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Introduction

Robert E. Hall

The essays in this volume are the product of the NBER's Project on Inflation and reflect a dozen diverse views on one of the nation's central economic problems. Our emphasis here is on diagnosis of the causes of inflation and a description of the effects of inflation, not on specific policy recommendations to end inflation. Many of us have views on what to do about inflation and have not hesitated to speak up in public about those views, but our papers here are not advocating those views. Instead, we are trying to illuminate some of the economic and political processes involving inflation.

The twelve papers in this volume fall into four general categories. Two papers—those of Robert J. Gordon and Thomas J. Sargent—find dramatically different answers to the central question of what would happen to output and employment if inflation were brought to an end. Two other papers deal with the types of change in economic institutions that might contribute to limiting inflation. Robert J. Barro points to the need for a monetary standard that stabilizes some dollar-denominated quantity in the economy as the key feature of an economy with stable prices. Robert E. Hall pursues this idea, presenting an example of a monetary standard which borrows from the gold standard yet tries to avoid some of its pitfalls. Seven of the remaining papers deal with one or another way that inflation has changed the economy or how the economy has reacted to inflation. Jeremy I. Bulow reports, surprisingly, that inflation has brought large capital gains to the private pension system. Dennis W. Carlton argues that inflation has changed the character of certain types of

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markets, encouraging standardized products and limiting the marketing of highly specialized products. Martin Feldstein investigates the joint effects of inflation and the tax system on the incentives for capital accumulation. Stanley Fischer shows that the private economy has adapted partially to inflation by changing the form of financial instruments like mortgages and by indexing some forms of income. Jacob A. Frenkel discusses the relation between domestic monetary instability, inflation, and the international value of the dollar. Douglas A. Hibbs, Jr., a political scientist, shows how the public rates the problem of inflation compared to other social problems and how this rating responds to the actual state of the economy. Jeremy I. Bulow and John B. Shoven take a look at the distortions that inflation brings to the measurement of the earnings of corporations; they conclude that correction of the distortion actually raises corporate earnings. Finally, in a category of its own is Alan S. Blinder's examination of the volatile inflation of the 1970s and its relation to shocks in energy and food markets.

The papers by Gordon and by Sargent provide an interesting contrast. Both look to historical data on disinflation to draw conclusions about the likely effects of a move against inflation today. But they reach dramatically different conclusions. Gordon's paper, "Why Stopping Inflation May Be Costly: Evidence from Fourteen Historical Episodes," warns that ending inflation could decrease output and increase unemployment. His evidence, from a study of historical episodes in the United States, Germany, Switzerland, France, Japan, Italy, Brazil, and Israel, is not unanimous, however. Not every episode shows that ending inflation has an adverse effect on employment. He points out that there was a spectacular turnaround in inflation just after World War I in the United States, when inflation dropped from 20% to minus 26% in just a year and a half. The end of the inflation after World War II was also reasonably favorable, accompanied as it was by only a relatively mild recession. But more recent experience in the United States indicates that recessions have weak anti-inflationary effects. "The puzzling aspect of 1970–71 is the failure of the recession, which brought the level of real output from 4 percent above trend to 2.5% below trend, to have any effect at all in dampening inflation." Gordon finds that other countries too have succeeded in limiting recent bursts of inflation only by tolerating reduced output and employment. Germany has pursued a successful anti-inflation policy, says Gordon, but "the cost of this policy was relatively slow output growth of only 2.3% between 1973 and 1979, compared to 2.8% in the United States." Earlier, German growth had been well above United States growth. And in Switzerland, according to Gordon, literal price stability was achieved in the 1970s "by creating a veritable depression in real output." There are a few episodes during which inflation has been brought under control without deep recession: France and Italy in the mid-1960s and Japan in the late 1970s. Gordon concludes that contractions in demand, especially "cold turkey" policies, bring substantial likelihood of depressed employment and output, though they will succeed in cooling inflation.

In Sargent's paper, "The Ends of Four Big Inflations," a review of history indicates the opposite conclusion. Inflation raged in four European nations—Austria, Hungary, Poland, and Germany—in the aftermath of World War I. Once-and-for-all fiscal reforms proved to be the key to successful control of inflation in all four cases. These episodes are laboratories for studying changes in policy regimes and shed a good deal of light on the kind of policy that could eliminate current United States inflation, even though it is nowhere near as serious as the inflations studied here.

