challenges that its economic recovery program poses. This chapter focuses first on the legacies re-
sulting from macroeconomic policymaking over the past two decades before turning to a discussion of monetary policy issues whose successful resolution is central to the Administration's economic recovery program. The concluding section of the chapter outlines the challenge to policymakers to improve upon the past.

THE LEGACIES

THE LEGACY OF ECONOMIC STABILIZATION POLICY

To policymakers in the early 1960s, the main solutions to future economic problems seemed to be in hand. The Federal Government was thought to have all of the tools needed for economic stabilization, along with the skills to use them. Recessions might still occur because investment shifted erratically or because the response to government action was variable, but it was believed that a discretionary stabilization policy could successfully limit the frequency and magnitude of recessions. Inflation might result from decisions to reduce unemployment and increase output beyond the point consistent with price stability, but for the most part inflation seemed manageable. Essentially, it was thought that the economy could be kept on a steadily rising trend by "fine tuning" government actions.

Three key elements characterized policy prescriptions. Greater use was made of models and forecasts of short-term economic activity, prices, and interest rates. Policy decisions were based on a perceived short-run tradeoff between inflation and unemployment, and there was some belief that a long-run tradeoff between inflation and unemployment could also be exploited. Greater emphasis was given to planned changes in budget deficits or surpluses as a means of achieving annual (and sometimes quarterly) targeted rates of inflation and unemployment.

To avoid a potentially painful reliance on fiscal and monetary discipline, budget policy was supplemented by other programs. One approach, the creation of guideposts, was designed to influence changes in individual prices and wages. The belief was that guideposts announced by the government could improve the tradeoff between inflation and unemployment. Proponents of guideposts regarded them as efficient devices for slowing inflation during periods of rising employment and expanding output, and controlling, in the language of the time, "cost-push" inflation. Another program, aimed at reducing the U.S. balance of payments deficit and sustaining an international monetary system based on fixed-exchange rates, involved levying taxes on interest payments from foreign sources to Americans and restricting the amount of U.S. Government and private spending abroad.
Both policy and theory have undergone substantial change since then. A major reason for the change is that additional research revealed the errors and limitations of earlier policy recommendations. Although there was some research that supported the activist policies implemented in the past two decades, many subsequent studies have cast doubt on those findings.

The major failure of the late 1960s and 1970s was to give insufficient weight to the long-term effects of economic policies. For example, the so-called Phillips curve—the observed inverse relationship between wage inflation and unemployment—and its implication that a tradeoff is possible was one of the key notions relied on by economic advisers. But nothing in Phillips' work or in subsequent studies showed that higher inflation was associated with sustainable lower unemployment, and nothing in economic theory gave reason to believe that the relationship uncovered by Phillips was a dependable basis for policies designed to accept more inflation or less unemployment. Nevertheless, Phillips curves jumped quickly from scholarly journals to the policy arena. The speed with which the case made for this tradeoff was accepted as a cornerstone of economic policy contrasts with the slow acceptance of both neoclassical economic theory and the substantial body of evidence which suggests that there is no lasting tradeoff between inflation and unemployment. The economic policies which are now being implemented by the Administration are grounded in this tradition.

Another example of policy failure was the imposition of direct controls on prices, which were defended on grounds that they would bring about lower unemployment in an economy subject to “cost-push” inflation without imposing uneven burdens on the various sectors of the economy. The decision to impose these controls was based on the presumably favorable effects they would have on the expectations of consumers, unions, and businessmen.

Neither guideposts nor price controls, however, have succeeded in stopping inflation. The failures of these approaches have not been failures of economic theory. Instead, they have shown that political expediency or guesses about expectations of inflation are a less reliable guide to successful policy than sound economic analysis.

While economic analysis provides a framework for policy recommendations designed to reduce inflation, increase efficiency, and expand long-run growth of output and employment, policy recommendations based on the notion that it is possible to “fine tune” the economy from quarter to quarter or year to year promise more than economics can deliver. The events of the past 15 years are a good illustration of the dangers of pursuing economic policies based on short-run analysis and focused on immediate problems. Sound policy
requires emphasis on a time horizon during which the sometimes lengthy, and usually unpredictable, lags in economic processes can work. Good economic policy means long-run economic policy. In light of the political incentives that place a premium on quick results, good economic policy also means resisting the previous tendency in our system to change the course of policies prematurely.

**THE LEGACY OF STAGFLATION**

The irony of the 1970s was that the attempt to trade inflation for employment resulted in more inflation and rising unemployment. This period was characterized by relatively high unemployment rates and high rates of inflation, a phenomenon often called "stagflation." The growth of real output in the United States was slower than during the preceding two decades, even though the growth rate of the labor force increased. The rate of increase in the productivity of labor declined, in part because of the effects of externally imposed oil price shocks. The combination of inflation with progressive income tax rates led to steady increases in actual and prospective taxes on real income in the latter part of the 1970s. Government appeared unable to reduce inflation without increasing unemployment or to reduce unemployment without, sooner or later, increasing inflation. The actual result was that rates of inflation and unemployment rose with each succeeding round of expansion and recession, and measured productivity growth was disappointing at best (Chapter 5).

There are those who argue that a permanent reduction in the rate of inflation brings about a permanent rise in the unemployment rate. But the lesson to be learned from the experience of the United States since World War II is that high rates of unemployment can co-exist with either high or low inflation. There is no reason to expect a systematic association between the average unemployment rate and the average rate of price-level change, and none is found in the data when one considers periods of several years or longer (Chart 3-1).

Many factors influence the average rate of unemployment over an extended period of time. Demographic factors—age, work experience, marital status, and other characteristics of the population—affect the supply of labor and entry into and exit from the active work force. Economic policies can either reinforce or offset these demographic factors by influencing the real wage at which workers choose between labor and leisure and the price at which potential investors choose between consumption and capital accumulation. As is discussed in Chapters 4 and 5, government taxes and expenditures have increased relative to national output during the past quarter century, reducing on the margin the incentive to work and the "cost" of leisure.
During 1977 and 1978 there was emphasis on idle resources and an output gap that was to be closed by expansive economic policies. The belief was that stimulative policies would be less inflationary as long as excess capacity existed. The amount of idle capacity was probably overestimated for a variety of reasons—errors in assessing the effects of the 1974 oil price shock, failure to account for the effects of regulation, and the effects of tax and income transfer policies on unemployment and potential output. The presumed gap, however, was not a reliable buffer that would permit additional output without provoking an increase in the rate of inflation. The effort to reduce the unemployment rate by stimulating aggregate demand led to a much higher inflation rate, higher interest rates, and a sharp depreciation of the dollar, but it had no lasting effect on the unemployment rate.

The primary reason for the increase in the underlying rate of inflation in 1979-81 was the excessive fiscal and monetary expansion of 1977-78. Moderate policies probably would have left us with an average rate of unemployment no higher, and possibly lower, coupled
with lower inflation. The average rate of unemployment and the average rate of inflation are best regarded as unrelated in the long term. The failure of previous policymakers to accept this conclusion is one of the principal reasons we have had a decade of stagflation.

