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MONETARISM, INFLATION, AND THE FEDERAL RESERVE

ESSAYS

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LETTER OF TRANSMITTAL

MAY 31, 1985.

To the Members of the Joint Economic Committee:

We are pleased to transmit a volume of essays on Monetarism, Inflation, and the Federal Reserve, contributed in honor of our late colleague Robert E. Weintraub by his friends and associates.

We believe that these essays do justice to Bob Weintraub. Like him, they are hard-hitting, topical, and controversial. They make a significant contribution to the work that Congress will have to undertake on monetary and economic matters in the years ahead.

Perhaps more important, these essays honor Bob Weintraub by showing that ideas can be tested in a climate of intellectual honesty and mutual respect. Bob Weintraub's life exemplified those values, and in continuing respect for them lies our best hope for the future.

This volume was prepared and edited by James K. Galbraith and Dan C. Roberts, executive directors of the Committee in the 97th and 98th Congress, respectively. Robert Davis, formerly of the Committee staff, helped in the early stages, and June Copeland, formerly of the Committee staff, prepared the manuscript for publication.

Sincerely,

DAVID R. OBEY,
Chairman,
Joint Economic Committee.

JAMES ABDNOR,
Vice Chairman,
Joint Economic Committee.

FOREWORD

James K. Galbraith and Dan C. Roberts*

Bob Weintraub was our colleague and friend. In his long career on Capitol Hill, he worked for both Parties and in both Houses. Always, he was a professional public servant. Always, he worked in the service of the ideas he found convincing and the ideals by which he was guided.

Bob was a pioneer. A professional economist, he gave up a comfortable academic life to work in a difficult, sometimes hostile, and never secure political setting. Like many economists, he loved to fight over ideas. But like very few of his generation or our own, he reveled in the secret fascination with which the political world regards the world of ideas. He loved to exposit, to advise, to persuade—to ply his trade as an economist with intelligent politicians who might help bring into being some of the things in which he believed. Bob was a master of the improbable alliance, the confluence of interests, and the friendship over a deep philosophical divide. Thus he found himself, at various times, in alliance with populists, with Keynesians, with supply-siders. At every stage he made lasting friends, as the essays in this volume attest.

It is altogether fitting that Bob finally came to work at the Joint Economic Committee, the professional conscience of Congress on economics. Here, under the aegis of both Houses and with continuing links to both Parties, he continued to press his case. He did not make life easy for his opponents, nor always for his employers. But for those of us who were his colleagues, he was always a model of integrity and conviction.

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*Executive Directors of the Joint Economic Committee in the 97th and 98th Congress, respectively.

CONTENTS

PART 1. THE FEDERAL RESERVE

MONEY GROWTH TARGETS AND FEDERAL RESERVE ACCOUNTABILITY

(By Beryl W. Sprinkel) *

INTRODUCTION

Of the many academic and professional achievements of Robert Weintraub, one that stands out—at least in my mind—is the important role he played in establishing legally required money growth targets. In its internal deliberations, the Fed had been paying somewhat more attention to controlling the monetary aggregates since 1970, but long-term preannounced money growth targets did not exist until they were called for by Congressional Concurrent Resolution 133 in 1975. Annual money growth targets and the requirement that the Fed report to Congress on the actual performance of money growth relative to the targets became law in 1977; the procedures for setting the targets were improved in 1978.

The recognition within Congress, and the public at large, of the importance of monetary control and the incorporation of that principle into law is, I believe, an important landmark in the monetary history of the U.S. We owe the evolution of the idea, its acceptance on Capitol Hill and its passage into law, in no small part, to the dedication, perserverance and persuasiveness of Bob Weintraub.

THE IMPORTANCE OF MONEY GROWTH TARGETS

The initial impetus for requiring the Federal Reserve to set money growth targets was provided by the growing body of theoretical and empirical literature demonstrating the importance of money growth to economic performance and inflation. At the same time, rising inflation, interest rates and unemployment, as well as general economic instability, led to an increasing dissatisfaction with the performance of monetary policy in particular, and with the apparent inability of Government economic policies in general to effectively address our accumulating economic problems. The interest in requiring the Fed to set and adhere to money growth targets was a natural outcome of these developments.

I can think of at least four advantages to a monetary policy that is governed by long-term money growth targets. The first is based on the close long-term relation between money growth and inflation. Properly defined money growth targets set the ground rule

* Under Secretary of the Treasury for Monetary Affairs at time of writing and now Chairman, Council of Economic Advisers. The views expressed here are solely those of the author and do not reflect the official position of the U.S. Treasury Department.

for the disciplined money growth that is essential for long-term price stability. Money growth targets are, of course, neither a prerequisite, nor a guarantee that noninflationary monetary policy will actually be pursued. But prudent money growth targets do define the standard for noninflationary monetary policy by which policy actions should be formulated, implemented and judged.

Second, reasonable adherence to preannounced money growth targets should provide a reasonably stable and predictable path of monetary expansion. In the short-run, changes in money growth are closely correlated with changes in real economic activity. Long periods of accelerated or decelerated money growth therefore typically result in similar swings in the real economy. The stable and predictable path of money growth implied by a target range therefore minimizes the policy-induced fluctuations in real economic activity. Stable and predictable money growth has the additional advantage of reducing uncertainty about future economic performance.

I know of no one who advocated the adoption of money growth targets who believed they would be the panacea for all our economic problems; nor would their adoption herald the repeal of the business cycle. Clearly cyclical forces would continue to affect economic performance, as would supply-side developments such as oil and agricultural price shocks. But the preponderance of empirical evidence is that monetary actions designed to offset the effects of cyclical or exogenous forces, or to shield specific sectors from those effects, are, more often than not, destabilizing.[1]

Money growth that is controlled explicitly in order to keep its path within reasonable target bounds therefore provides the best chance for achieving economic stability. A reasonably stable path of monetary expansion at least does not magnify cyclical patterns or the effects of exogenous shocks. As such, it represents a risk-minimizing and damage-minimizing approach to monetary policy-making.

Either the goal of noninflationary money growth or the goal of greater monetary stability could surely be achieved without setting money growth targets. In addition to defining a rule by which the Federal Reserve can achieve these goals, preannounced money growth targets have the third advantage of providing a means of Federal Reserve accountability. The targets are an explicit standard of performance against which the Congress and the public can judge the policy record of the Federal Reserve.

This accountability aspect of preannounced money targets is extremely important. Since the Fed is directly and legally accountable only to the Congress, I know that Bob, in his long association with various Congressional Committees, felt it was critical to provide a legal or institutional framework for holding the Fed accountable for its policy actions. In principle, the money growth targets provide that framework. In practice, success has been limited, as will be discussed below.

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[1] See, for example: Karl Brunner and Allan H. Meltzer, "Strategies and Tactics for Monetary Control," Money, Monetary Policy and Financial Institutions, Carnegie-Rochester Conference Series on Public Policy, Vol. 1, (Spring 1983). Angelo R. Mascaro and Allan H. Meltzer, "Monetary Policy in a Risky World," Journal of Monetary Economics, (1983).

Finally, preannounced money growth targets that are consistently achieved by a central bank can play an important role in conveying useful information to the public. The money growth targets themselves can become a meaningful statement of the central bank's policy intentions on which the financial markets, and business and investment planners can rely. Whether or not this role is capitalized upon by the central bank depends entirely on whether, by actions as well as words, the central bank demonstrates its commitment to money growth targets over the long run.

If the financial markets are convinced that they will be achieved, then prescribed money targets provide considerable information about the trend of future inflation rates. If investors and business planners are assured that the relatively stable and predictable path of money growth implied by the targets will actually occur, much of the uncertainty about future economic performance, as well as the speculation about short-term monetary policy actions, can be avoided. In this way, credible money targets that are consistently adhered to, can be an important device for promoting stability and reducing uncertainty and thereby fostering an environment in which savers and investors can more confidently plan and commit funds.

The value of money growth targets—in imposing discipline and acting as a messenger of the central bank's policy intentions—is greatly diminished if they are not achieved or if they are changed at will. During the first six or seven years of experience with monetary targeting in the United States, the Federal Reserve unfortunately earned no reputation for consistency or commitment to the money growth targets. While significant problems still remain, the Fed has been able in recent years to dramatically improve the credibility of its commitment to achieving noninflationary monetary expansion. The record of the U.S. experience with monetary targets is summarized in the next section.

The Historical Record of Monetary Targeting in the United States

The Fed began setting publicly announced annual money growth targets in the second quarter of 1975. Under its initial instructions from Congress (first, House Concurrent Resolution 133, in 1975, and then the Federal Reserve Reform Act of 1977) the Fed was to set money targets for twelve month periods. The convention adopted by the Federal Reserve was to set targets each quarter for the following four quarters.[2] For example, in July 1975, a target was set for money growth from second quarter, 1975 to second quarter, 1976; then in November, another target for the period from third quarter, 1975, to third quarter, 1976, was defined. The targets set under this quarterly scheme for M1, M2 and M3 are listed in Table 1.

Even though the targets were set for four-quarter periods, their resetting every quarter allowed considerable errors to be committed and quickly "forgiven." That is, since the new target range

[2] The first set of targets covered the period from March 1975 to March 1976. In July, the bases were changed from monthly to quarterly average data (see Table 1).

each quarter was rebased to the level of the money stock reached in the preceding quarter, any error committed in one quarter was, by the next quarter, incorporated into the new target range and therefore somehow accepted as appropriate. This problem came to be known as "base drift."

From mid-1976 through 1978, quarterly base drift for M1 was consistently positive; in each quarter, M1 was allowed to grow faster than implied by the annual target, but that error was "excused" when the target range was rebased on the quarterly average M1 level. From mid-1976 through 1978, base drift added $10.9 billion to the level of M1; in terms of annualized growth rates, base drift added 1.6 percentage points to M1 growth in 1977 and 1.7 percentage points in 1978.

This defect clearly contributed to the inflationary bias in monetary policy in the mid- and late 1970s and it occurred despite the supposed discipline of annual monetary target and despite the fact that the target range actually set during this period were, by most anyone's standard, generally noninflationary. Though the top of the M1 target range was consistently set at 6.5%, the closest the Fed ever came to that rate of growth was in mid-1977, when M1 grew at a 6.9% compound annual rate for one quarter. The average quarterly rate of growth in M1 from mid-1976 through 1978 was 8.1%.

It is also important to recognize that this record of poor performance evolved even though Federal Reserve testimony and official statements at the time were filled with statements about the importance of, and the Federal Reserve commitment to, a noninflationary monetary policy. The following are good examples:

> Too often in the past, we have lacked the courage or the patience to stay long enough on a monetary and fiscal path that will lead to noninflationary economic growth. We cannot afford to backslide once again. Unless we achieve a less inflationary environment, there will be little chance of sustaining the expansion. . . .[3]
>
> The long-run growth rate of physical production . . . is probably around 3½% at present. Judging by the experience of the past two or three decades, a stable price level would require a rate of expansion of M1 that over the long run is well below the growth rate of total output.[4]

Despite the Congressional desire to impose long-term monetary discipline on the Fed and the Fed's statements of compliance, establishing long-term money growth targets did not yield long-term monetary control. Policy actions did not match intentions.

Congress responded to this implicit circumvention of long-term discipline in 1978, in the legislation that came to be known as the Humphrey-Hawkins Act. It requires that the Federal Reserve set calendar-year targets early in each year and allow for changes within the year only under extraordinary circumstances. As a result, since early 1979, the Fed has defined four-quarter money growth targets that are based in the fourth quarter of the previous

[3] From "Statements to Congress," Federal Reserve Bulletin, May 1977, pg. 468.
[4] Ibid., February 1977, pg. 124.

year. This change eliminated the possibility of quarter-to-quarter base drift, but did not eliminate all base drift; to the extent that the level of the money stock overshoots or undershoots the target range in the fourth quarter of a year, the next year's target range is correspondingly boosted or depressed. The annual target ranges defined for M1, M2, and M3 since 1979 and actual money growth are listed in Table 2. The record of M1 growth relative to its target ranges since 1979 is also shown in Charts 1 and 2.