The major common features in the four cases are: (1) Each country persistently ran enormous budget deficits during the inflations. (2) Deliberate and drastic fiscal and monetary measures ended the hyperinflations almost overnight. (3) There were large increases in the money stock in the months and years after rapid inflation ended. This evidence counters Gordon's view, a view that has become common among economists: Inflation has a stubborn, self-sustaining momentum, not susceptible to cure by conventional measures of monetary and fiscal restraint. In this view, eradicating inflation would have a prohibitively high cost in widespread and sustained unemployment. Sargent favors an alternative view, associated with the hypothesis of rational expectations, that denies that there is any inherent momentum in the process of inflation. Were the government to adopt a comprehensive change in fiscal and monetary policy, inflation could end quickly, as it did in the four countries studied, according to Sargent's thinking.

Barro's and Hall's papers are complementary, on the other hand. Barro spells out the requirements for price stability in general terms, and Hall provides a quite specific example of the type of stable system Barro has in mind. Barro's paper, "United States Inflation and the Choice of Monetary Standard," points out that money growth and inflation are strongly positively correlated over long periods of time but are less closely associated from year to year. One source of short-run divergence between money and prices is a shift in the demand for money that is induced by a change in inflationary expectations. Variations in long-term inflationary expectations are mirrored in observable long-term interest rates, and these rates have become far more volatile in recent years. Barro estimates that each percentage point movement in these rates is associated—via higher monetary velocity—with a rise of about four percentage points in the inflation rate. The heightened volatility of interest rates and underlying expectations of money and price change reflects a movement away from a regime that provided some restraint on long-run monetary expansion. Some remnants of the gold standard and fixed exchange rates imposed these constraints even as recently as 1971. Under the present setup with paper money, future money and prices depend on the cumulated discretion of the Federal Reserve—the system possesses no nominal anchor, says Barro.

Commodity standards like the gold standard provide a nominal anchor by pegging the prices of particular goods. Although the commodity base can be expanded beyond gold, the limited potential coverage would allow for substantial variations in the general price level. The gold standard also entails direct resource costs. Further, at least under a fractional-reserve banking system, the history of gold standards indicates substantial room for economic contractions.

A monetary constitution that precommits the long-term path of nominal aggregates avoids many of the problems of commodity standards. Milton Friedman's constant-growth-rate rule is a regime of this type. What is key is not the constancy of the growth rate or the particular number for the rate or the precise definition of the monetary aggregate, but rather the commitment to and hence anchor on some future nominal values. We have substantial historical experience with regimes with nominal anchors that are of the gold standard type, but not with monetary constitutions in a paper money environment.

Hall's paper, "Explorations in the Gold Standard and Related Policies for Stabilizing the Dollar," pursues the idea of a nominal anchor achieved through a commodity standard. His paper explores the good and bad features of the gold standard and its generalization, the commodity standard, without taking a stand for or against the idea. A properly managed commodity standard emerges as a potential competitor to a properly managed fiat money system as a way to achieve price stability. Both systems require good management. Simply switching from our existing badly managed fiat money to a badly managed commodity standard might well be a step backward.

Hall reports that during the years of the gold standard in the United States (1879–1914), inflation was kept to reasonable levels but cumulated over decades so that the long-run purchasing power of the dollar declined by 40%. The gold standard does not meet the requirement of long-run stabilization of the real value of the dollar. Moreover, recent instability in the world gold market would have brought alternating periods of severe inflation and deflation had the United States been on the gold standard.

Hall finds that an acceptable commodity standard could be based on a package of several commodities, chosen so that the historical association of the price of the package and the cost of living has been close. An example of such a package contains ammonium nitrate, copper, aluminum, and plywood. But even with the best choice of a commodity standard, it is necessary to redefine the standard periodically. Monthly changes in the commodity content of the dollar could be used according to a fixed rule. Such a rule can promise almost exact long-run stability in the cost of living. Whatever type of commodity standard is adopted, it would function more effectively if the government did not hold reserves of the commodity. Manipulation of reserves and intervention in commodity markets defeat the anti-inflationary purpose of the commodity standard. Finally, Hall comments that, although a good commodity standard would have been far superior to the actual monetary policy of the past two decades, better management of the existing system based on fiat money might have done as well or better. The commodity standard is not inherently superior to fiat money as a way to stabilize the cost of living. The commodity standard is just as subject to abuse as is the existing system.