THE BUSINESS CYCLE AND RISING INFLATION LEGACY

A shift toward less inflationary economic policies usually affects output and employment first. Inflation, and people's expectations about future inflation, only start to fall after restraint has been maintained for some time.

The more persistent and variable past rates of inflation have been, the less credible the new noninflationary policies will be and, hence, the longer it will take for those policies to achieve the intended results. Conversely, an abrupt policy shift toward greater stimulus first affects output, then employment, and later prices. The lag in the response of prices to stimulative policy also varies; a history of high inflation and frequent policy reversals will tend to shorten these lags.

Cyclical fluctuations in business activity occur primarily because prices and wage rates (that is, nominal magnitudes) do not adjust immediately to change, whether it is change in government policy or change in economic factors, such as the price of raw materials. In the past, this pattern of delayed response was used to justify aggregate-demand management. Most cyclical changes in employment were regarded as "involuntary," the result of insufficient spending by the private sector. The loss to society was deemed equal to what the unemployed would have produced if they had continued to work. Hence, government policies to reduce unemployment were regarded as having low costs and large social benefits. Because the rate of inflation was slow to adjust, policymakers acted as if there was no reason to expect inflation to increase significantly until after a high level of employment had been reached.

Repeated attempts to use fiscal and monetary policy to stimulate output, all the while assuring the public that inflation would be slowed later, left a residue of higher inflation. These attempts, in turn, generated expectations about future trends. The entrenchment of expectations of further inflation induced policymakers to respond with another episode of restraint, thereby creating another recession, followed by another attempt at stimulus—in short, repeated rounds of stop-and-go policy and performance. So long as economic policy had a short-run perspective, this alternating cycle of restriction and stimulus persisted. Meanwhile, the trend in the rate of inflation moved steadily upward.

The costs of adjusting to a low-inflation environment are often underestimated. Policymakers are impatient with the transitory costs ac-
companying such a change. Even when policymakers fully intend to make a permanent change, workers are unable to distinguish immediately between permanent and transitory changes in market conditions affecting their industry. They do not know whether a layoff is temporary or permanent, or whether the real wages prevailing in their industry will be sustainable in the future. Immediate reductions in wages are therefore resisted, and workers are often willing to experience a period of unemployment while waiting to be called back to work in the same industry and at the same wages, rather than change occupation or relocate.

Although changes in labor market conditions do occur, it is not always obvious to those affected whether the changes are permanent. Workers and employers must decide on a course of action while laboring under a high degree of uncertainty. Accepting a lower real wage will entail a reduction in lifetime income if the reduction in demand is temporary. But failing to cut real wages when the reduction in demand proves to be permanent also will mean a reduction in lifetime income as a consequence of lost jobs. The proper choice is usually not obvious at the time. This is a major reason why businesses and workers are slow to adjust prices and wages.

For at least two decades the government has responded to recessions by pushing up Federal spending and monetary growth to stimulate the economy. Each time this has been done, output has recovered and employment has risen. Meanwhile, however, the rate of inflation has been higher in each trough than in the previous trough, and higher at each peak than at the previous peak (Chart 3-2).

The public has apparently drawn two lessons from this experience. First, people have come to expect on average that the rate of price and wage change will rise from cycle to cycle. As a result, resistance to price and wage reduction relative to the increase in the general price level has increased through successive recessions. As anticipated inflation increased, the pressure for higher wages intensified. Second, all recessions are expected to be offset by stimulative government policies, and the costs of unemployment are expected to be reduced by unemployment compensation and related benefits. Thus, there are fewer incentives to look for employment at lower real wages and more reasons to wait for stimulative policies to restore employment in the old jobs at the same real wages.

Discretionary monetary and fiscal policies have added an additional element of uncertainty to economic life. People who want to know whether tax rates will rise or fall must guess whether the bulge in government spending during a recession is a portent of permanently higher spending and tax rates or simply an indication of temporarily higher spending. Past experience gives imperfect guidance. Yet dif-
The Inflation Ratchet (CPI)

NOTE.—YEAR-TO-YEAR CHANGE IN CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS.
SOURCE: DEPARTMENT OF LABOR.

Differences in anticipated tax rates often have been a key factor in decisions to invest in durable capital, to invest in land or other tax-sheltered capital, or to consume.

We have been through four cycles in the past 15 years. Each time, government has made a renewed commitment to conquer inflation. But people's decisions concerning consumption, saving, and investment are now conditioned by the expectation that these cycles will continue to occur in the future, just as they have in the past.

THE NATURE OF THE INFLATION PROCESS

Inflation is essentially a monetary phenomenon. This is not to deny the importance of other factors, such as changes in the price of petroleum, in causing increases in the general price level. What the statement does deny, however, is that persistent inflation can be explained by nonmonetary factors.
Monetary policy actions affect primarily nominal quantities—exchange rates, the price level, national income, and the quantity of money—as well as the rate of change in nominal quantities. But central bank actions do not have significant long-run effects in achieving specific values of real magnitudes—the real rate of interest, the rate of unemployment, the level of real national income, the real quantity of money—or rates of growth of real magnitudes.

Economists recognized long ago that output and employment may be no higher when prices are high than when they are low. A main point of Adam Smith’s Wealth of Nations is that a country’s wealth and income depend on the country’s real resources and the way in which production is organized, and not on the level of prices. It was realized that changes in the price level had some short-term effects on output, but these effects were recognized as the result of transitory changes in demand.

The classical gold-standard mechanism embodied these principles. Unanticipated increases in the flow of gold from abroad stimulated domestic production but gradually raised domestic prices relative to foreign prices. The rise in domestic prices then reduced exports and raised imports, thereby lowering domestic production and employment and eventually lowering prices. The continuous ebb and flow of gold was expected, but the timing of the movements could not be predicted accurately. Inability to predict the movements was recognized as a cause of changes in prices and output.

Once people anticipate that prices will rise, they seek higher wages for their labor and higher prices for their products. The increase in employment produced by stimulative policies vanishes, but the inflation remains. Attempts to reduce unemployment by increasing inflation will work only if people are fooled by the changes in policy. Once people learn to expect inflation, the short-run gains in employment disappear.

It is often stated that inflation is an intractable problem, caused by forces beyond our control. But the monetary nature of inflation suggests that this is not so. More importantly, it suggests that a decrease in money growth is the necessary strategy to end inflation. Frequent use of monetary policy to reduce unemployment at certain times and inflation at others would raise the prospect of generating the same kind of cyclical behavior in economic activity that we have experienced in the past and analyzed in the previous section.

Stop-and-go policies cause uncertainty, hamper the ability of monetary authorities to achieve noninflationary conditions, and ultimately
raise the transitional costs of eliminating inflation. The next section discusses in detail the nature of these costs.

THE COSTS OF INFLATION

Over the last decade, as inflation worsened, the attention of the general public focused on the detrimental effects that rapidly rising prices have on economic performance. These effects were felt in many ways, but the mechanisms by which inflation generated them were not well understood.

The effects of inflation fall into two general categories: (1) those that occur because no one is able to predict the precise rate of inflation; and (2) those that occur even when the rate of inflation is fully anticipated.