By mid-year 1979, M1 was growing at a pace considerably above the 4½ to 7½% annual target range,[5] and the quarterly "forgiveness" principle was no longer available to the Fed. Faced with rising inflation, interest rates and inflation expectations and a falling dollar, the Fed was under considerable pressure, particularly from abroad, to "do something". The result was the announcement of a change in Fed operating procedures, designed to control money growth more directly and precisely. A slowdown in M1 growth at the very end of the year brought its fourth quarter-to-fourth quarter growth just to the top of the target band. In 1980, the 4½ to 7%[6] target band for M1 was exceeded slightly. In 1981, the Fed dramatically slowed the rate of M1 growth and the 6–8% target range for M1 was undershot. (See Chart 1.)

Thus base drift—on an annual basis—continued to occur. It raised the base of the 1981 target range by $1.6 billion and lowered the base point of the 1982 range, so that the 1982 range began at a point $3.6 billion below the lower bound of the 1981 range. (See Chart 1.)

A relatively low rate of money growth persisted into the first half of 1982. However, a spurt of M1 growth in December 1981 and January 1982, combined with the fact that the base point of the 1982 target range was so low, caused the level of M1 early in 1982 to be persistently above its target range in 1982. Despite that, M1 growth averaged only about one percent from January through July. This restriction of money growth—on the heels of the dramatic deceleration of M1 growth in 1981—contributed to the length and depth of the recession. It is also the root cause of the subsequent reduction in inflation.

In the fall of 1982, the Fed engineered a rapid acceleration of M1 growth, all but suspending the meaning of the annual target range; that acceleration yielded $14 billion of base drift at year-end. (See Chart 2.) At that time, the Fed asserted that the M1 numbers were distorted by the maturation of All-Savers Certificates and the build-up of liquidity in anticipation of the introduction of deregulated deposits in late 1982 and early 1983. Despite this assertion, to my knowledge, the Fed has never supplied the public with empirical evidence of how the money data were distorted in 1982. Subsequently it has become common wisdom that the Fed engineered the

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[5] The Fed staff expected the introduction of ATS and NOW accounts in New York to suppress M1 growth by three percentage points in 1979 (ATS and NOW accounts were not then incuded in M1). Thus the announced target of 1½–4½% (for M1 observed at the time) is comparable to 4-7% for today's definition of M1 (which includes ATS and Now accounts). By October, the estimate of the suppression of M1 was reduced to 1½ percentage points, but the fed did not change the impled target band.

[6] The announced range was 4½–6½% for M1B, which incuded ATS and NOW accounts. These accounts were expected to add an half percentage point to M1B growth.

acceleration of M1 growth in late 1982 out of concern about the effect of the protracted recession, particularly on debt-laden developing countries.

The introduction of super-NOW and money market deposit accounts (MMDAs) in late 1982 and early 1983 caused uncertainty about the meaning of the monetary aggregate data. The 4-8% target range was substantially exceeded in the first half of the year, was redefined at mid-year to 5-9% and rebased to the second quarter average (incorporating another $10.5 billion of base draft). Following those changes, the Fed did an extremely good job of engineering a deceleration of money growth from the torrid pace of mid-1982 to mid-1983. During the last half of 1983 and so far in 1984 (through the third quarter), M1 growth has been consistently within its prescribed target ranges. This represents an important improvement over previous Federal Reserve performance.

Whether or not the de facto suspension of monetary targets in 1983 was prudent and justified will likely be debated for years to come. I have considerable sympathy for the view that the introduction of the new deposit accounts altered the nature of M1 such that a one-time level shift in velocity resulted. There are however competing theories on the behavior of velocity during that period.[7] More post-deregulation evidence is needed to confidently draw a conclusion. The strength of the economic recovery in 1983 and early 1984 is testimony to the fact that the Fed provided a substantial monetary stimulus to the economy in late 1982 and early 1983; that is, not all of the rapid money growth from mid-1982 to mid-1983 can be attributed to financial deregulation. It is troubling to me that the Federal Reserve apparently—implicitly or explicitly—presumed that some share of the 1982-83 bulge in money growth could be disregarded, without, to my knowledge, providing any substantive empirical evidence on the subject.

Only the purest of purists would believe that pre-defined money growth targets should be adhered to at all times, without regard to institutional or other fundamental changes. Clearly if alterations in money growth targets can be substantiated by the facts, they are justified and appropriate. But the *ad hoc* suspensions and redefinitions of the target ranges that have been common, particularly in the late 1970's, constitute another form of the sweeping discretion in monetary policy that Congress intended to rein in, when it called for annual money growth targets. If money growth targets are to provide monetary discipline and convey a message of noninflationary intentions to the financial markets, it is critical that they be taken seriously by the Federal Reserve. Monetary targeting can be an important device for promoting credibility and reducing uncertainty, but it cannot serve that function if we consistently excuse errors and redefine the targets. I fervently hope that the behavior of M1 relative to its target ranges recorded in the last year and a half is a harbinger of things to come.

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[7] See, for example, Michael W. Keran, "Velocity and Inflation Expectations: 1922-1983." Economic Review, Federal Reserve Bank of San Francisco, Summer 1984, pgs. 40-55.

HAS MONETARY TARGETING FAILED IN THE UNITED STATES?

Within a few months, monetary targeting will have been part of the economic policymaking apparatus in the United States for ten years. Looking at the record described above, it is difficult to claim a great deal of success. With the exception of the "ninth inning" deceleration of M1 growth at the end of 1979 which just brought M1 to the top of its target range, the Fed did not achieve an M1 growth target from first quarter 1976 until the (redefined and rebased) target range for the last half of 1983 was hit. In nearly ten years of monetary targeting, 1984 is likely to be the first year in which an annual target range was set at the beginning of the year, not revised during the year, and achieved on a consistent basis. The records for M2 and M3 are not much better. The M2 target was achieved only in four quarters beginning in the fourth quarter of 1977 and in 1980 and 1983; otherwise the M2 targets have all been exceeded. (See Tables 1 and 2.) It is likely that the M2 target will also be achieved in 1984. The M3 targets have all been exceeded since second quarter 1976 and it appears likely that it will be exceeded in 1984 as well. Certainly the benefits of a long-term, consistent noninflationary rule have not materialized.

Inflation has of course declined substantially since 1981, primarily as a result of the general deceleration in money growth. But the dramatic acceleration of inflation in the late 1970's could have been avoided altogether, or the reduction of inflation could have occurred much sooner, if the Fed had chosen to adhere to its own money growth targets earlier. Furthermore, the costs in terms of economic dislocation—lost jobs and output—of the decline in inflation would not have been so great if the Fed had engineered the gradual, predictable and reasonably stable deceleration of money growth implied by its own targets.

Monetary targeting has also not brought us more stable or predictable money growth. During the period from the second quarter of 1975 (when targeting began) to the third quarter of 1979 (when the Fed changed its operating procedure to control money growth more closely), the volatility of money growth was not discernibly different from its volatility in the preceding five years. Since 1979, however, monetary volatility has been substantially higher than in either of those previous periods.[8]

Rather than concluding, as some have, that monetary targeting itself is a flawed policy principle, the record leads me to conclude that the lack of success stems from the fact that Federal Reserve officials have never believed in the efficacy of monetary targeting and therefore have never adopted the operating procedures and policy actions necessary for it to succeed. The most fundamental

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[8] Based on an average of monetary volatility where volatility is measured as unanticipated or unforecastable money growth. Based on quarterly forecast errors (in percent per annum) from a univariate ARIMA model on seasonally unadjusted M1. Using this measure, average monetary volatility has been:

[Percent per annum]

Period	*Volatility*
1969:IV-1975:I	2.3
1975:II-1979:III	2.5
1979:IV-1984:II	6.2

problem is that the Fed's operating procedure—before and after 1979—effectively targets the Federal funds rate. Since the relationship between money growth and interest rates is not a reliable one, a policymaking process that focuses on interest rates and/or money market conditions is not likely to yield precise control of money growth over the long run.

The intent of Congress to impose discipline and direction on Federal Reserve policy is clear. Each successive change in the law has tightened the targeting procedures and attempted to move the Fed toward a longer term policy approach. Despite the Congressional requirement that the Fed target money growth (by definition, a long-run policy tool) the Fed has persisted in retaining an operating procedure that is fundamentally short-term in its focus and fundamentally at odds with a serious commitment to monetary targeting. The Federal Reserve Board staff estimates that M1 growth can be controlled on a quarterly basis within plus or minus 1-1½ percentage points.[9] Given that estimate, it is difficult to reconcile the record of M1 growth relative to its target ranges with the presumption that the Federal Reserve takes the money growth targets very seriously.

The decline in inflation and the path of money growth over the past year and a half have helped build the Fed's credibility and raised public confidence in its commitment to long-term price stability. Whether or not that confidence continues to grow and whether or not the money growth targets can in the future be viewed as a useful statement of Fed policy intentions, depends entirely on future policy performance.

Despite the historical record, there is another, more indirect way in which I believe the institution of money growth targets has been beneficial. The targets have helped focus the attention of the public, the business community and political leaders on money growth as the most important guide to, and outcome of, monetary policy. With that focus of attention has come the growing recognition that inflation is fundamentally the result of excessive money growth, that high interest rates are the inevitable result of inflation and that, in the short run, money growth is an important determinant of economic activity. This awareness is by no means universal, but these principles are far more widely recognized today than they were 10 years ago.

This is, I believe, an appropriate and important shift in attention. The emphasis on money growth has *begun* to help focus attention toward a longer term view of monetary policy. With wider public understanding of the importance of money growth, the central bank is more likely to be encouraged and pressured into providing prudent monetary control and held accountable if it does not.

The Congressional oversight of the Federal Reserve has been modified by the existence of the money growth targets as well. Before 1975, Congressional attention to monetary policy was sporadic and unfocused. When Congress did pay attention to monetary policy, it typically consisted of exhorting the Fed to reduce, or stop

[9] David Lindsay, et al, "Monetary Control Experience Under the New Operating Procedures." Federal Reserve Staff Study: New Monetary Control Procedures. Vol. II (February 1981).

raising, interest rates. Those exhortations have certainly not disappeared, but they are increasingly overshadowed by more appropriate and constructive concern for the path of monetary expansion and the Fed's responsibility for it.

This is an important shift, albeit slow and marginal, in Congressional emphasis. Bob Weintraub, writing early in the experience of monetary targeting, pointed out the importance of Congress taking a longer term viewpoint and emphasizing money growth in its oversight role. By concentrating on interest rate movements before House Concurrent Resolution 133 was passed, he wrote, ". . . Congress sanctioned short-run money market myopia (at the Federal Reserve) in the conduct of monetary policy. Ironically thereby, Congress weakened its own hand in supervising monetary policy. . . . The price we paid . . . was roller-coaster money growth and a roller-coaster economy . . . ." [10]

Room for Improvement

There are many procedural and technical changes that could be made to improve the performance of monetary policy and increase the effectiveness of monetary targets. First, there is a series of technical changes that could be made in the Fed's operating procedures that would help assure that the path of money growth remains within the preannounced target bands. These have been outlined elsewhere [11] so I will not reiterate them here. Unfortunately, the Fed shows little or no interest in adopting these procedural reforms.

As illustrated by the historical record of monetary targeting in the United States, base drift has been a defect in the current targeting procedure that has persistently undermined the discipline of monetary targets. Many have suggested that this could be remedied by basing each annual target range at the midpoint of the previous year's target range. In this way aberrant money growth—in either direction—during the fourth quarter of the year would not be incorporated into the subsequent year's target range. Errors in monetary control made would not be "forgiven" each year and consequently the disciplinary function of money targets would be reinforced.

In addition, defining the base period in this way would facilitate the setting of multi-year money growth targets.[12] This would be an excellent step toward a clearer enunciation of the Fed's long-term monetary policy goals and expectations, and would help reduce the skepticism now associated with long-run monetary control. It would not only enhance the disciplinary role of targets, it would encour-

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[10] Robert Weintraub: "Congressional Supervision of Monetary Policy." *Journal of Monetary Economics:4* (1978), pg. 359.

[11] See, for example, Beryl W. Sprinkel. Testimony before the Monetary and Fiscal Subcommittee of the Joint Economic Committee, April 8, 1981; Testimony before the Committee on Banking, Finance and Urban Affairs, U.S. House of Representatives, July 22, 1981; Testimony before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, February 25, 1982 and February 9, 1984.