Among the papers dealing with the impact of inflation on the workings of the United States economy, Jeremy Bulow's "The Effect of Inflation on the Private Pension System" is one of the most surprising. Private pension plans are accumulating surpluses of tens of billions of dollars, thanks to inflation. According to Bulow, inflation raises the interest rates earned by pension funds, but does not raise the pensions of most retired workers. As a result, "Workers have lost out to both firms and the Pension Benefit Guaranty Corporation." Most private pensions are set in dollar terms at the time of retirement and do not rise with inflation after that time, in contrast to social security benefits. Bulow finds that, because of the enormous expense involved, it is unlikely that private pensions will be indexed to inflation in the future. Even indexing for 4 or 5% inflation, far below current rates, "could easily double the value of a plan's vested benefits." To finance indexing of benefits, either current workers would have to accept a large reduction in wages or retirees would have to settle for much smaller initial pensions.

Dennis Carlton's paper, "The Disruptive Effect of Inflation on the Organization of Markets," asks what has happened to the organization and efficiency of individual markets in the United States under the transition to rapid inflation over the past two decades. Carlton suggests that inflation has pushed markets toward uniform products traded in highly organized markets and away from custom products. He shows that businesses relied heavily on unchanging prices for individual products in the bygone era of a stable dollar. In today's economy, all prices must be revised frequently. Customers must spend more effort in gathering information about prices. Carlton pointed to the explosion in the number and level of activity of organized commodity markets in the years since inflation became a serious problem. The number of contracts traded in the Chicago Mercantile Exchange rose by a factor of nearly 20 between 1955 and 1978, according to Carlton. He concludes that the "disruption of transaction, consumption, and production patterns . . . helps explain the hostility the public justly holds towards inflation."

Martin Feldstein's "Inflation, Capital Taxation, and Monetary Policy" points out the adverse effects on the United States economy of the interaction between inflation and tax rules. Because accounting definitions embodied in tax laws do not measure income flows appropriately under inflation, the effective tax rate on the earnings of capital has risen dramatically over the past decade. Feldstein gives the example of an individual in the 30% marginal tax bracket who earned 12% interest in 1979. After taxes, the apparent earnings are 8.4%, but after adjusting for the diminished value of the dollar, the real after-tax earnings are minus 4.6%. Feldstein observes, "The small saver was thus penalized rather than rewarded for attempting to save."

Feldstein notes the decline in the fraction of total national income devoted to net investment in nonresidential capital and blames it in large part on the increases in effective tax rates on capital brought about by inflation. He also observes that high nominal interest rates associated with inflation may have confused monetary policymakers into thinking that policy was contractionary when in fact it was quite inflationary.

Stanley Fischer's "Adapting to Inflation in the United States Economy" shows that the past decade has seen the United States economy undergo a variety of adjustments to high and variable inflation. The major adjustments are in the financial sector, particularly in mortgage financing. New mortgage instruments have been introduced, particularly in California: the graduated payment mortgage (GPM), the variable rate mortgage (VRM), and the rollover mortgage. Half the FHA mortgage applications in California in 1979 were for GPMS. The secondary market for mortgages is now well established as a major source of funds for the mortgage-lending institutions. Money market certificates and other new liabilities have substantially reduced the probability of future episodes of disintermediation.

The Depositary Institutions Deregulation and Monetary Control Act of 1980 will eliminate interest ceilings by 1986 and overrides state usury statutes. Corporations have shifted to debt from equity financing and have shortened the maturity of their outstanding debt. There is some indexing of life insurance contracts but very little indexing of private pensions. There has been increasing indexation of labor contracts, but cost of living clauses cover only a small part of the labor force. The federal government has made few adjustments to inflation aside from indexation of social security benefits and some other transfer payments. In particular, inflation substantially affects the taxation of capital.

Complete indexation would make the economy virtually impervious to inflations caused purely by expansion of the money supply and would make the inflation rate fall more rapidly in response to disinflationary policy (as well as rise more rapidly in response to inflationary policy). But an economy that is only partially indexed, as is the United States economy, may be more seriously affected by inflation than one that is not indexed at all. In a partially indexed economy, the burden of adjustment to inflation is spread more unevenly than in a nonindexed economy, according to Fischer's analysis.