The concept of a "fully anticipated inflation" implies a rate of inflation that people can predict and hence take action to minimize its effects. But it is doubtful that a high rate of inflation that was also predictable could ever exist because the same lack of monetary discipline which leads to unacceptably high inflation is also likely to lead to more variable inflation. Indeed, periods of high inflation rates generally have been associated with periods of higher variability of inflation rates. It would take at least as much monetary discipline to maintain a constant high inflation rate as it takes to maintain price-level stability. Once a positive rate of inflation is accepted it becomes difficult to argue against a slightly higher rate.

One of the most important costs of unanticipated inflation is its arbitrary redistribution of wealth and income. Economic transactions are often formalized in contracts that require one party to pay a fixed dollar amount to the other party at some point in the future. When both parties anticipate inflation during the life of the contract, these future dollar payments will be adjusted upward to compensate for their expected lower real value. This upward adjustment is the so-called inflation premium. If, however, the actual rate of inflation turns out to be different from the anticipated rate, the real terms of the contract will have been altered arbitrarily. If the actual rate is higher than anticipated, the fixed payments in dollars will have a lower than expected real value, and the debtor will gain at the expense of the creditor. The same kind of arbitrary transfer occurs when workers and firms agree to wage contracts that implicitly or explicitly assume rates of inflation which later turn out to be incorrect.

In a market economy, changes in the price of one good relative to another signal changes in demand and supply conditions among various markets. An uncertain rate of inflation obscures these signals and thereby reduces economic efficiency. Since prices are rising more
or less together during a general inflationary period, the fact that a price has risen is no guarantee that it has risen relative to other prices. The difficulty of distinguishing between relative and absolute price changes increases as inflation and its variability increase. This leads people to use more time and resources to attempt to decipher relative price changes, as opposed to engaging in more productive activities. Differently stated, inflation tends to make the economic information that people accumulate through experience more rapidly obsolescent than when prices are stable.

Perhaps more importantly, inability to correctly anticipate inflation creates confusion about relative prices over time and compounds the problem of efficient resource allocation. Economic decisionmaking, especially in the private sector, is inherently forward-looking. Decisions made today determine tomorrow's levels of capital stock, production, and consumption. Decisions based on correct anticipation of future relative prices lead to a more efficient allocation of resources over time. High and variable inflation, on the other hand, leads to divergent inflation expectations, and therefore to a larger proportion of incorrect decisions.

Because inability to anticipate the rate of inflation correctly increases the uncertainty associated with economic decisions, especially those that involve fixed-dollar commitments far into the future, it leads to a shortening of the time horizon over which such commitments are made. In the financial markets, uncertainty about inflation causes a relative decline in the volume of long-term bond financing. Neither borrowers nor lenders are willing to compensate the other adequately for the risk. Consequently, the sales volume of fixed-rate long-term debt instruments shrinks and the volume of real investment normally financed in this way decreases. More generally, productive activities yield a relatively lower real return than activities aimed at "beating" inflation. Hence, as more and more resources are devoted to coping with the uncertainty that accompanies inflation, fewer resources are available for real productive activities.

Two costs of anticipated inflation have been widely recognized. In the economics literature they have been dubbed "menu" and "shoe leather" costs. Because inflation requires frequent changes in published (that is, "menu") prices, these changes absorb resources that could be used in other activities. "Shoe leather" costs are those incurred by people attempting to minimize their money holdings by more frequent trips to the bank. Since a great deal of money is held as a noninterest-bearing asset, its real value declines with inflation. People therefore make more strenuous efforts to realize the highest return on their assets and hence they economize on noninterest-bearing balances.
The interaction of a nonindexed tax system with inflation would impose costs even if the rate of inflation were correctly anticipated. Imperfect adjustment for inflation in the taxation of both current labor income and income from capital causes changes in inflation to affect real after-tax levels of income. These, in turn, alter the level and composition of these activities relative to each other and relative to activities on which the return is not distorted. One analyst has estimated the unavoidable costs from this cause alone to be 0.7 percent of gross national product (GNP), and perhaps as high as 2 to 3 percent of GNP. The indexation of tax brackets beginning in 1985, as legislated by the Economic Recovery Tax Act of 1981, will substantially reduce this problem.

The interaction between the tax system and inflation also affects capital formation because of the way in which depreciation allowances are treated. Depreciation allowances for capital assets are based on historical cost rather than current replacement cost. During periods of high inflation the difference between historical cost and replacement cost widens rapidly, leading to allowances smaller than would be considered justifiable. Since deductions for depreciation are determined on the basis of the actual purchase price, smaller real deductions mean higher capital costs. This, in turn, reduces the pace of investment and hence of economic growth. (See Chapter 5 for an extended discussion of these issues.)

THE COSTS OF REDUCING INFLATION

There is, as noted above, a short-lived tradeoff between unemployment and the rate of inflation. This means that policies designed to reduce inflation significantly will temporarily increase unemployment and reduce output growth. The temporary decline in output growth induced by anti-inflation policies forms a rough benchmark against which the subsequent benefits of reduced inflation can be compared. The extent of these costs of reducing inflation depends on four factors: (1) the institutional process of setting wages and prices; (2) the role of expectations in this process; (3) the policy instruments employed to reduce inflation; and (4) the initial rate of inflation.

Flexibility in wages and prices reduces the transitional costs of ending inflation. A policy-induced decline in the growth rate of monetary aggregates will be associated with a decline in the growth of real output, but the more rapidly this decline in output is followed by a moderating of inflation, the more rapidly will output growth return to a rising trend. One important factor affecting the flexibility of wages and prices is the institutional environment in which they are determined. The costs of continuously negotiating and resetting prices and wages, for example, has given rise to the common practice
of changing wage and price agreements relatively infrequently. While this practice makes economic sense for individuals and firms, it builds a degree of inertia into the system.

Wage contracts in major industries in the United States typically cover a 2- or 3-year period. Since these contracts specify basic wage increases over the life of the contract, the current rate of wage inflation was determined in part as long as 3 years ago. Because major wage contracts are staggered over approximately 3 years, wage settlements in the first year of each "3-year round" tend to set the pattern for settlements in the following 2 years. This extends the influence of any year's wage settlements beyond the lives of the contracts. In addition, many contracts include automatic cost-of-living adjustments that preclude downward wage flexibility, even when it might be justified by conditions specific to a particular industry or firm.

Government regulations or standards that dictate prices or wages, reduce competition, or otherwise reduce the flexibility of firms and workers in responding to economic conditions also add to the inflexibility of wages and prices. Programs now under way to bring regulatory relief to industries that have been overregulated in the past should diminish this source of rigidity (Chapter 6).

Decisions concerning the determination of prices and wages are dominated by perceptions of future market conditions, such as the expected rate of inflation. Workers will accept nominal wage increases that, given their expectation of inflation, imply an acceptable real wage. If their expectations about inflation are revised downward in light of announced policies to end inflation, wage and price increases will moderate. The pace of this adjustment in expectations is an indication of the degree of public confidence in anti-inflationary policies.