[12] Even if the Federal Reserve was required or chose to announce the target money growth ranges for several years into the future, the exact path of money growth beyond the current year would not be known under the current convention of defining the base of the target range because the outcome for the fourth quarter average would not be known in advance.

age a longer term of monetary policy and force the Federal Reserve to formulate policy with an eye toward those long-term goals.

Since every Administration must make economic assumptions and budget forecasts for five years ahead, I would recommend that the Federal Reserve be required to specify money growth targets for five years ahead. This would have the added advantage of providing the Administration with a statement of Fed intention so they could be factored into the economic and budget outlook. As such, this would enhance the coordination of monetary and fiscal policies.

Some would argue that such long-term money targets would reduce the Fed's flexibility. The setting of longer term money targets would not, however, reduce the Fed's flexibility to deal with unforeseen developments or institutional changes. Such contingencies can be met within the context of a long-term commitment of monetary policy intentions. There is no inconsistency between setting and following monetary targets and maintaining basic flexibility to respond to changing institutions or developments. If changes in monetary targets can be justified by the facts, those changes can be made and explained to the public, with no deleterious implications for long-run monetary discipline.

It would also be desirable for the Federal Reserve to set a target range for one monetary aggregate and concentrate its efforts on controlling that aggregate. The legislative history of the laws requiring the Fed to set money targets reveals that the Congress preferred to leave to the Fed the technical choice of which aggregate to target. The existence of multiple targets, however, dilutes the monetary targeting exercise and weakens the extent to which the Fed can be held accountable for its actions. If the Congress chooses to try to hold the Fed accountable for achieving the M1 target, for example, the Fed can assert that the M2 or M3 target is more important; by attempting to pursue multiple monetary goals—which may or may not be consistent with each other—the Fed has often effectively pursued none and avoided the responsibility for all.

I have no problem with leaving to the Fed the specific choice of which aggregate to target, as long as it is held accountable for achieving that goal. Since the monetary base and M1 are the aggregates that the Fed can control most precisely, I would think one or the other would be the wisest choice. Targeting M1 has the additional advantage that it is the aggregate that is the best forcaster of inflation in the long run and economic activity in the short run.

If the Fed would set a target for one aggregate and demonstrate its commitment to achieving that target, much of the current speculation about future monetary policy actions could be avoided. Since the Fed has alternatively emphasized various monetary aggregates, the financial markets are frequently left to speculate on which, if any, of the multiple aggregates is currently of importance in the Fed's view. The resulting uncertainty and speculation about monetary policy is the antithesis of the provision-of-information function that money targets can and should serve.

Finally, the likelihood of re-establishing and maintaining price stability, as well as the accountability of the Fed for that goal, would be raised if Congress would specify long-term price stability as the goal of monetary policy. Under current law, the Fed is in-

structed to promote the goals of maximum employment, stable prices, and moderate long-term interest rates.

The charge to serve these three masters has been both a service and disservice to the Fed as an institution. By alternatively emphasizing the need to pursue one goal or another, the Fed has effectively escaped political and legal responsibility for achieving any one of the goals. While playing one goal off against another may have served the Fed well, the resulting lack of accountability for the Fed's judgements and actions have clearly not served society well.

In another sense, the three-headed goal has subjected the Fed to increased political pressure and coercion. Since there is a political constituency for each of the three goals, as Robert Black recently described very well, [13] the responsibility to serve three masters' constituencies. Quoting Black:

> Far from enhancing the Fed's independence and insulating it from partisan pressures it seems to me that the lack of specificity in the Fed's current mandate serves to intensify these pressures, to reduce our real independence, and to prevent us from achieving any particular objective as effectively and consistently as we otherwise might. In particular, the flexibility we are thought to possess almost inevitably leads us to give substantial weight to current economic and financial conditions in deciding on current policy actions . . . an excessive preoccupation with current conditions can lead to policy actions that destabilize the economy rather than stabilize it . . . .[14]

As a society, it would be useful to define clearly what the Fed can and should do, and move away from the pervasive view that monetary policy can cure all economic problems and shield all sectors from economic hardship. Over the long run, the only goal that a central bank can effectively achieve is price stability. But in providing price stability and thereby fostering an environment of economic stability, a central bank maximizes its contribution to reasonable interest rates, employment and real economic growth. It is when a central bank takes its eyes off the ultimate and basic goal of price stability that monetary policy typically becomes destabilizing.

A Congressional mandate for the Fed to provide price stability would require that the Fed consistently focus its eyes on that long-term goal. The temptations, and political pressures, for monetary policy to be diverted toward short-term expediencies would be reduced. The public and the financial markets would have a clear definition of the Fed's policy intentions, uncertainty about monetary policy would be reduced, and the speculation about future policy actions would be unnecessary. The Fed itself would have a clear definition of its own goal and responsibility, free of the burden of serving multiple masters. Finally, the Congress and the public would have a specific standard by which to hold the Fed accountable for its actions.

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[13] Robert P. Black. "The Fed's Mandate: Help or Hinderence?" Ecomomic Review, Federal Reserve Bank of Richmond. July/August 1984.

[14] Ibid., pgs. 4-5.

TABLE 1.—FOUR-QUARTER MONEY GROWTH TARGETS AND ACTUAL MONEY GROWTH, 1975–78

Date announced	Period	Annual rates of change					
		M1		M2		M3	
		Range	Actual [1]	Range	Actual [1]	Range	Actual [1]
May 1975	March 1975–March 1976	5–7.5	8.8	8.5–10.5	17.3	10–12	10.8
July 1975	1975II–1976II	5–7.5	7.7	7.5–10.5	15.3	9–12	11.0
November 1975	1975III–1976III	5–7.5	3.2	7.5–10.5	10.3	9–12	10.0
February 1976	1975IV–1976IV	4.5–7.5	5.5	7.5–10.5	13.2	9–12	10.7
May 1976	1976I–1977I	4.5–7	6.7	7.5–10	13.1	9–12	11.7
July 1976	1976II–1977II	4.5–7	4.3	7.5–9.5	11.3	9–12	10.3
November 1976	1976III–1977III	4.5–6.5	7.9	7.5–10	15.7	9–12	12.9
January 1977	1976IV–1977IV	4.5–6.5	10.0	7–10	14.3	8.5–11.5	12.8
April 1977	1977I–1978I	4.5–6.5	7.0	7–9.5	11.5	8.5–11	12.1
July 1977	1977II–1978II	4–6.5	6.9	7–9.5	9.8	8.5–11	12.3
October 1977	1977III–1978III	4–6.5	8.6	6.5–9	9.2	8–10.5	12.8
February 1978	1977IV–1978IV	4–6.5	8.4	6.5–9	7.8	7.5–10	11.8
April 1978	1978I–1979I	4–6.5	9.1	6.5–9	7.4	7.5–10	12.0
July 1978	1978II–1979II	4–6.5	8.2	6.5–9	7.8	7.5–10	10.9
October 1978	1978III–1979III	[2] (2–6)	7.2	6.5–9	8.8	7.5–10	12.4

[1] Prior to 1979, four-quarter targets were set that were reset every quarter. Thus, the actual money growth in the period refers to the single quarter in which each particular target range was in effect.

[2] The Federal Reserve temporarily abandoned M1 targets in late 1978, reflecting their uncertainty about the impact of changes in financial regulations. In this case, the problem involved the introduction of Automatic Transfer accounts and NOW accounts in the State of New York.

TABLE 2.—ANNUAL MONEY GROWTH TARGETS AND ACTUAL MONEY GROWTH, 1979–84

Date announced	Period	Annual Rates of Change					
		M1		M2		M3	
		Range	Actual	Range	Actual	Range	Actual
February 1979	1978IV–1979IV	[1] 4.5–7.5	7.5	5–8	8.1	6–9	10.3
February 1980	1979IV–1980IV	[2] 4.5–7	7.4	6–9	9.0	6.5–9.5	9.6
February 1981	1980IV–1981IV	[3] 6–8.5	5.1	6–9	9.3	6.5–9.5	12.4
February 1982	1981IV–1982IV	2.5–5.5	8.7	6–9	9.5	6.5–9.5	10.6
February 1983	1982IV–1983IV	4–8	[4] 12.8	[5] 7–10	8.4	6.5–9.5	9.7
Revised July 1983	1983II–1983IV	[6] 5–9	7.3				
February 1984	1983IV–1984IV	4–8	[7] 6.1	6–9	[7] 6.8	6–9	[7] 9.4

[1] The announced target was 1.5–4.5. The Federal Reserve expected that ATS and NOW accounts effects (which were not then included in M1) would reduce the growth of M1 by 3 percentage points in 1979. Since M1 now includes those accounts, the relevant target range for M1, as now defined, should include this estimate. By October, the Federal Reserve revised downward its estimates of the impact of these new accounts to 1½ percentage points, but maintained the same implied target range.

[2] The announced target for M1B, which included ATS and NOW accounts in New England, was 4–6.5. However, the Federal Reserve expected that new accounts would lead to an increase in the demand for checkable deposits, which would add one-half percent to the growth of M1B. This portion was not expected, however, to be a demand for transaction balances.

[3] The announced target was 3.5–6 percent for M1 adjusted. As in 1979 and 1980, the Federal Reserve expected that changes in regulations—in this case, the introduction of nationwide NOW accounts—would distort the M1 data. In 1981, they expected the shifts into NOW accounts from savings and other interest-bearing accounts would add 2.5 points to the growth of M1B. They believed, however, that this portion would not represent a demand for transaction balances. Thus, the relevant range for unadjusted M1 is 6–8.5 percent.

[4] For the period fourth quarter 1982 through second quarter 1983, the period for which the target was in effect.

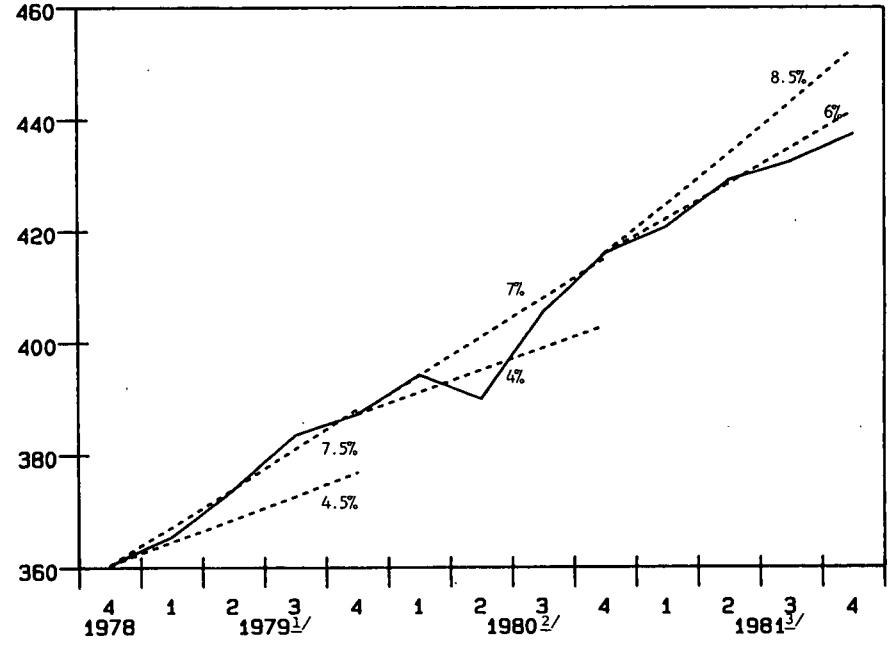
[5] Because the introduction in January 1983 of money market deposit accounts (included in M2 but not in M1) was expected to cause a shift of funds into M2, the base of the target range was defined as the February/March 1983 average.

[6] The target range for M1 was raised to 5–9 percent and rebased to the second quarter average in July because the original target range had been substantially exceeded. There was some uncertainty about the meaning of the M1 data because of the introduction of super-NOW accounts in early 1983. The Federal Reserve provided no estimate of the quantitative extent of any distortion.

[7] Through third quarter only.

CHART 1

FEDERAL RESERVE TARGETS AND ACTUAL M1 GROWTH
(1979-1981)
*QUARTERLY DATA



FOOTNOTES: See next page.