Jacob A. Frenkel's "United States Inflation and the Dollar" asks whether a return to a fixed exchange rate would eliminate the wild swings in the international value of the dollar that have contributed to inflation since 1973. In Frenkel's view, the foreign exchange market is like the stock market, responding instantly to all types of new information, including changing expectations about United States policy and the policies of other affluent nations. Restoration of the purchasing power of the dollar at home would strengthen the external value of the dollar and limit its fluctuations. Moreover, says Frenkel, a floating exchange rate would help insulate the United States from misguided foreign monetary policies.

Douglas A. Hibbs, Jr., in his "Public Concern about Inflation and Unemployment in the United States: Trends, Correlates, and Political Implications" points out that not since the Great Depression of the 1930s and the immediate post-World War II reconversion scare has the state of the economy occupied such a salient place on the public agenda. In every year since the United States withdrawal from Vietnam more than 70% of the American public had identified inflation or unemployment as "the most important problem facing the country today."

Hibbs's paper analyzes opinion poll data on the public's relative concern about inflation and unemployment over the period from 1970 to 1980. He investigates trends and fluctuations in public concern about these problems in the light of recent macroeconomic events. The analysis shows that public opinion responds in a systematic way to macroeconomic developments: high and rising rates of inflation cause upward movements in the public's concern about inflation relative to unemployment, and rising unemployment rates cause upward movements in the public's concern about unemployment relative to inflation. The opinion data indicate that when unemployment is stable, a solid majority of the public typically is more concerned about inflation than unemployment *if* inflation is running higher than 5%.

Hibbs also discusses the political implications of public reactions to inflation and unemployment. His evidence shows that macroeconomic performance systematically affects mass political support for the President. Finally, according to Hibbs, opinion data show that although the public agrees with the economics profession's diagnosis of the proximate sources of inflation (excessive monetary growth rates stemming in part from high deficits), the public's preferred policy response is wage and price controls, even if this means real wage sacrifices.

Jeremy I. Bulow's joint paper with John B. Shoven, "Inflation, Corporate Profits, and the Rate of Return Capital," looks at the distorting effect of inflation on measured profits. A common view holds that the accounting procedures of corporations overstate true profits under inflation. Not so, say Bulow and Shoven. True, inflation enlarges reported profits by depressing depreciation deductions below their proper economic level, but there is an equally important bias from inflation in the opposite direction. When prices are rising, corporations repay their debts in dollars of reduced value, and this reduction adds to their true economic profits. According to Bulow and Shoven, corporate profits reported by the government for the years since 1973 "have understated our real current cost income figures by a total of about $160 billion."

Alan S. Blinder's "The Anatomy of Double-Digit Inflation in the 1970s" finds that the episodes of double-digit inflation in 1974 and 1979–80 have much in common: both were precipitated by food and energy shocks, and both were accompanied by substantial changes in relative prices. The dramatic acceleration of inflation between 1972 and 1974 can be traced mainly to three shocks—rising food prices, rising energy prices, and the end of the Nixon wage-price controls program—each of which required rapid adjustments of some relative prices. The equally dramatic deceleration of inflation between 1974 and 1976 can be traced to the simple fact that the three factors just named were not repeated. In other words, double-digit inflation went away by itself.

Blinder finds that the state of demand had little to do with either the acceleration or the deceleration of inflation between 1972 and 1976. This is not to say that aggregate demand management was irrelevant to inflation, but only that its effects were minor compared to the supply shocks. While the rate of inflation as measured in the CPI rose about nine percentage points between 1977 and early 1980, the baseline or underlying rate may have risen by as little as three percentage points. The rest of the inflationary acceleration came from special factors. The initial impetus for accelerating inflation in 1978 came mainly from the food sector, with some help from mortgage interest rates. The further acceleration into the double-digit range in 1979 mainly reflected soaring energy prices and, once again, rising mortgage rates. Finally, mortgage interest carried the ball almost by itself in early 1980.

Blinder emphasizes that the 1970s really were different from the 1950s and 1960s. Energy shocks are quite clearly a product of the post–OPEC world. Food shocks are not new, but we somehow managed to get away without them in the 1950s and 1960s. The role of special factors in the recent burst of inflation suggests that inflation will spend itself naturally. It thus seems reasonable to expect a substantial slowing of inflation even without contractionary monetary and fiscal policies.

The volume as a whole is not an encyclopedia on inflation. We found we had very little to say, for example, on one of the central aspects of inflation in the longer run, the behavior of the money wage rate. Instead, we offer twelve essays on aspects of the problem we do feel we understand.