The primary policy tool for ending inflation is a decrease in the rate of growth of money. The question of how rapidly the monetary deceleration should proceed must be answered in the context of public expectations. In view of past experience, when efforts to reduce inflation were abandoned as the short-run costs began to accrue, the public has come to expect that such policies will continue to be short-lived and that inflation will persist. Frequent swings from restrictive to stimulative policy and back have led to a "wait and see" attitude on the part of the public. The mere announcement of new policies is not sufficient to convince people that they will be carried out. Rather, public expectations regarding the future course of policy are adjusted only gradually as policy actions turn out to be consistent with policy pronouncements. The credibility of policy authorities, like the credibility of anyone else, is enhanced when they do what they say they are going to do. For the Federal Reserve, this means setting
money growth targets consistent with a sustained decrease in the rate of inflation and then adhering to those targets. The more success the Federal Reserve has in meeting those targets, the less time it will take before the public is convinced of the policy’s credibility.

In the current environment, even if a successful effort is made to reduce money growth, past experience with high and variable inflation will affect the speed at which financial markets reflect progress toward a long-run noninflationary policy. Having repeatedly suffered sizable capital losses on their holdings of long-term bonds, investors will be unwilling to commit new funds to these markets unless they are compensated for the risk that the current commitment to overcome inflation might be abandoned. Without adequate compensation for this risk, individuals will continue to prefer to invest in short-lived rather than long-lived financial assets. While this preference may prevent investors from maximizing the expected return on their assets, it allows them to minimize the adverse effects of future increases in inflation and interest rates.

Present concern about future monetary growth, inflation, and interest rates is related to the knowledge that the Federal budget will continue to show large deficits for the next several years. Financial investors fear that these deficits will cause either a sharp increase in interest rates—which would slow the recovery from recession—or an increase in monetary growth if the Federal Reserve attempts to hold interest rates down by adding reserves to the banking system through open market purchases of government securities.

Interest rates that are considerably higher than the current rate of inflation can have an adverse effect on investment and real economic growth. The level of long-term interest rates at the end of 1981 did not reflect investor willingness to believe that inflation will decline over the next several years. The presumably large but unmeasurable premiums being demanded by investors constitute a major obstacle to achieving rising output and employment with falling inflation.

Expectations about future rates of money growth, like expectations of future inflation, are likely to be more divergent the greater the variability of past money growth. These expectations should converge more rapidly as the Federal Reserve improves its ability to control money growth. More precise control of money growth around the target path will reduce the difficulty of inferring from actual growth rates whether or not the announced targets are, in fact, a reliable indicator of future money growth. In such an environment, variations in money growth will reflect only random and short-lived deviations, which would have little effect on either short- or long-run expectations about monetary policy. But failure to achieve more precise monetary control, by impeding a rapid adjustment of expectations,
would significantly raise the costs of reducing inflation. Thus, the payoffs of greater precision could be quite large.

In summary, high and varying inflation imposes costs on society by reducing future standards of living. These costs, though presumed to be large and pervasive, are not easily calculated. There is a temporary output loss in the initial stage of a transition to price stability. Such loss, however, must be weighed against the future increases in output that would be achieved by ending inflation. The policies of the Administration are based on the view that the cost of continuing to endure the high rates of inflation of the 1970s would be greater than the costs of implementing a successful noninflationary policy.

MONEY AND MONETARY POLICY

MONEY CREATION AND FEDERAL FINANCE

The deficit of the Federal Government is financed by the issuing of interest-bearing liabilities, such as Treasury bills and long-term bonds, and noninterest-bearing liabilities, which include currency and bank reserves held as deposits with the Federal Reserve System. The noninterest-bearing liabilities constitute the monetary base. When there is unanticipated inflation, holders of the interest-bearing liabilities are implicitly taxed because the nominal interest rates on their holdings no longer fully compensate for inflation. Holders of currency and reserves, however, bear an implicit tax even when inflation is anticipated. Banks usually seek to shift some of the implicit tax on their reserves to depositors. The portion of the tax ultimately absorbed by depositors depends on the administrative limits on interest paid on these deposits, and on the degree of competitiveness in the banking industry.

The purchasing power of the dollar declines over time when the growth of the money stock exceeds the growth of demand for real money balances. As a result, holders of money incur a loss that is related to the rate of inflation. As discussed more fully in Chapter 5, the Federal Government benefits from anticipated inflation because the real value of its noninterest-bearing liabilities falls. It also benefits from unanticipated inflation because the nominal interest on its interest-bearing debt does not fully compensate for the decline in the purchasing power of money. The revenues obtained in this fashion by the Federal Government serve as a substitute for other, more direct taxes. This "inflation tax" may be more or less efficient than other taxes in financing government expenditures, but while all other taxes are legislated by the Congress (or State and local governments), the inflation tax is not.
One troublesome aspect of the inflation tax is not so much its existence as uncertainty about its amount. Historically, high average rates of inflation have been associated with high volatility—that is, large swings in inflation rates from year to year. Financial markets readily incorporate expected rates of inflation into interest rates, but they are unable to price that portion of the inflation rate that is unanticipated.

MONEY VERSUS CREDIT

Discussions of monetary policy frequently fail to take account of the difference between money and credit. Money is an asset that people generally accept as payment for goods and services. It consists of coins, currency, and checkable deposits. Credit, in contrast, is one party's claim against another party, which is to be settled by a future payment of money. Confusion about the difference between money and credit arises because people can increase their spending either by reducing their money balances or by obtaining credit.

The market for money is distinct from the market for credit. The supply of and demand for credit influence primarily the interest rate, which is the price of credit. The supply of and demand for money, on the other hand, determine the purchasing power of money. Additional confusion about the difference between money and credit arises because the monetary authorities create money primarily by purchasing credit market instruments. These actions tend to increase the supply of available bank credit and consequently tend to lower interest rates, at least initially. Over a longer period of time, however, the creation of money has important effects on economic activity that tend to raise interest rates. Monetary expansion leads to an expansion in nominal income and economic activity, which in turn generates an increased demand for credit, thus reversing the initial decline in interest rates. In addition, a sustained higher rate of monetary growth will soon produce higher nominal interest rates to compensate lenders for the expected decline in the real value of their wealth.

When interest rates are high, credit is often said to be "tight," meaning that it is expensive. This does not necessarily mean that money is tight in the sense that its quantity is restricted. Indeed, quite the opposite is likely to be the case. "Easy" money, in the sense of rapid growth in the stock of money, may very well be the underlying reason for a tight credit market. Conversely, tight money in the sense of slow growth in the stock of money is likely to lead eventually to a fall in nominal interest rates as inflation expectations subside. But it is credit, not money, that is easy. Over the long run, the effect of the growth of money on the real volume of credit is essentially
neutral. Monetary expansion can succeed in driving up the nominal supply of credit as well as other nominal magnitudes. But it cannot significantly alter the real supply of credit or the real interest rate (the nominal rate adjusted for inflation), except indirectly through the uncertainty associated with inflation and because of the effects of an unindexed tax system. Monetary expansion can permanently reduce the purchasing power of money, but not the real price of credit.