FOOTNOTES TO CHART 1

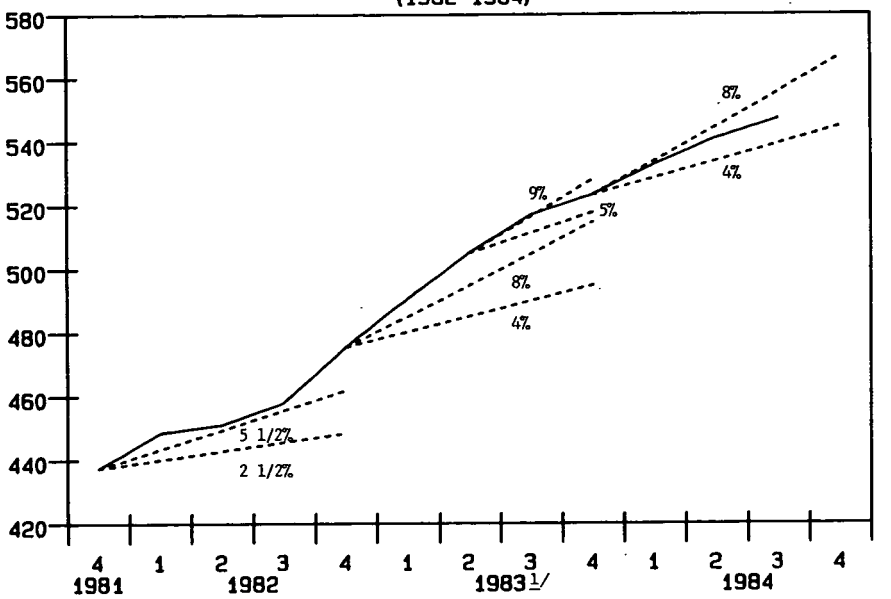
1/ The announced target was 1.5-4.5. The Federal Reserve expected that ATS and NOW accounts effects (which were not then included in M1) would reduce the growth of M1 by 3 percentage points in 1979. Since M1 now includes those accounts, the relevant target range for M1, as now defined, should include this estimate. By October, the Federal Reserve revised downward its estimates of the impact of these new accounts to 1-1/2 percentage points, but maintained the same implied target range.

2/ The announced target for M1B, which included ATS and NOW accounts in New England, was 4-6.5. However, the Federal Reserve expected that new accounts would lead to an increase in the demand for checkable deposits, which would add one-half percent to the growth of M1B. This portion was not expected, however, to be a demand for transaction balances.

3/ The announced target was 3.5-6% for M1 adjusted. As in 1979 and 1980, the Federal Reserve expected that changes in regulations -- in this case, the introduction of nationwide NOW accounts -- would distort the M1 data. In 1981, they expected the shifts into NOW accounts from savings and other interest-bearing accounts would add 2.5 points to the growth of M1B. They believed, however, that this portion would not represent a demand for transaction balances. Thus, the relevant range for unadjusted M1 is 6-8.5%.

CHART 2

FEDERAL RESERVE TARGETS AND ACTUAL M1 GROWTH (1982-1984)



LATEST DATE PLOTTED: THIRD QUARTER OF 1984

1/ The target range for M1 was raised to 5-9% and rebased to the second quarter average in July because the original target range had been substantially exceeded. There was some uncertainty about the meaning of the M1 data because of the introduction of super-NOW accounts in early 1983. The Federal Reserve provided no estimate of the quantitative extent of any distortion.

THE FORMULATION AND REPORTING OF MONETARY POLICY OBJECTIVES

(By Stephen H. Axilrod)*

The central bank's capacity to add to, or subtract from, the reserve base of the banking system more or less at will—thereby in effect creating or destroying money—raises questions about how, and methods by which, a needed discipline and accountability is to be imposed on the central bank. Monetary rules of one sort or another have often been suggested in this context. Congress has addressed the issue in another way through the provisions in the Full Employment and Balanced Growth Act of 1978 (Humphrey-Hawkins Act) that govern the reporting and setting of monetary policy objectives.

The Humphrey-Hawkins Act (H-H Act) focuses on "monetary and credit aggregates" as the Federal Reserve's stated "objectives." The System is required to give annual objectives for "ranges of growth or diminution in the monetary and credit aggregates" twice a year, in February and July. In February, the objectives pertain only to the current year. In July, those for the current year are reassessed and preliminary objectives are given for the subsequent year. The discussion of these monetary objectives, and related projections of the economy, are one means of assuring the accountability of monetary policy.

From time to time, though, dissatisfaction surfaces with these provisions of the H-H Act. The dissatisfaction is often related to a desire to have monetary policy stipulate objectives for nominal, or sometimes even real, GNP rather than only for monetary and credit aggregates. Some have also felt that coordination of fiscal and monetary policy may be excessively haphazard, and that budget resolutions passed by Congress and monetary policy objectives need to be better coordinated or at least more clearly related one to the other. Occasionally, some would have the Federal Reserve indicate, if not interest rate objectives, at least interest rate expectations.

However, the present language of the H-H Act does place the objectives for monetary and credit aggregates within the context of the broader economic goals of the nation. For instance, the first sentence of the paragraph dealing with the aggregates states: "The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long-run growth of the monetary and credit aggregates commensurate with the economy's long-run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moder-

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ate long-term interest rates." In addition, the law states that the plans and objectives for the monetary aggregates should be formulated "taking account of past and prospective developments in employment, unemployment, production, investment, real income, productivity, international trade and payments, and prices." Finally, the Federal Reserve's objectives for the aggregates are to be related to the "short-term goals set forth in the most recent Economic Report of the President pursuant to section 3(a)(2)(A) of the Employment Act of 1946 and to any short-term goals approved by Congress."

In line with these various provisions of the H–H Act, the semiannual monetary policy reports to Congress by the Board present, along with monetary and credit targets, associated projections of key economic variables (nominal GNP, real GNP, the GNP deflator, and the unemployment rate) of FOMC members, as well as nonvoting members. The projections are given in the form of a wide range as well as a quite narrow range expressing the "central tendency," and are compared with the Administration's estimates for these same variables. Still, in recent years against the background of a sharp recession, high interest rates, doubts about the significance for policy of monetary aggregates in a period of rapid institutional change, and a growing belief about the importance of monetary policy to the economy, there have been efforts to have the Federal Reserve state its "objectives" for GNP and related items, rather than present "projections" thought consistent with monetary and credit objectives.

This paper will discuss the problems with various economic and financial variables often suggested as "objectives" for policy instead of, or in addition to, monetary and credit aggregates. At the end, some general comments will be offered on the implications of this analysis for reporting on monetary policy.

Nominal GNP

Nominal GNP is the measure of economic activity generally considered to be most nearly controllable by monetary policy on the view that the Federal Reserve cannot be held responsible for the split between real activity and prices. An objective couched in terms of an annual rate of rise in nominal GNP would also have the advantage of working to hold down inflation by seeming to make it clear that excessive wage increases (relative to productivity) would through their upward impact on prices inevitably reduce real growth. The associated rise in unemployment, if nominal GNP were held to target, would provide a more or less automatic mechanism for bringing wage and price increases back to a sustainable pace. Moreover, one could argue that if these relationships were widely enough understood, announcement of a (credible) nominal GNP target might in itself work to forestall excessive wage increases without development of an unacceptable level or duration of unemployment.

The various disadvantages to a nominal GNP target set by the Federal Reserve, especially one that pertains to the year or two immediately ahead, cut across technical, market and practical considerations. For one thing, such a target gives a misleading impres-

sion of the reach and precision of the Federal Reserve's policy instruments. It also appears to assert that monetary policy actions alone—independently of fiscal policy, for example, or of behavioral changes by consumers, businessmen, and the rest of the world—are or can be responsible for nominal GNP.

Despite decades of economic research, it is clear that economic knowledge has not advanced to the point where the Federal Reserve can be reasonably sure that a given setting of its policy instruments would yield the desired nominal GNP. Slippages between nominal GNP and such instrument settings as money supply, the monetary base, interest rates, or the Federal Reserve's U.S. Government securities portfolio seem too great for any certainty in that respect. The elasticities of the economy's response to changes in monetary policy instruments do not seem to be especially stable from period to period, and the time lags with which these responses are worked out seem variable, depending on economic circumstances and market psychology, and in some cases relatively long.

While adjustments to the policy instruments can and should be made in the course of a year when demands for goods and services begin veering, for whatever reason, significantly off course, it is very doubtful that a pre-determined nominal GNP for a particular year could be attained. Moreover, in the process of attempting single-mindedly to reach such a target, the associated, possibly extreme changes in money and credit growth and in market conditions might well throw the economy off course in later years, given the lags between changes in financial conditions and demands for goods and services. This is not an argument against adjusting policy to perceived changes in the economic environment, nor is it an argument against presenting projections of key economic variables, but it is an argument against setting specific GNP "objectives" since they cannot in practice be reasonably certain of attainment on a year-by-year basis given the lags with which policy instruments take effect.

A nominal GNP "target" for monetary policy would almost inevitably call the Federal Reserve's credibility into question, since the central bank in the nature of the case does not really have the capacity to deliver on such a target. Moreover, over the near-term horizon which seems to be of greatest concern to most people, the authorities would always be confronted with a dilemma in target setting between what is in practice attainable and what is in an ultimate sense desirable, since it is seldom that full employment and price stability will conjoin in a year or two ahead. If misses from chosen targets were sizable and persistent, the public would come to doubt the System's effectiveness, and destabilizing expectations—either inflationary or deflationary depending on the situation—may well develop.

Similar problems can, of course, develop with misses from any kind of target the System announces, including the money supply, but the odds on missing financial targets are less. In any event financial targets do not carry with them the promise that monetary policy is alone responsible for the nation's over-all economic performance, with all the disappointment that lapses from such a promise may engender.

Real GNP

As an objective for the Federal Reserve, real GNP has appeal to many because it could, for example, convey intentions about the pace of economic recovery from a recession or could indicate the central bank's attitude toward longer term economic growth. It raises many problems, however. If any measure of economic activity is subject to a degree of "control" by the Federal Reserve it would appear to be nominal, not real GNP; and even control of nominal GNP is unavoidably loose and uncertain, as noted above, given slippages between policy instruments and economic performance. Thus, being as yet one further remove from policy instruments as compared with a nominal GNP objective, a real GNP target promises even more than can be delivered.

Moreover, there would be a strong practical tendency toward an upward bias in an announced real GNP target. It would almost always be difficult to make it understood that in a year ahead more real GNP is not necessarily better than less. So long as prices react to policy with a longer lag than real activity, a more expansionary target for activity would generally appear to be preferable if the policy horizon is limited to a year or two. This, of course, argues strongly for objectives being stated over longer term time horizons, so that implications for future price pressures, and not merely current price effects, can be given weight.

But over the longer term real GNP is even less of a conceptually satisfactory objective for monetary policy than it is over the short-run. At least in the short run it can be argued that Federal Reserve should make known how it intends to adjust its policy to affect the pace and timing of, say, an economic recovery. Long-term economic growth, however, depends fundamentally on factors such as growth in the labor force, hours worked, and productivity that are not at all controllable by the Federal Reserve.

Prices

The economic objective that monetary policy can influence over the long run—given the real factors that determine growth of output—is the average level of prices. In that sense, looked at over a sufficiently long-run, prices would be more of a realistic economic objective for monetary policy than nominal or real GNP. Such an objective would presumably be expressed as reasonably stable—rather than declining or rising—prices.

Because the length of run over which price performance is independent of real growth may be relatively long, it seems unlikely that price stability can itself serve as an economic objective applicable to a particular current year. The stickiness of wages, the problems posed by exogenous price shocks, such as experience over the past decade with oil prices, and the presence of inflationary expectations may often entail a certain amount of upward price pressures over a short or intermediate term if reasonably satisfactory economic growth is to be achieved.

Thus, while price stability may be, conceptually, the most suitable objective for monetary policy, it is questionable whether prices can in practice serve as a sole objective over the nearer term. Price stability, however, can be an attainable economic objective over the

longer run, and in that context would affect near-term policies, requiring that they clearly be consistent with progress over time toward that end.

Interest Rates

Presumably because of these various problems with economic variables as objectives for monetary policy, the H-H Act requires the Federal Reserve to state its annual objectives in terms of monetary and credit aggregates—financial variables for which the Federal Reserve may be held more directly accountable. The rate of interest is the financial variable most often suggested as a target for monetary policy in addition to, or sometimes instead of, those aggregates. No one doubts that much of the impact of monetary policy comes through its effect on interest rates, though there are some who would place stress as well on the direct liquidity enhancing effects of money creation. However, as compared with monetary aggregates, interest rates are an undesirable target for monetary policy since interest rate decisions stand a greater chance of leading to undesired economic outcomes.