It is often stated that such financial innovations as money-market funds undermine the conduct of monetary policy. Statistical support for this assertion is dubious. What would have to be demonstrated is that financial innovation—which is to a large extent the result of policy-imposed constraints on the financial system in an inflationary environment—has made it more difficult to achieve a given monetary target, and that the link between changes in nominal GNP and changes in the monetary aggregates—that is, changes in velocity—has become less predictable. The evidence does not seem to support either proposition. A study recently published by the Federal Reserve suggests that the monetary authorities have the ability to control the measure of transactions balances known as M1 with a reasonable degree of precision. Furthermore, changes in velocity do not appear to be any more volatile than they have in the past. Indeed, changes in the trend of the growth rate of nominal GNP over the period 1960 to 1981 are almost entirely attributable to changes in the trend of the growth rate of the money stock, (M1), as opposed to changes in the trend of the growth rate of velocity (Chart 3-3).

It is inflation and a highly regulated financial system that have spurred financial innovation. Inflation, and consequent higher interest rates, have also raised the real cost of reserve requirements for financial institutions. At the same time, the public has tended to economize on noninterest-bearing money balances. Thus, incentives were created for the public to demand, and for financial institutions to supply, substitutes for existing transactions accounts that are subject neither to reserve requirements nor interest rate restrictions. But innovations which are attractive only because they provide a means of avoiding existing regulations waste resources. The inefficiencies which such innovations are designed to circumvent could have been minimized by payment of interest on required reserves and on transactions balances. These inefficiencies will be greatly reduced when price level stability is restored.

MONETARY POLICY OBJECTIVES AND STRATEGY

A slow and steady rate of money growth is one of the four basic elements of the Administration's economic recovery program. While the formulation and implementation of monetary policy is the re-
responsibility of the Federal Reserve, the Administration believes the announced policy of the Federal Reserve is consistent with the economic recovery program. Thus, the Administration expects that the Federal Reserve will achieve an orderly reduction in the trend of money growth to a noninflationary rate. (See Chapter 8 for a discussion of recent monetary developments.)

We have discussed in the previous section how large risk premiums—the inflationary psychology—impose costs on the economy and constitute a major obstacle to achieving a high rate of saving and investment and rapidly rising standards of living. Announced changes in policy cannot lower these risk premiums in the short run. Credibility must be earned by performance. The longer the heritage of inflation, the longer it will take to demonstrate the credibility of current policy.

Controlling Monetary Aggregates

Some basic principles can be used to evaluate monetary policy actions. First, the monetary aggregate that is selected for policy purposes should be chosen with two factors in mind. One is that growth
of the aggregate should be closely related to a primary objective of policy, which is to reduce inflation. This means that the aggregate must be closely related to national income in current prices. The second factor is that the Federal Reserve should be able to control the aggregate. Although a broader monetary aggregate may bear a closer relationship to nominal income than a narrower one, it is not appropriate for the Federal Reserve to emphasize the broader aggregate if it cannot be controlled as closely. Such a broader aggregate, however, may be a useful indicator of the effects of policy if timely data are available. As has already been discussed, the Federal Reserve has the ability to control the M1 aggregate with a reasonable degree of precision.

Success in controlling monetary aggregates is in part dependent on prevailing exchange-rate policy. A policy designed to maintain a given value of the dollar on foreign exchanges is inconsistent in the long run with a policy of achieving given monetary targets. As will be discussed in detail in Chapter 7, the policy of the Administration is to permit exchange rates to be determined by market forces. Such a posture relaxes an important constraint on the ability of the monetary authorities to set and achieve monetary targets.

Financial innovations in recent years have complicated the evaluation of the inflationary potential of monetary growth. The development of new financial instruments necessitated a recent redefinition of the monetary aggregates used by the Federal Reserve. The new measure of transactions balances (M1), in addition to including the public’s holdings of currency and demand deposits at commercial banks, also includes the new types of checkable deposits offered by financial institutions, such as negotiable order of withdrawal (NOW) accounts. These interest-bearing checkable deposits are clearly used for transaction purposes and thus properly belong in M1.

Under the operating procedures of the Federal Reserve, accuracy in controlling a particular monetary aggregate depends upon the reserve requirement structure. In principle, reserve requirements should be applied uniformly to all deposits included in the monetary aggregate that the Federal Reserve is most committed to controlling and held at zero on deposits the Federal Reserve is less interested in controlling. Since the existing structure of reserve requirements was originally specified for other reasons, such as bank safety and allocation of credit, it does not meet this principle. As a result, the Federal Reserve must continuously monitor and compensate for the shifting relationships between the various monetary aggregates and total bank reserves.

This problem, which has been severe in the past, will be reduced greatly over the next few years. A restructuring of reserve require-
ments that will allow closer control of M1 is currently being carried out under provisions of the Depository Institutions Deregulation and Monetary Control Act of 1980. After complete implementation of these provisions is achieved by 1988, reserve requirements on transaction accounts will be nearly uniform, and those on most other accounts could be eliminated.

Interest Rates Versus Money Stock Targets

Prior to the 1970s the Federal Reserve (like most central banks) judged the appropriateness of monetary policy primarily by looking at credit conditions and interest rates—specifically, by watching short-term interest rates as an indicator of money-market conditions. However, the problem raised by this procedure was the difficulty in knowing exactly how much to vary interest rates in order to stabilize the economy. In times when credit demand was strong, too small an increase in interest rates generated spending in excess of the economy's capacity to produce, thereby fueling inflation. Similarly, interest rates might be allowed to decline by too little at times of weak credit demand, contributing to a recession.

In practice, monetary policymakers tended to be cautious in attempting to change interest rates, with the result generally being too much expansion of money when credit demand was strong and too little expansion when credit demand was weak. This procyclical money growth has tended to exacerbate, rather than dampen, business cycle fluctuations (Chart 3-3).

The procyclical growth in money was accompanied by a secular growth in money and increases in inflation. As the rate of inflation soared in the 1970s, market interest rates became an even less reliable guide to monetary policy. Market interest rates tend to be high when the inflation rate is high and low when inflation is low, given private and public borrowing demand. Consumption and investment decisions are based on real (inflation-adjusted) interest rates, not nominal interest rates. High nominal interest rates do not necessarily mean that 'money is tight.' High interest rates, in fact, may go hand-in-hand with 'easy money.' Since it is difficult to measure inflation expectations, it is difficult to know how much of an adjustment to make in nominal interest rates to determine the real interest rate. For these reasons, monetary policy is more appropriately based on changes in the growth of money than on changes in market interest rates.

When the Federal Reserve first adopted monetary targets in the early 1970s, it attempted to alter interest rates to achieve a desired rate of monetary growth. The growth of money was controlled through the marginal cost to banks of acquiring additional reserves, as indicated by the Federal funds rate, rather than through direct
control of the quantity of reserves. (The Federal funds rate is the rate at which banks borrow excess reserves from each other.) In 1975, however, the Congress urged the Federal Reserve to adopt annual targets for monetary growth. With passage of the Full Employment and Balanced Growth Act of 1978 (the Humphrey-Hawkins Act), the requirement for money growth targeting became more specific. Since then, monetary authorities have been modifying their procedures in order to achieve their monetary targets.

On October 6, 1979, the Federal Reserve adopted a new approach which put much less emphasis on fluctuations in short-term interest rates. Instead, the new procedure placed primary emphasis on the amount of bank reserves as an operating target and allowed interest rates to be determined more freely by the market. What the Federal Reserve decided to do at that point was to control the quantity of reserves, rather than their price. Under the old procedures the average Federal funds rate typically did not vary by much more than one-half of a percentage point between monthly meetings of the Federal Open Market Committee. But after October 1979 the allowable range of the Federal funds rate was increased.

*Enhancing Monetary Control*

Stable monetary growth will serve to stabilize prices, act as an automatic stabilizer against temporary output fluctuations, and help to make public expectations about inflation consistent with the underlying rate of monetary growth. Achievement of stable monetary growth will require adequate control over total bank reserves. Two types of reserves are available. Nonborrowed reserves are owned outright by banks and are supplied by the Federal Reserve through open market operations. Borrowed reserves are supplied through temporary loans from the discount window of the Federal Reserve. The monetary authorities can directly control the amount of nonborrowed reserves, but they have only indirect control over the small but potentially volatile amount of reserves which bank borrow at the discount window.

Although borrowed reserves constitute, on average, only 2 to 3 percent of total reserves, fluctuations in borrowing can contribute significantly to short-run changes in total reserves. Reform of the discount window has therefore been proposed to make borrowed reserves more controllable and thus more predictable. Under these conditions, the Federal Reserve would be able to meet its targets for total banks reserves and the monetary base more accurately.

The volatility in borrowed reserves could be reduced by tying the discount rate to market rates so as to reduce variability in the incentive to borrow. To keep such variability to an absolute minimum, the Federal Reserve would also have to set its discount rate somewhat
above market interest rates—that is, to act as a penalty. A penalty discount rate would be especially effective when the Depository Institutions Deregulation and Monetary Control Act of 1980, which makes reserve requirements significantly more uniform, is fully implemented.

An even more successful operation of a penalty rate would require a switch from the Federal Reserve's lagged reserve-requirement rule to a system of contemporaneous reserve requirements. The current rule, which became effective in 1968, states that in any given week institutions must hold reserves (as deposits at a Federal Reserve Bank or vault cash) in prescribed percentages of their various types of deposits 2 weeks earlier. The earlier system of contemporaneous reserve accounting required banks to hold reserves based on the current week's deposits.

Under lagged reserve accounting, the amount of borrowed reserves fluctuates considerably over the short run. During any 2-week period the total reserve requirement is predetermined by deposits 2 weeks earlier. This means that reserves must be supplied within the period, either borrowed or nonborrowed. Under current operating procedures, the Federal Reserve controls the growth of total reserves in future periods by varying the mix between borrowed and nonborrowed reserves. If a penalty discount rate tied to market interest rates were introduced, borrowed reserves would probably shrink to a small and relatively constant amount.

The Federal Reserve Board has requested public comment on its proposal to return to a system of contemporaneous reserve accounting. An important reason for going back to contemporaneous accounting would be to permit greater flexibility in the discount rate, at a penalty level or otherwise, which in turn would provide more precise short-run control over total reserves by reducing the volatility of borrowings. Even in the absence of a penalty discount rate, however, contemporaneous reserve accounting would allow open market operations to have a more immediate effect on total bank reserves.

INSTITUTIONALIZATION OF A NONINFLATIONARY MONETARY POLICY

The existence of high and varying rates of inflation, high and varying rates of interest, and volatile exchange rates for more than a decade clearly suggests that monetary management can be improved in the future. The Administration has supported and will continue to support the pursuit of a noninflationary monetary policy. The issue discussed in this section is: Once inflation has been eliminated, how can price-level stability be maintained?
Price stability is an objective that is arrived at through the political process, but it often conflicts with other political and economic objectives in the short run. It has therefore been difficult to establish institutional arrangements that will ensure price-level stability. The traditional argument for an independent monetary authority is that insulation from politics enables the central bank to resist pressures for inflating, even when the government would find an inflationary policy politically appealing.

Existing institutional arrangements have not ensured price stability. In the past 17 years, gold reserve clauses related to demand deposits at commercial banks, and then to currency held by the public, have been terminated. The Bretton Woods fixed exchange-rate system began to break down in the late 1960s, and the last link between the U.S. dollar and gold was formally severed in 1971. Since then, the monetary authorities have had considerable discretion in determining the rate at which new money is created.

As a result of the rising and volatile inflation of the past, economists have been evaluating alternative approaches to achieving and maintaining a noninflationary monetary policy. The congressional mandate to create a Gold Commission is symptomatic of a desire to find institutional arrangements that will ensure price-level stability. The remainder of this section discusses two approaches to the problem. One would involve some linkage of our monetary system to the official U.S. gold stock. The other would involve statutory or constitutional rules limiting monetary growth or requiring a stable price level.

It is important to keep in mind that alternatives to the present arrangement should be evaluated in terms of the answers they provide to these two questions: Is the rule or norm perceived to be credible by the public? Will departures from the stated norm impel policymaking institutions to correct them? If the answer to either question is "no," institutional change would not have served its purpose.

GOLD STANDARD

Some economists and elected officials have recently been advocating a return to a gold standard as a lasting way to restore confidence in the U.S. monetary system. The basic idea is that excessive money creation could be prevented by anchoring money to a scarce resource. In addition, it is argued that the establishment of a gold standard would induce savers to accept lower nominal rates of return on their assets. This would occur because fiat money would be convertible into gold at a fixed price, and thus an effective constraint would be placed on growth of the money stock and the rate of inflation. Lower rates of interest, in turn, would result in a rapid resump-
tion of economic growth. So, in essence, the contention is that restoration of a gold standard would not only stabilize prices but also raise and stabilize output growth.

It is useful to review at this point how gold standards actually performed in the past. The evidence does not suggest that it achieved greater stability in price levels or growth. Much of the claimed price-level stability achieved under previous gold standards is based on Gustav Cassel's observation that "the general level of prices in 1910 was practically the same as in 1850." ¹ Professor Phinney of Harvard was one of the first to point out that "unfortunately, when Cassel came to choose base years, he completely forgot the distinction between the secular and the cyclical to which he had called attention." ²

Chart 3-4

Jevons-Sauerbeck Index of Wholesale Commodity Prices

Chart 3-4 reproduces the Jevons-Sauerbeck index which appeared in the Phinney article. The index shows large and extremely long swings in prices lasting up to 30 years. Increases and decreases were on the order of 30 to 50 percent. The chart reveals very little evidence of long-run price-level stability. More information can be gleaned by considering the wholesale price indexes of four countries for the period 1814-1913 (Table 3-1). Perusal of the table leads to two conclusions. First, the gold-standard period was very deflationary on

the whole, with the price levels in the United States and the United Kingdom dropping by 44 percent. Second, price-level cycles were deep and protracted.