As has been pointed out exhaustively, with an interest rate target, shocks from the real sector would lead to a pro-cyclical monetary policy, while with a money supply target, policy would be counter-cyclical. Historically, shocks to the economy from the side of goods and services demand have appeared to be more prevalent than shocks from the side of money demand. On the other hand, recent experience with the aggregates in a period of rapid institutional change—as evidenced by the behavior of NOW accounts, MMDAs, and super-NOWs—has also made it clear that money demand shocks may not be unimportant. Under those conditions, there seem to be somewhat stronger arguments for letting interest rates serve as a guide, at least in a supplementary way, for monetary policy.

Still, even if circumstances were to warrant a role for interest rates as a financial target or as an operating instrument, presumably adjusted as necessary to attain other financial objectives, it is highly doubtful that a rate should be announced in advance. This is partly because announcement of a rate level would itself, because of the central bank's immense financial power, become the dominant factor in establishing market rate levels. The market would gravitate to that rate immediately, and the central bank would have little choice except to provide, or absorb, the money and credit that would maintain the level if the credibility of its announcement were to be maintained. If the chosen rate level were to prove to be inappropriate, considerable financial and economic harm would probably be done as money and credit expanded more or less than needed for a desirable economic performance.

The odds are high on announcing an interest rate level that is not appropriate. Inflationary expectations are most difficult to assess, so that there is inevitable doubt about the significance of any nominal interest rate for real rates. Moreover, even if money demand were uncertain, making interest rates a more attractive target, the demand for goods and services would probably also be uncertain—so that the likelihood of being able to choose the "cor-

rect" interest rate is small. And there would be conflicts as time passes between interest rate and money supply targets, if both were required by law, that would serve only to diminish the credibility of both.

Finally, interest rates have a reality to borrowers and lenders and to the public at large that the money supply, a more abstract concept, lacks. This would make announced interest rate targets much more a focus of contention on the part of various economic and social groups, to the practical detriment of evaluating the appropriateness of monetary policy from a macro-economic perspective. On balance, announcement of interest rate targets would appear to run much more risk than money supply targets of vitiating the Federal Reserve's credibility and of being counter-productive for the economy.

Implications for Reporting and Setting Policy Objectives

If the preceding analysis of the various objectives (other than money and credit aggregates) that have been suggested for monetary policy is reasonably near the mark, it would imply that the Federal Reserve should not set annual objectives, particularly over a year or two ahead, for any of them. Rather, the central bank, because of its control over bank reserves and money, would seem to be uniquely situated to seek a long-run objective of establishing and maintaining price stability, consistent with the economy attaining its full growth potential over time. The other general objective (in contrast to specific annual economic goals) that seems uniquely assignable to the central bank is the one of maintaining a viable banking or depository system, partly through its powers as a lender of last resort—the apparent basic objective of the original Federal Reserve Act.

Stress on price stability over time as a principal, and in some ways unique, economic objective for the Federal Reserve should not, and does not, deny or downplay the System's responsibility in the area of short-term macro-economic policies, particularly anticyclical policies and policies in face of economic shocks (such as oil price shocks). In that connection, the Federal Reserve, as noted earlier, provides the public with its near-term expectations or projections for such key economic variables as nominal and real GNP, prices, and the unemployment rate. These projections are given for a year ahead at the beginning of a year, and a year and a half ahead at mid-year. At the same time, the Federal Reserve indicates the relationship of its plans and objectives for the monetary and credit aggregates to the short-term goals given in the Economic Report of the President and to short-term goals approved by Congress. The short-term goals in the Economic Report of the President are for a two-year period; there are also medium-term goals for the ensuing three years contained in the Economic Report.

While there are patchwork elements in the present system for reporting on monetary policy and relating it to over-all macro-economic objectives for the nation, considering also how the budget process weaves in, it has certain clear advantages and has worked reasonably well. It leaves the setting of specific national economic goals with the Administration, a more logical place than the Feder-

al Reserve. And it seems to be understood that these goals represent a general intention over time, with the specific year-by-year numerical expressions of the intention not considered binding on either fiscal or monetary policy. Thus, monetary policy is not tied to a particular year-by-year pattern of economic objectives that may prove unrealistic in practice, nor is monetary policy put in the position of attempting to attain short-term economic goals at the possible sacrifice of longer-run objectives.

The projections of economic variables presented by the Federal Reserve in its semi-annual reports to Congress can be viewed as the System's estimate of how its monetary and credit objectives will lead over time to attainment of national economic goals. The monetary objectives themselves provide reasonable assurance that compensating market forces will emerge, should demands for goods and services veer from expectations and key economic variables begin deviating from projections. For instance, the projections embody specific fiscal policy assumptions, based, as available, on the Administration's budget submission and Congressional budget resolutions; in that way, they serve as one source for evaluating "coordination," in the sense of likely economic effects, of fiscal and monetary policy. Should fiscal policy, or other factors affecting the demand for goods and services, turn out to be different from originally assumed, market conditions would change as money supply objectives were pursued—markets would ease, for example, if fiscal policy became less expansive or if there were an exogenous decline in, say, investment demand. Forces—such as lower interest rates—would be set in motion that would work over time to sustain the economy on a satisfactory growth path.

The monetary targets also provide assurance that growth of the economy will be consistent with progress toward price stability, given the long run relationship between money supply and prices. After due account is taken of possible shifts in public preferences for money-type assets arising from structural changes in the financial system and other factors, a consistently lower trend of money growth targets toward a rate consistent with price stability—coupled with reasonable attainment of the targets—would contribute to the establishment of expectations of price stability in the market.

In sum, it is virtually undeniable that an expression of the central bank's objectives is needed to establish public accountability and responsibility. That accountability on an ongoing basis is best indicated by a financial variable that is reasonably subject to control, with some measure, or measures, of the money supply being on balance the most advantageous. These financial objectives need to be set in the context of the nation's basic economic goals—broadly taken as achieving its growth potential at reasonably stable prices. The contribution of year-by-year monetary objectives to those ends is given, in current practice, by projections of the likely effects on GNP and prices of money supply and credit targets. This provides a practical basis for judgment and debate by the public, Congress, and others about whether the near-term course of policy is satisfactory and consistent with the country's ultimate economic goals.

It would add little or nothing to the debate, and would indeed be misleading with respect to the capacity and power of monetary policy instruments, if the monetary authorities were to present year-by-year objectives, rather than projections, for GNP and related measures. They cannot be properly objective about monetary policy alone since, as noted earlier, they are influenced not only by monetary actions (with, however, lagged effects) but also by fiscal policy, wage and price policies in the private sector, investment and consumption spending propensities, and developments abroad. The contribution of monetary policy itself to economic performance, and the accountability of monetary policy, is more truly expressed by what it can most directly control—that is, by the money and to a degree credit variables as connected to the reserve base of the depository system.

STREAMLINING THE FED

(By Henry S. Reuss)*

For many years Bob Weintraub's career was intertwined with the House Banking Committee and the Joint Economic Committee, and so was mine. I served as chairman of Banking from 1976 to 1981, and of the JEC during 1981–82, while Bob was a senior staff member. During all these years we neither agreed on any important monetary issue, nor ceased for a moment to be friends.

He would denounce me as a syndicalist for advocating a government-business-labor social contract; and I would lash out at him as a doctrinaire monetarist for his ceaselessly invoking monetarism as a universal solvent. Yet our friendship survived it all. Bob was a delight to know, and we miss him mightily.

This volume of essays is a worthy tribute to a worthy man, and I'm happy to append my views. Bob would have snorted at most of them.

The Federal Reserve's position in our governmental system is unique. The Fed is the servant and monetary agent of the Congress. Every chairman of the Fed in the last generation—William McChesney Martin, Arthur Burns, William Miller, Paul Volcker—has testified that Congress, which created the Fed, can direct it or abolish it. In fact, Congress has not infrequently given the Fed monetary directives. In 1975, when the country was in the throes of a recession caused by OPEC oil price increases and by high interest rates, Congress passed H. Con. Res. 133 directing the Fed to encourage "lower long term interest rates" and "expansion in the monetary and credit aggregates appropriate to facilitating economic recovery." The Fed responded by loosening money, interest rates promptly declined, and the nation recovered from the recession.

Once again, in the concurrent Budget Resolution of June 1982, Congress directed the Fed, in the light of the greater budgetary control then hoped for, to re-evaluate its monetary targets. Within a few weeks the Fed responded by modestly easing money. Interest rates began to fall. In its December 1982 Continuing Resolution, Congress repeated its call for monetary easing. By January 1983, the recovery had started.

Of course Congress does, and should, leave the day-to-day conduct of monetary policy to the Fed. But the relationship of the one to the other is that of creator to creature.

With respect to the Executive, on the other hand, the Federal Reserve is, and of right ought to be, independent. There are good reasons for this difference in the Fed's relationship to the Congress and the Executive. When Congress acts with respect to the Fed, it acts by formal concurrent resolution—one requiring the agreement

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of both Houses, but not the signature of the President. When the executive branch involves itself with the Fed, as it must, it frequently proceeds behind closed doors, by ambiguous conversation, often with a multiplicity of voices.

It is of the utmost importance that the administration and the Fed harmonize their policies, and this requires close and constant communication and coordination. The executive is entitled to express its views on monetary policy, for the Fed to accept or reject as it deems right. But the existing institutional set-up encourages buck-passing and evasion of responsibility by the executive. For example, during the great Treasury-Federal Reserve controversy in the early 50s, President Harry Truman had a dramatic secret meeting with the Federal Open Market Committee at the White House. After the Open Market Committee left that January 31, 1951, meeting, the White House issued a press release announcing that the Fed had "pledged its support to President Truman to maintain the stability of government securities as long as the emergency lasts." Immediately, the Fed went into a flurry of leaks challenging the White House's version.

More recently, in the summer of 1982, President Reagan called Chairman Volcker to the White House for a lengthy private meeting. According to later press accounts, the President asked for a continuation of tight money. Indeed, the only written "directive" the Reagan administration has ever given the Federal Reserve was that contained in the new Administration's Economic Recovery Program of February 18, 1981, in which the Fed was instructed to steadily reduce the rate of money growth to one-half its 1981 level by 1985. This disastrous super-monetarist advice has been discarded by mutual informal consent since about August 1982, but it remains engraved in stone in the Economic Recovery Program. Meanwhile, the Fed keeps getting frequent and conflicting advice from the President, the Treasury Secretary, Undersecretary Sprinkel, and various other administration spokesmen.

A truly independent relationship between the executive and the Fed requires that the executive, when it has views concerning monetary policy, state them clearly and publicly. Then the Fed should either comply or state its reasons for not doing so. Specifically, I have suggested that the President be required to state for the published record his view on any major matter before the Federal Open Market Committee. This would establish an arm's length relationship between the President and the "independent" Federal Reserve, by placing fundamental exchanges between the Administration and the Fed on the record.

It wouldn't hurt to take a good look at the structure of the Fed itself, either. Are seven governors really necessary? Only the Interstate Commerce Commission, hardly a role model for the independent agencies, has more. How about, say, three members—a Chairperson and two others to provide some Socratic dialogue?

The Open Market Committee is to an even greater extent standing in the need of repair. The FOMC, which conducts the most vital parts of monetary policy, is composed of the seven members of the Board of Governors, appointed by the President and confirmed by the Senate, plus five Presidents of the twelve regional Federal Reserve Banks, on a rotating basis.

No power of government is more truly governmental than the Open Market decisions of the Federal Reserve. Five-twelfths of this power is today exercised by private citizens selected by their banker constituencies.

The seven Governors are exclusively and properly responsible for the two lesser elements of monetary policy—reserve requirements and the discount window. These seven are constitutional "Officers of the United States". Ironically, the single most important element of monetary policy—Open Market operations—is carried out by a motley body of seven governmental and five nongovernmental persons.