**Table 3-1.** Wholesale price indexes, 1814-1913

<table>
<thead>
<tr>
<th>Item</th>
<th>United States</th>
<th>United Kingdom</th>
<th>Germany</th>
<th>France</th>
<th>Italy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indexes (1913-100):</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1814</td>
<td>178</td>
<td>178</td>
<td>129</td>
<td>132</td>
<td></td>
</tr>
<tr>
<td>1849</td>
<td>90</td>
<td>90</td>
<td>71</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>1872</td>
<td>133</td>
<td>125</td>
<td>111</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>1896</td>
<td>67</td>
<td>76</td>
<td>71</td>
<td>71</td>
<td>74</td>
</tr>
<tr>
<td>1913</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Percent change:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1814 to 1849</td>
<td>-55</td>
<td>-49</td>
<td>-45</td>
<td>-27</td>
<td>-25</td>
</tr>
<tr>
<td>1849 to 1872</td>
<td>66</td>
<td>39</td>
<td>56</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>1872 to 1896</td>
<td>-50</td>
<td>-39</td>
<td>-36</td>
<td>-43</td>
<td></td>
</tr>
<tr>
<td>1896 to 1913</td>
<td>49</td>
<td>32</td>
<td>41</td>
<td>41</td>
<td>35</td>
</tr>
<tr>
<td>1814 to 1913</td>
<td>-44</td>
<td>-44</td>
<td>22</td>
<td>-24</td>
<td></td>
</tr>
</tbody>
</table>

1 Data are for 1820.
2 Change from 1820.


Table 3-2 compares the sample mean and coefficient of variation [standard deviation divided by sample mean] of the rate of change of the wholesale price level for the United States and the United Kingdom for three different periods.

**Table 3-2.** Comparison of the behavior of price level, real output, and money growth in the United Kingdom and the United States, selected periods, 1821-1979

<table>
<thead>
<tr>
<th>Item</th>
<th>The Gold Standard (^1)</th>
<th>The Interwar Period</th>
<th>Post-World War II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>United Kingdom</td>
<td>United States</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>(1) Average annual percent change in the price level</td>
<td>1870-1913 ((1821-1913))</td>
<td>1879-1913 ((1834-1913))</td>
<td>1919-38</td>
</tr>
<tr>
<td>(2) Coefficient of variation of annual percent changes in the price level (ratio)</td>
<td>-0.7 ((-0.4))</td>
<td>0.1 ((-0.1))</td>
<td>-4.6</td>
</tr>
<tr>
<td>(3) Coefficient of variation of annual percent changes in real per capita income (ratio)</td>
<td>-14.9 ((-16.3))</td>
<td>17.0 ((6.5))</td>
<td>-3.8</td>
</tr>
<tr>
<td>(4) Average level of the unemployment rate (percent)</td>
<td>2.5</td>
<td>3.5</td>
<td>4.9</td>
</tr>
<tr>
<td>(5) Average annual percent change in the money supply</td>
<td>(^2)4.3 (^2)6.8</td>
<td>(^2)13.3</td>
<td>(^2)11.3</td>
</tr>
<tr>
<td>(6) Coefficient of variation of annual percent changes in the money supply (ratio)</td>
<td>1.5</td>
<td>6.1</td>
<td>.9</td>
</tr>
</tbody>
</table>

\(^1\) Data for the longer periods (in parentheses) were available only for the price level. Years 1838-43 and 1861-78 were excluded for the United States.

\(^2\) 1888-1913.

\(^3\) 1890-1913.

Note.—Lines 1 and 5 calculated as the time coefficient from a regression of the logarithm of the variable on a time trend. Lines 2, 3, and 6 calculated as the ratio of the standard deviation of annual percent changes to their mean.

Again, the evidence is clear that the achievement of low (and often negative) rates of inflation over the long run during previous gold-standard periods came at the cost of a high variability in inflation rates.

To the extent that deviations of the price level from its long-run equilibrium were unanticipated, growth would be expected to be more variable than in periods when inflation rates were more stable. The third line of Table 3-2 bears on this question. The coefficient of variation of the growth rate of real per capita income was about twice as high in the pre-World War I gold-standard period as in the post-World War II period.

In addition, recessions in the United States lasted twice as long, on average, from 1879 to 1913 than from 1945 to 1980, while periods of expansion and recovery were about one-third shorter. Finally, the measured unemployment rate during the pre-World War I gold-standard period was on the average two-thirds higher than during the post-World War II period in the United Kingdom and was one-third higher in the United States.

Under a gold standard, the rate of growth in the supply of monetary gold depends on the rate of gold production and the rate at which demand for gold for nonmonetary uses increases. Gold production depends in part on the purchasing power of gold (the ratio of the gold price in dollars to the average price level). Table 3-3 contains data on the yearly production of gold from 1800 to 1980. The numbers encompass a wide range, from a maximum average annual growth rate of 7.1 percent for the period 1834-1848 to a minimum of −1.6 percent for the most recent period 1969-1980.

<table>
<thead>
<tr>
<th>Period</th>
<th>Gold output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800-33</td>
<td>0.4</td>
</tr>
<tr>
<td>1834-48</td>
<td>7.1</td>
</tr>
<tr>
<td>1849-70</td>
<td>6.2</td>
</tr>
<tr>
<td>1871-89</td>
<td>−3</td>
</tr>
<tr>
<td>1880-1913</td>
<td>6.0</td>
</tr>
<tr>
<td>1920-33</td>
<td>3.4</td>
</tr>
<tr>
<td>1934-40</td>
<td>7.0</td>
</tr>
<tr>
<td>1950-68</td>
<td>2.7</td>
</tr>
<tr>
<td>1969-80</td>
<td>−1.6</td>
</tr>
</tbody>
</table>

(Percent change per year)

Table 3-3.—Changes in gold output, 1800-1980

Even during the pre-World War I gold standard period, monetary gold was only a fraction of the total money stock, the bulk of which consisted of paper currency and bank deposits. The last two lines of Table 3-2 show the sample mean and coefficient of variation of the
annual growth rate of M1. The average growth rate of M1 for the United Kingdom during the pre-World War I gold standard period was one-fourth of the average during the post-World War II period. For the United States the two sample means are approximately the same. However, the variability of M1 growth was over 50 percent higher in the gold-standard period than in the post-war period.

In sum, the evidence presented indicates that previous gold-standard periods were characterized by: (1) lower average inflation and money supply growth; (2) greater fluctuations in inflation, money supply growth, and output growth; and (3) higher unemployment rates than in the period 1946 to 1979. Although comparisons across time periods are difficult to make because of the difficulty of controlling for differences, including the effects of wars, droughts, and other shocks to the economy, it is far from clear that gold standards produced better overall results than those produced during the post-World War II period.

Could the United States forge a better gold standard now? There are two options: restore some form of gold cover requirement without convertibility or restore a gold cover requirement with convertibility; either with partial or full gold backing. The first option prevailed from 1934 until 1968, a period during which Federal Reserve Banks were required to keep a minimum of legal value gold certificates (valued at $35 an ounce) behind each $1 of their note liabilities. A more structured variant would be to restrain money creation by linking the central bank’s ability to create liabilities to a legislated schedule of changes in the official price of gold and changes in the amount of gold reserves required for each dollar of central bank liabilities. Central to such a proposal would be a requirement that the actual gold stock remain fixed in size and that changes in its value occur only through variations in the official or bookkeeping price of gold. Not only would there be no requirement to buy and sell gold at the official price, the Treasury would be prohibited from doing so. In other words, there would be a gold reserve requirement for the money supply, but no convertibility regardless of whether the official price of gold was below, at, or above the market price. In sum, this option would essentially constrain the annual growth of the monetary base.