I know that Congress set up this absurd apparatus in the Federal Reserve Act of 1935, but that doesn't make it any better. To compound the sin, the five rotating Federal Reserve district members on the FOMC are selected in a thoroughly ridiculous way. Under the present law, membership on the FOMC consists of one representative, all the time, of the Federal Reserve Bank of New York; one representative, every other year, of the Federal Reserve Banks of Cleveland and Chicago; and one representative, every third year, of the Federal Reserve Banks of Boston, Philadelphia, Richmond, Atlanta, Dallas, St. Louis, Minneapolis, Kansas City, and San Francisco.

Thus New York, Cleveland, and Chicago have outsized representation, while the nine other districts subsist on crumbs from the table. It is impossible to defend this nonsensical disproportion.

The Washington Board of Governors should have undiluted responsibility for the governmental act of Open Market operations, just as it already has for reserve requirements and for discount operations. To be sure, the Board of Governors can be helped by the advisory voice of the District Bank Presidents. This could readily be accomplished by blanketing the 12 District Federal Reserve Bank Presidents into a reconstituted Federal Advisory Council, which would sit with the Board of Governors monthly. These monthly meetings could be timed to coincide with the monthly focusing on Open Market policy by the Board—a schedule which has been observed for many years.

Consolidating responsibility for Open Market policy in the Board of Governors is not only sensible policy, it is also what the Constitution requires. Article II, Section 2, Clause 2 provides that "Officers of the United States" must be appointed by the President, by and with the advice and consent of the Senate. Those who make the monetary policy of the United States are clearly "Officers of the United States" and should therefore be appointed and confirmed as required by the Constitution.

Making the Fed truly a public body might bring with it a welcome broadening of the Fed's concerns to include not just the quantity of the nation's money and credit but its quality. To make the U.S. once again productive and competitive, all agree, more investment in plant, equipment, and other capital is needed. Yet the Federal Reserve, and various Administrations, have sat by for years and watched the nation's scarce credit diverted in huge amounts to non-productive and speculative uses. Bunker Hunt is encouraged to borrow billions to fuel his commodity speculations. Giant corporations recently, particularly in oil, have been playing merger mania

with borrowed money. The big money center banks have lent huge sums to the Argentinas, Brazils, Polands, without even the most minimal concern over how the proceeds were being used.

Other central banks of the industrial democracies see to it that their scarce credit is not so readily squandered. A Federal Reserve exorcised of its banker influence could do the same. The fifty or so major banks which have been doing all this speculative lending could be requested by the Fed chairman to put limits on their lending in these categories. If protection against the antitrust laws is needed to facilitate an agreement to ease up, that could be arranged. If voluntary means fail, it is perfectly possible for the Fed to impose a reserve requirement on loans of this type, and thus make them less profitable. Every dollar of speculative lending that is foregone is another dollar available for productive lending.

A streamlined Fed could better concentrate on its main job—providing enough money and credit at interest rates calculated to secure full employment without inflation. To this end, the sooner it shucks off its regulatory and check-clearing empires the better.

The Fed now competes in bank regulation with the Comptroller of the Currency, the Federal Deposit Insurance Corp., and the State regulatory agencies. The Fed is the lead agency for regulating bank holding companies.

This duplication and proliferation of responsibility has not worked well. What's everybody's business is nobody's business, as we found in the Penn Square Bank fiasco of a few years back, where a number of regulatory agencies looked the other way because they assumed some other agency was on the lookout. Vice President Bush's task force on regulatory reform tried hard to consolidate responsibility in a new omnibus agency, but the Fed resisted fiercely and kept its empire intact.

The Fed's other non-monetary function, check-clearing, was made subject to a compensatory fee system by the Financial Institutions Deregulation and Monetary Control Act of 1980. Banks' competition with the Fed, and the steady replacement of checks by electronic banking, are likely to cause this extraneous Fed function to atrophy before long.

As events cause the Fed to streamline itself, what becomes of its vast network of banks, branches, and centers, and its thousands of economists and administrators? In the process of streamlining, it is by no means impossible that these can find useful work at a task that is now largely going unattended to—planning and problem-solving for the new era of productivity and competitiveness that must lie ahead.

Who knows? For the Federal Reserve, the best may yet to be.

THE DISCOUNT WINDOW

(By William Poole)*

> Any Federal reserve bank may make advances for periods not exceeding 15 days to its member banks on their promissory notes secured by the deposit or pledge of bonds, notes, certificates of indebtedness, or Treasury bills of the United States . . . at rates to be established by such Federal reserve banks, such rates to be subject to the review and determination of the Board of Governors of the Federal Reserve System. (Federal Reserve Act, Sec. 13 (8).)

It might be wondered why, in a memorial volume for Bob Weintraub, I choose to write on a central banking anachronism. But that is exactly the point; Bob was forever marveling at the survival of institutions and customs that no longer serve their original purpose.

There has, perhaps, been some improvement in our understanding of the discount window. As a student I did not know where the term "discount window" came from. Why not "discount facility"? When I joined the staff of the Federal Reserve Bank of Boston in 1973, the mystery was solved. The bank was still housed in its old building, which had a grand banking lobby. And in the lobby was a teller's window with the word "Discount" above. It used to be that bankers would bring their collateral to the window and arrange their loans. The new Federal Reserve Bank of Boston Building does not have a teller's discount window, but the facility survives.

President Wilson signed the Federal Reserve Act into law on December 23, 1913, "to provide for the establishment of Federal reserve banks, to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes" (preamble, Federal Reserve Act). In 1913, the gold standard was taken for granted. Open market operations had not yet been discovered. Few economists considered bank deposits to be "money." The relation of what we now call the "monetary base" to the volume of bank deposits was not understood. The conception of central banking today is as far removed from the 1913 conception as is modern medical practice from bloodletting. And yet, the discount window survives.

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THE SIMPLE ECONOMICS OF THE DISCOUNT WINDOW

Two elementary points are accepted by both the critics and the defenders of the discount window. First, in meeting reserve requirements bank reserves supplied by the Federal Reserve through the discount window are perfect substitutes for bank reserves supplied through open market operations. For given reserve requirements, larger bank reserves can support a larger total of bank deposits. The amount of deposits the extra reserves growth can support does not depend on the source of the reserves.

If monetary policy is viewed as determining the volume of bank reserves, then the effects, if any, of discount rate changes on market interest rates occur through changing market expectations. With qualifications discussed below, the discount window should, therefore, be analyzed in terms of expectational effects and not in terms of any direct channels arising from the provision of reserves through the window rather than through open market operations.

A second agreed point is that if short-run policy is viewed as determining interest rates rather than the quantity of bank reserves, then the discount window could be a perfect substitute for open market operations conducted to control interest rates. The Federal Reserve can peg the Federal funds rate day to day by supplying reserves through open market operations when the funds rate tends to rise, and absorbing reserves when the rate tends to fall. The discount window could achieve exactly the same result if the Fed were to lend to banks freely, without administrative rationing, at the discount rate. A change in the discount rate would then change the Federal funds rate by the same amount; such a system would closely approximate the 1970's system in which the Federal funds rate was pegged in a narrow range through open market operations.

A generalization of this proposition applies directly to present Federal Reserve operating procedures. If the Federal Reserve's administration of the discount window and bank borrowing behavior combine to yield a stable bank borrowing function, then under certain conditions discount rate adjustments will yield equal adjustments in the Federal funds rate; discount rate adjustments will be the *exact* equivalent of adjustments in a Federal funds rate peg. The present situation may closely approximate these conditions. Since the fall of 1982, the Federal Open Market Committee (FOMC) has issued its directive to the Open Market Desk at the Federal Reserve Bank of New York with an instruction that the Desk hit a borrowed reserves target. With a stable bank-borrowing function, in which the amount of borrowing depends on the *difference* between the Federal funds rate and the discount rate, a change in the discount rate with an unchanged FOMC borrowing target will yield an equal change in the Federal funds rate.

Recent Federal Reserve practice has been based on the view that the borrowing function is relatively stable. If the borrowing function exhibited no disturbances whatsoever, then the combination of a specified discount rate and a specified FOMC borrowing target would be the precise equivalent of a pegged Federal funds rate. Because the borrowing function is not perfectly stable, the present system is only the rough equivalent of a pegged Federal funds rate.

Federal Reserve lending through the discount window may be divided into two basic categories—adjustment assistance and lender-of-last-resort assistance. Historically, most discount window borrowing has been for adjustment assistance. Individual banks find, from time to time, that they are short of the reserves required by Federal Reserve regulations, and in such cases banks then borrow from the Fed to meet their reserve requirements. There is, however, no reason to maintain a discount window for this purpose because banks ordinarily borrow using government securities collateral. There is a ready market for government securities; banks running short of reserves could just as easily sell the securities to obtain the needed funds.

At the very end of a reserve settlement period banks might find that they need reserves at a time when the government securities market is essentially closed, or that the amounts needed are too large to be obtained on short notice by selling government securities. Also, if all banks together are short of reserves, then they cannot all simultaneously obtain reserves by selling government securities. In this case, it might seem reasonable for banks to borrow reserves from the Federal Reserve to meet their reserve requirements.

This justification for the discount window, however, fails because there is an obviously superior alternative. Rather than lending banks reserves, the Federal Reserve could simply charge a small penalty when banks fail to meet their reserve requirements. This procedure would have several advantages. One stems from the fact that due to inevitable accounting delays, the amount of any reserve deficiency is known accurately only *after* the end of a reserve period. The present procedure requires banks to decide on the amount of discount window borrowing before the size of a possible reserve deficiency is accurately known.

Another advantage to simply assessing a penalty on reserve deficiencies stems from the fact that in recent years the discount rate has usually been set below the Federal funds rate. Under these circumstances the discount window provides a subsidy rather than a penalty for banks that fail to meet their legal reserve requirements on their own which is surely a very peculiar method of enforcing a regulation.

The discount window serves one important and indispensable function—that of providing funds as a lender of last resort. Sometimes a bank suffering a run can obtain the funds through the market, and the run is soon over. However, the same news that triggers a run may also make others in the market nervous about providing loans or buying assets from the bank for fear that the bank may fail or that the assets may not be good assets. If the Federal Reserve decides that the bank is in fact solvent—that the value of its assets exceeds its liabilities—then it makes sense to provide emergency support through the discount window. These emergency funds enable the bank to meet its obligations and to survive.

If it is decided, after careful examination of the bank's books, that the bank should be closed, the emergency funds provide breathing time to arrange for an orderly merger with a stronger institution or an orderly closing of the bank. More importantly, the

emergency support calms the market and reduces the probability that one bank's difficulties will trigger runs on other banks, thereby creating widespread financial disorder.

The logic of the lender of last resort function requires that the discount rate at which the central bank provides emergency funds be at least as high as the prevailing market rate for riskless loans. If a bank is solvent it will be able to pay an above-market interest rate for a time and still survive. A bank that could only survive through access to subsidized funds from the central bank—funds provided at a discount rate below the market rate—ought to be closed down promptly.

Resorting to the discount window may in some circumstances accelerate a run on a bank with a significant proportion of its assets tied up in problem loans. The Federal Reserve and the borrowing bank are not always successful in maintaining the confidentiality of discount window borrowing; knowledge that the bank must use the discount window discloses the severity of its difficulties. Moreover, discount window borrowing is secured by the bank's best assets, which increases the size of any possible loss to uninsured depositors if the bank fails. By taking the best assets, the discount window analytically works rather similarly to depositors who engage in a run. These depositors are successful in realizing 100 cents on the dollar, and they leave the losses for those who are slow to act. The difference between a run and emergency discount window borrowing—and it is a very important difference—is that a bank borrowing at the window is not forced to sell assets at prices that may, due to incomplete market information, be below their true values.

Announcement Effects

Changes in the discount rate have for many years been interpreted as signals or announcements of monetary policy intentions. Critics of the Federal Reserve's use of discount rate changes to make announcements have long argued that the announcements are frequently unclear and that the Federal Reserve could more efficiently make announcements in such forms as press releases, statements before Congress, or articles in the Federal Reserve Bulletin.

Debates over the value of announcement effects have not, to my knowledge, been based on a systematic examination of the announcements the Federal Reserve actually makes. The table at the end of this essay is based on an examination of every discount rate change from 1953 through 1984 as announced and explained in the Federal Reserve Bulletin for the month shown in the right-most column of the table.

The table reports my interpretation of the reasons offered in the Federal Reserve Bulletin when the discount rate was changed. As can be seen from the "Xs" in the "None" column, in the 1950's the Federal Reserve typically reported discount rate changes without offering reasons. The rate change had to speak for itself, a matter to be addressed after completing discussion of the table.

The reason most often offered for changing the discount rate is alignment with market interest rates. The discount rate tends to lag rather than lead market rates of interest, and the Fed fre-

quently explains that the discount rate is being adjusted simply to align it with the market. For example, in the "National Summary of Business Conditions" in the Federal Reserve Bulletin for April 1956 the discount rate change is explained in this way:

> Partly in response to these yield developments, the discount rate was raised to 2¾ percent at nine Federal Reserve Banks and to 3 percent at two of the banks effective April 13.

If the discount rate were tied by formula to market rates of interest, as many economists have urged, discount rate adjustments would occur automatically and match the explanation that the Federal Reserve itself has most often offered for changing the rate.

The discussion in the previous section pointed out that alignment may or may not occur depending on other policies. If the Federal Reserve is operating with a Federal funds rate target, then an adjustment of the target equal to the adjustment of the discount rate will keep the spread between the two rates from changing. If a borrowed reserves target is being employed, failure to adjust that target will lead to a Federal funds rate change equal to the discount rate change if the borrowing function is stable.

A clear statement of a policy reason for changing the discount rate did not occur until the change effective July 17, 1963. In the "Announcements" section of the Federal Reserve Bulletin the reasoning behind the increase in the discount rate and reserve requirements is provided at some length:

> On July 16, the Federal Reserve System acted on two fronts to aid the United States efforts to combat its international balance of payments problem.
>
> * * * * *
>
> Both actions are aimed at minimizing short-term capital outflows prompted by higher interest rates prevalent in other countries. Preliminary information indicates that short-term outflows contributed materially to the substantial deficit incurred once again in the balance of payments during the second quarter of this year.
>
> Recently, market rates on U.S. Treasury bills and other short-term securities have risen to levels well above the 3 percent discount rate that had prevailed for nearly 3 years, making it less costly for member banks to obtain reserve funds by borrowing from the Federal Reserve Banks rather than by selling short-term securities.
>
> The increased discount rates will reverse that circumstance, making it once again more advantageous for member banks seeking reserve funds to obtain them by selling their short-term securities rather than by borrowing from the Federal Reserve Banks. Sales so made should have a bolstering effect on short-term rates, keeping them more in line with rates in other world financial markets.
>
> * * * * *
>
> These actions to help in relieving the potential drain on U.S. monetary reserves associated with the long persistent

> deficit in the balance of payments do not constitute a change in the System's policy of maintaining monetary conditions conducive to fuller utilization of manpower and other resources.

The last paragraph of this passage provides a good example of why discount rate announcements are ambiguous. The earlier paragraphs seem to point unambiguously to a policy of maintaining higher interest rates than before. The last paragraph seems to say that either the higher interest rates will have no effect on the domestic economy, or that the domestic policy will be unchanged and that interest rates will not in fact be pushed up to the higher levels. If the policy was indeed one of pushing interest rates up, then the last paragraph seems designed simply to provide an assertion that the policy would not set back the efforts of the Kennedy Administration to reduce unemployment. Conversely, if domestic interest rates were not going to be maintained at the new higher levels, then the discount rate action and the accompanying explanation would seem designed to provide the appearance of doing something about the balance of payments deficit, which was viewed as a substantial problem in 1963, without in fact doing anything.

In any event, in the table this discount rate change has been listed in the column marked "Policy 2." That designation means that the Federal Reserve explained the discount rate change in terms of achieving a particular policy objective.

The meaning of the "Policy 1" column can be explained by quoting from the Federal Reserve's announcement of the discount rate decrease effective November 11, 1970. In the "Announcements" section of the Federal Reserve Bulletin the Fed explained that "the reduction in the discount rate, made within the framework of the moderately expansive monetary policy that was initiated earlier this year, is the first since August 1968. . . ." The Policy 1 column is checked when statements say that the discount rate change was taken "in the light of," or "in recognition of," or "in the framework of," or similar phrases. Language of this kind provides hints but seems considerably less strong than language that says, in effect, that the discount rate change was made "for the purpose of" achieving a certain end.

As indicated by the "alignment only" column in the table there are occasions when the Federal Reserve is at pains to explain that the discount rate action has no purpose other than to align the discount rate with market rates of interest. In the "Announcements" section of the Federal Reserve Bulletin the discount rate increase effective January 15 was explained this way. "The present increase of the discount rate is merely a passive adjustment to what has already happened to market interest rates, and it, therefore, should not be the occasion for a further increase in interest rates." This passage might be read as indicating that ordinarily a discount rate increase should be the occasion for further increases in interest rates, but I doubt that the Fed intended that interpretation.

Another example of the "alignment only" statement appears in the "Announcements" section of the Federal Reserve Bulletin for September 1977. "The Board stated that this action is intended as a technical move for the purpose of bringing the discount rate into

better alignment with other short-term interest rates and that it has no monetary policy implications."

If the words accompanying discount rate adjustments are frequently ambiguous, as they are, the market is likely to concentrate on the action itself. Instead of attempting the complicated task of trying to measure the expectational effects of discount rate changes, I will pursue a different approach. Based on the assumption that the market interprets a discount rate decrease (increase) as a sign of an easier (tighter) policy, and that the expectation of an easier (tighter) policy, causes interest rates to fall (rise) without there being any immediate change in the level of bank reserves and the money stock, it is possible to explore the appropriateness of the discount rate changes for the cyclical position of the economy. To prevent this discussion from being too long and tedious, the review of discount rate adjustments will be confined to those in the neighborhood of business cycle peaks.

The discount rate history reported in the table begins with 1953. A business cycle peak occurred in July of that year, but the discount rate was not lowered until February 1954. The next cycle peak was August 1957. The discount rate was increased that month and not reduced until November. The timing was better in 1960; the discount rate was reduced in early June following the cycle peak in April.

The long 1960's expansion ended with the cycle peak of December 1969. The discount rate had been increased in April 1969 and was not lowered until November 1970, the month of the cyclical trough.

Leading up to the cyclical peak in November 1973, the Federal Reserve increased the discount rate in January, February, April, May, June, July, and August. The rate was also increased in April 1974. During this recession, which extended from the peak in November 1973 to the trough in March 1975, the first discount rate decrease did not occur until December 1974. This late response reflects both the fact that the discount rate had not been increased enough to remain in line with rising market rates in the first half of 1974 and the Fed's determination not to provide any signal that it was reversing a restrictive policy to fight inflation.

The record of poor timing continued with the two recessions in the early 1980's. Preceding the January 1980 cycle peak, the discount rate was increased four times in 1979—in July, August, September, and October. The rate was also increased in February 1980, after the recession had begun. The first decrease occurred in late May, shortly before the cycle trough in July. In 1981, the discount rate was increased in May, shortly before the cycle peak in July. The first decrease in the rate occurred in November.

From this review of 32 years of discount rate announcements, it is difficult to believe that the announcement effects are a constructive feature of U.S. monetary policy. The timing record reflects two inevitable features of discount rate administration. First, discount rate adjustments are, and should be, motivated by an effort to keep the rate reasonably aligned with market rates of interest. But discount rate changes are also viewed by the Fed and by the market as statements of policy. In 1957, 1969, 1973, 1980, and 1981 the business cycle peaks occurred at times of widespread concern about in-

flation. In none of these cases was the existence of a cycle peak clear at the time it occurred. To maintain a stance of "fighting inflation" the Federal Reserve was concerned in each case not to give a signal that it had adopted a less restrictive policy.

For the same reason, open market operations have been conducted in a way that tends to resist the downward pressures on interest rates that develop as the economy slides into recession. Growth of bank reserves and the money stock declined in the early part of each of these recessions. From previous studies of the cyclical behavior of money growth and this study of discount rate administration it is clear that discretionary management of monetary has produced less satisfactory results than would have occurred if the Federal Reserve had been following a simple monetary policy rule of maintaining steady money growth and adjusting the discount rate by formula to keep the rate above money market interest rates by some constant spread.

Other Functions of the Discount Window

From 1955 through 1964, the Federal funds rate was always below the discount rate, on a monthly average basis. The funds rate rose above the discount rate in early 1965, and has remained above for almost the entire period since. Because the Federal funds rate measures the cost to banks of obtaining reserves in the market, while the discount rate measures the cost of obtaining reserves from the Federal Reserve, the Federal Reserve's administration of the discount rate since 1965 has meant that the Fed has been subsidizing banks through the discount window. It was argued above that a subsidy discount rate serves no monetary policy purpose. However, most government agencies find the power to subsidize a useful one for their own purposes, and it is worth exploring the advantages to the Federal Reserve of providing subsidies to banks that borrow through the discount window.

Beyond the obvious point that subsidies provide any agency with an opportunity to maximize its political support, the subsidy discount window enables the Federal Reserve to establish regulatory constraints on banks that might not otherwise exist. In granting loans, the discount officers at the various Federal Reserve banks must be satisfied that the borrowing bank is sound. Regulatory supervision is obviously appropriate where the Federal Reserve is acting as a lender of last resort; if the Fed is not convinced that a bank can survive when supported with lender-of-last resort funds, then the bank should be closed. Survival depends on the bank correcting the problems that led to its troubles, and Federal Reserve supervision is fully appropriate in these cases.

These arguments do not apply when a sound bank is borrowing for short-run adjustment. There is absolutely no risk to the Federal Reserve to lending to such a bank because the loans are ordinarily collateralized by government securities. Supervision by a discount officer is the price a bank pays for obtaining the subsidy when the discount rate is below the Federal funds rate. Under a penalty discount rate system the bank would have no motivation to borrow from the Fed rather than from the Federal funds market and so the Federal Reserve would lose this avenue of supervision.

The present system may have considerable advantage to the Federal Reserve because of the wide discretion available to the discount officer. In contrast, other banking supervision takes place in the context of a formal system of written regulations that are subject to court challenge. Actions under the regulations are also subject to court challenge. Of course, any bank that finds the supervision by the discount officer onerous can escape by foregoing the discount window subsidy.

Another function of the discount window is that it permits the Federal Reserve to make announcements indicating its concern about economic conditions. Monetary policy is highly controversial and the Federal Reserve is subject to a continuous barrage of criticism. Some of this criticism is justified and some not. Adjustments in the discount rate provide the Federal Reserve with opportunities to express its concern about obvious problems such as rising unemployment or rising inflation without in fact taking any substantive action.

I discussed a particularly clear example of this phenomenon in a paper published in 1975.[1] As unemployment rose rapidly after the middle of 1974 interest rates fell. The Federal funds rate at its peak in July 1974 was almost 5 percentage points above the discount rate, providing a very substantial incentive for banks to borrow through the discount window. By February 1975, the funds rate was more than half a percentage point below the discount rate. The Federal Reserve expressed its concern about the recession by three discount rate cuts in January, February, and March 1975. But the Federal funds rate declined even more rapidly and so the incentive for banks to borrow through the discount window actually declined. The Federal Reserve used another inconsequential policy instrument—reserve requirements—in the same way. Reserve requirements were cut in January 1975 but open market operations then absorbed almost all of the reserves released by cutting reserve requirements.

Finally, the monetary policy operating procedures employed since the fall of 1982 have permitted the Federal Reserve to claim that it is not pegging interest rates in the short run while it is in fact pursuing a policy that is the functional equivalent of pegging interest rates. As noted earlier, the combinatioin of a stable borrowing function, discount rate administration, and the FOMC's borrowing target yield this result.

Over recent years there have been numerous calls for the Fed to control interest rates, and several bills have been introduced in Congress to direct that the Fed follow such a policy. The Federal Reserve is correct to resist a congressional directive that interest rates be pegged; a formal pegging policy would not permit the flexible adjustments to the peg that are possible when rates are pegged day to day as a matter of practice rather than of law. But it should be clearly understood that the present discount window serves the purpose of permitting the Fed to peg the Federal funds rate, though somewhat loosely, while denying that it is following such a policy.

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[1] William Poole, "Monetary Policy During the Recession," in Arthur M. Okun and George L. Perry, eds., Brookings Papers on Economic Activity 1:1975, 123-39.