Under the second option the United States would fix permanently the dollar price of gold—that is, make the dollar convertible into gold—without concern for whether or not other countries would follow our example. The difference between a partial and a full backing would be that, whereas full backing would establish a one-to-one link between the gold stock and the money stock, partial backing would not. But in both cases, random shocks in the gold markets
would create serious problems in controlling monetary aggregates and hence the general price level.

A MONETARY RULE

Enactment of a statute or constitutional amendment requiring the monetary authorities to abide by a rule regarding monetary growth or inflation is another method that has been suggested for dealing with the problem of maintaining long-run price stability. Such a rule would free the Federal Reserve from having to interpret either the "social welfare function" of the country or, more practically, the objectives of current elected officials. The rule could be stated either in terms of an ultimate objective for inflation, as it is in some industrial countries, or in terms of a monetary growth target that would be consistent with the maintenance of price-level stability.

A rule fixing a final outcome for inflation would oblige the monetary authorities to maintain monetary conditions consistent with the stability of a broad index of commodity and service prices (for example, the consumer price index). One might argue that the Humphrey-Hawkins Act implicitly incorporates such a rule. This legislation has as goals the reduction of "the rate of inflation to no more than 3 per centum" in the interim and ultimately to zero. The act, however, does not make the Federal Reserve responsible for the achievement of price-level stability. Furthermore, it mandates that "policies and programs for reducing the rate of inflation shall be designed so as not to impede achievement of goals and timetables" for reducing unemployment. In sum, there is no recognition in the act of a division of responsibilities that would include assigning responsibility for price-level stability exclusively to the Federal Reserve.

The advantage of formulating a rule on the final outcome for inflation is that the monetary authorities would be free to devise the best monetary strategy to achieve the mandated outcome. The disadvantage would be the rule's potential inflexibility. Temporary changes in the price level can be caused by a variety of shocks for which the monetary authorities cannot be held accountable. One approach would be to state the final outcome in terms of the average rate of growth of the consumer price index or nominal GNP over a period of several years.

The alternative of a target rule for monetary growth would have to be specified in such a way as to be consistent with price-level stability, again, over a period of several years. The rule could be revised from time to time in light of any changes in the relation of money growth to inflation. Such calibration would be the job of the central bank. Of course, the mere enactment of a rule would not ensure its successful implementation. Suitable institutional constraints would
have to be present to correct for possible deviations from desired outcomes.

At this time it is not clear which rule, if any, would be optimal and likely to prove preferable over a long period. Hence, the Federal Reserve’s current policy of gradually reducing the target growth rate of money over several years is providing a transition to a less inflationary environment.

One of the Administration’s long-run objectives is the elimination of inflation. The implementation of a monetary policy that is consistent with this objective can be viewed in the following way. Each year, the monetary authorities would announce the rate of growth of the money supply that is consistent with achieving their medium-term objectives for nominal income and inflation. Over the longer run the rate of growth of the money supply must be consistent with the achievement of the rate of nominal income implied by the inflation objective. To implement this procedure, the Federal Reserve would determine the rate of growth of total bank reserves that was consistent with the targeted growth of the deposit component of M1. Open market operations by the Federal Reserve would expand the monetary base by a sufficient amount to provide total bank reserves and the currency component of targeted M1 growth.

Ultimately, the Federal Reserve would set a reserve growth path consistent with the desired price level performance on the basis of estimates of several parameters. These would include the trend path of real output, the trend of M1 velocity, and the trend of the ratio of M1 to the monetary base. As these changed, the targets for nominal income, M1 growth, and growth of the monetary base would be altered to maintain a stable price level. Unexpected changes in any of these parameters could be offset to maintain long-run price stability.

THE FUTURE CHALLENGE

A few basic propositions about inflation can summarize the role of monetary policy in the future. First, there is more agreement now than there was a decade ago that inflation is essentially a monetary phenomenon. In addition, events that occurred during the 1970s showed the importance of distinguishing between a transitory change in the rate of inflation occasioned by a “real shock” and the underlying rate of inflation. Second, an assumption of a positive but predictable rate of inflation is not very realistic. For the past 20 years the United States has experienced several cycles around a rising trend of inflation. We are now experiencing a cyclical decline in inflation. A major objective of the Administration’s economic recovery program is to achieve the elimination of inflation in the long run. The ultima-
mate costs of adjusting to a significantly less inflationary environment will be influenced by how rapidly expectations about future inflation are revised downward.

Finally, in a world where the U.S. dollar is the dominant international currency, many other countries’ policy options are influenced by the success of U.S. anti-inflation policies. Most other countries find it difficult to maintain an inflation rate that is significantly below that of the United States, although Germany, Japan, and Switzerland have done so in recent years. Realization of that fact has increased the sense of urgency felt in the United States about achieving and maintaining a low rate of inflation.

The appropriate policy for reducing the inflation rate is a decrease in the rate of money growth. Unfortunately, a slowing of money growth in the past has tended to reduce output and employment within roughly two quarters, while as many as eight quarters typically have had to pass before monetary restraint produced a significant reduction in the inflation rate. However, the whole process of renewed economic growth without inflation can be speeded up if the policy of monetary restraint is believed by the public, since it is an unanticipated decrease in the rate of money growth that significantly affects output and employment in the short run.

If the decrease is generally anticipated, wages and prices will begin to rise more slowly and the adverse short-run effects on output and employment will be minimized. That is why it is so important for the public to be convinced that an anti-inflationary monetary policy has finally been adopted. The Federal Reserve can maximize the credibility of its monetary policy, and hence reduce the transition costs of eliminating inflation, by announcing a specific target for the rate of money growth and by minimizing short-run deviations from that target.

Theoretically, restrictive monetary policy could achieve price-level stability regardless of fiscal policy. As a practical matter, however, reducing the growth of government spending and reducing deficits in the Federal budget will help to strengthen the belief that anti-inflationary policies will be maintained. That, in turn, will help lower the costs of adjusting to lower rates of inflation. In short, the credibility of monetary policy is influenced by the fiscal policy that accompanies it.

The monetary system is evolving toward one in which the Federal Reserve will have very close control over M1, suitably redefined from time to time, through control of reserves. With uniform reserve requirements on transaction accounts, there will be relatively little variability in the ratio of M1 to the monetary base. Longer term movements in this ratio can be offset by open market operations. Mone-
tary aggregates other than M1 may serve as useful indicators of the effects of policy actions, but they will not be directly controllable by the Federal Reserve and therefore will not be useful as short-run targets.

A policy of providing slow and steady growth of money will not permit the central bank to attempt to offset the effects of transitory shocks to aggregate demand or productivity. In other words, short-run fluctuations in inflation and output growth will occur; economic expansion and contraction induced by changes in productivity or price shocks cannot be completely avoided. What can be avoided are the procyclical changes in the growth of the money supply that have occurred in the past.