The Federal funds rate peg under present policies is somewhat loose because the borrowing function is subject to shifts due to a variety of expectational and other factors. That looseness is an advantage to the Federal Reserve politically for it makes more credible the denial that present policy involves interest rate pegging. But the greater are the random shifts in the borrowing function the less satisfactory is the present approach to monetary policy. If a Federal funds rate peg could be adjusted flexibly, a direct peg dominates the indirect peg through a borrowed reserves target, except when the borrowing function is subject to no unpredictable disturbances whatsoever. In that case the direct and indirect pegging policies are identical.

A policy superior to both the direct Federal funds peg and the indirect peg is maintenance of steady growth of bank reserves. There is an extensive literature supporting this position, but this topic is beyond the scope of the present paper.

Minimal Recommendations

It would be desirable for the discount window to be abolished except for its use in a lender-of-last resort context at a penalty discount rate. Federal Reserve lending in these circumstances must be combined with close supervision of the activities of the borrowing banks. But given that this "radical" proposal has been advocated by many economists for years and ignored by the Congress, a minimal set of reforms should be considered.

First, the Federal Reserve Act should be amended to require that the Federal Reserve System maintain the discount rate above money market rates of interest. The System could be permitted to continue to adjust the rate according to present practice except that the adjustments would refer to the spread over market rates. The discount rate would, therefore, follow the market rate of interest except when Fed action changed the spread. Adjustment borrowing, which should be collateralized by U.S. Government securities, should be rationed by the discount rate only and not through application of non-price-rationing criteria.

Second, the Federal Reserve Act should be amended to require that the FOMC release its policy directive at the end of the day on which is adopted. Present practice permits the Federal Reserve to announce changes in the inconsequential policy instruments—the discount rate and reserve requirements—while maintaining secrecy over important policy decisions made by the FOMC. As emphasized earlier, the policy significance of changes in the discount rate spread cannot be assessed without knowledge of the FOMC Directive. The effects of a discount rate change depend critically on FOMC policies toward providing reserves—policies relating to the nonborrowed or borrowed reserves target or to the Federal funds rate. No public policy purpose is served by the Federal Reserve releasing partial information about its policy stance; partial information can mislead the markets and mislead the Congress. Although there is ample reason to protect the confidentiality of policy *deliberation,* a "truth-in-policy act" should require immediate disclosure of Federal Reserve policy actions.

FEDERAL RESERVE SYSTEM DISCOUNT RATE CHANGES BY REASON, 1953–84

[See text for explanation]

Effective date of new rate	New rate (percent)			Reasons offered				Federal Reserve bull. reference
	First FRB to change	FRB New York	None	Alignment	Alignment only	Policy		
						1	2	
1953:								
January 16..	2	2	X					February 1953.
1954:								
February 5..	1¾	1¾	X					February 1954.
April 14.....	1½	.....	X					April 1954.
April 16.....	.....	1½	X					April 1954.
1955:								
April 14.....	1¾	.....	X					April 1955.
April 15.....	.....	1¾	X					April 1955.
August 4.....	2	.....	X					August 1955.
August 4.....	2¼	.....	X					August 1955.
August 5.....	.....	2	X					August 1955.
September 9.	.....	2¼	X					September 1955.
November 18.	2½	2½	X					December 1955.
1956:								
April 13.....	2¾	2¾		X				April 1956.
April 13.....	3	.....		X				April 1956.
August 24.....	.....	3	X					September 1956.
1957:								
August 9.....	3½	.....	X					August 1957.
August 23.....	.....	3½	X					August 1957.
November 15.	3	3	X					November 1957.
1958:								
January 22..	2¾	.....	X					February 1958.
January 24.....	.....	2¾	X					February 1958.
March 7.....	2¼	2¼	X					March 1958.
April 18.....	1¾	1¾	X					April 1958.
August 15...	2	.....	X					August 1958.
September 12.	.....	2	X					September 1958.
October 24..	2½	.....		X				November 1958.
November 7.	.....	2½		X				November 1958.
1959:								
March 6.....	3	3	X					March 1959.
May 29.....	3½	3½	X					June 1959.
September 11.	4	4	X					September 1959.
1960:								
June 3.....	3½	.....	X					June 1960.
June 10.....	.....	3½	X					June 1960.
August 12...	3	3	X					August 1960.
1963:								
July 17.....	3½	3½		X			X	July 1963.
1964:								
November 24.	4	4					X	December 1964.
1965:								
December 6.	4½	4½	X					December 1965.
1967:								
April 7.....	4	4	X					April 1967.
November 20.	4½	4½					X	November 1967.

FEDERAL RESERVE SYSTEM DISCOUNT RATE CHANGES BY REASON, 1953–84—Continued

[See text for explanation]

Effective date of new rate	New rate (percent)			Reasons offered				Federal Reserve bull. reference
	First FRB to change	FRB New York	None	Alignment	Alignment only	Policy 1	Policy 2	
1968:								
March 15	5	.....	X					March 1968.
March 22	.....	5	X					April 1968.
April 19	5½	5½	X					April 1968.
August 16	5¼	.....		X				August 1968.
August 30	.....	5¼	X					September 1968.
December 18.	5½	5½		X			X	December 1968.
1969:								
April 4	6	6					X	May 1969.
1970:								
November 11.	5¾	.....		X		X		November 1970.
November 13.	.....	5¾		X		X		November 1970.
December 1.	5½	.....		X				December 1970.
December 4.	.....	5½		X				December 1970.
1971:								
January 8	5¼	5¼		X				January 1971.
January 19	5	.....	X					January 1971.
January 22	.....	5		X				February 1971.
February 13.	4¾	.....		X				February 1971.
February 19.	.....	4¾		X				February 1971.
July 16	5	5		X			X	July 1971.
November 11.	4¾	.....		X				November 1971.
November 19.	.....	4¾		X				November 1971.
December 13.	4½	.....		X			X	December 1971.
December 17.	.....	4½		X			X	December 1971.
1973:								
January 15	5	5				X		January 1973.
February 26.	5½	5½		X			X	March 1973.
April 23	5¾	.....	X					May 1973.
May 4	.....	5¾	X					May 1973.
May 11	6	6		X				May 1973.
June 11	6½	6½		X		X		June 1973.
July 2	7	7					X	July 1973.
August 14	7½	7½		X				August 1973.
1974:								
April 25	8	8		X		X		May 1974.
December 9.	7¾	7¾		X				August 1974.
1975:								
January 6	7¼	.....					X	January 1975.
January 10	.....	7¼					X	January 1975.
February 5	6¾	6¾		X				February 1975.
March 10	6¼	6¼	X			X		March 1975.
May 16	6	6		X				May 1975.
1976:								
January 19	5½	5½		X				January 1976.

FEDERAL RESERVE SYSTEM DISCOUNT RATE CHANGES BY REASON, 1953–84—Continued

[See text for explanation]

Effective date of new rate	New rate (percent)			Reasons offered				Federal Reserve bull. reference
	First FRB to change	FRB New York	None	Alignment	Alignment only	Policy		
						1	2	
November 22.	5¼	5¼		X				December 1976.
1977:								
August 30...	5¾	.....			X			September 1977.
August 31.....	.....	5¾			X			September 1977.
October 26..	6	6		X				November 1977.
1978:								
January 9....	6½	6½				X		January 1978.
May 11.....	7	7		X				May 1978.
July 3.....	7¼	7¼		X				July 1978.
August 21...	7¾	7¾				X		September 1978.
September 22.	8	8		X			X	October 1978.
October 16..	8½	8½		X		X		October 1978.
November 1.	9½	9½					X	November 1978.
1979:								
July 20.....	10	10		X			X	August 1979.
August 17...	10½	10½				X		September 1979.
September 19.	11	11		X				October 1979.
October 8....	12	12					X	October 1979.
1980:								
February 15.	13	13					X	March 1980.
May 29.....	12	12			X			June 1980.
June 13.....	11	11			X			July 1980.
July 28.....	10	10			X			August 1980.
September 26.	11	11		X			X	October 1910.
November 17.	12	12		X		X		December 1980.
December 5.	13	13		X			X	December 1980.
1981:								
May 5.....	14	14		X			X	May 1981.
November 2.	13	13		X			X	November 1981.
December 4.	12	12		X				December 1981.
1982:								
July 20.....	11½	11½		X		X		August 1982.
August 2.....	11	11		X		X		August 1982.
August 16...	10½	10½		X		X		September 1982.
August 27...	10	10		X				September 1982.
October 12..	9½	9½		X				November 1982.
November 22.	9	9		X		X		December 1982.
December 14.	8½	8½				X		January 1983.
1984:								
April 9.....	9	9		X				April 1984.
November 21.	8½	8½				X		(1)
December 24.	8	8		X		X		(2)

[1] Federal Reserve Press Release, Nov. 21, 1984.
[2] Federal Reserve Press Release, Dec. 21, 1984.

CONDUCTING U.S. MONETARY POLICY: WHAT CHANGES DO WE NEED?

(By Benjamin M. Friedman)*

Bob Weintraub was a fine man, a man who took economics seriously but never let differences over economic questions affect personal relationships. We discussed economics and economic policy often, and we rarely agreed. Yet I usually learned from our talks, and they always stimulated my thinking even if they did not bend it to his. More important, the fact that we disagreed—indeed, that we disagreed repeatedly and even predictably—never got in the way. Bob's sense of perspective, which enabled him to separate professional disagreements from personal friendships, was all too rare. I admired him for it.

I also liked him. Bob Weintraub exemplified the old-fashioned notion of "good talk." Whether the subject was monetary policy, or some other aspect of economics, or politics, or the stock market (in which his interest was keen as well as shrewd)—or, for that matter, just about anything at all—Bob's conversation was lively and interesting. Talking with him was good fun, and more.

In the spirit of so many of the conversations that Bob and I had over the years we knew one another, in this tribute to him I examine a series of questions about the monetary policy process in the United States. Some of these questions concern monetary policy in a fairly narrow sense, while others concern the relationship between monetary policy and the government's tax and spending policies. The increasing tension between expansionary fiscal policy and restrictive monetary policy in the 1980's has brought these fundamental issues into focus, perhaps more sharply than ever before. I suspect that Bob would have agreed with little of what I suggest here, and that, had he read it, we would have argued about it fiercely. But I know that I would have enjoyed that argument, and that we would have remained good friends at its end.

Three distinct levels of issues have dominated the discussion of U.S. monetary policymaking in recent years. The first is politicial structure: How independent a central bank do we want? Should the Federal Reserve System be more directly subordinate to the Administration? To Congress? How can the government as a whole better coordinate its monetary and fiscal policies?

The second level of this discussion is policy design: Should monetary policymaking follow specific quantitative rules set in advance? If so, what rules? If not, what degree of flexibility is appropriate? Should monetary policy focus on targeted growth rates for money and credit aggregates? If so, which aggregates? If not, what then?

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Are interest rates or bank reserves a better focus for day-to-day policy operations?

Finally, the discussion has also focused in part on regulations and requirements: Should the Federal Reserve change its way of lending at the discount window? Should it make reserve requirements more uniform across diverse bank liabilities? Should it apply time to bank assets? Would bank credit controls be helpful? Would bank capital requirements be helpful?

The Political Structure of Monetary Policy

Making macroeconomic policy involves first establishing a set of policy objectives, which together describe the main outlines of the economy's intended future course, and then choosing a combination of monetary and fiscal policies designed to achieve those objectives.

The written formalities of the Constitution and the Federal Reserve Act notwithstanding, in practice the Federal Reserve sets monetary policy within the gap spanned by the Administration's objectives on one side and whatever Congressional consensus exists on the other. Just how "independent" our central bank actually is varies over time, but its independence is always strictly limited. Hypothetical questions about the appropriateness of the central bank pursuing an autarkic course, out of line with the remainder of the Federal Government overall, simply do not connect to the prevailing realities in the United States.

Such matters are not independent of the exisiting structure of policymaking institutions, of course. The basic reality in this case is the implicit threat of wholesale change by simple amendment to the Federal Reserve Act, should the Administration and Congress agree on the need. Much smaller issues can also be important, however. One partial advance in this regard in recent years has been the requirement that the Federal Reserve report the range of economic forecasts, for the year ahead, held by individual members of the Federal Open Market Committee.

Even in the absence of any more fundamental change from current institutions, a useful way to enhance still further the goal of monetary policy responsibility would be to require the Federal Reserve to state explicitly, in its semi-annual report to Congress, the set of broad macroeconomic objectives which its monetary policy is seeking to achieve. This statement of objectives should include near- and medium-term values for such aggregate-level measures of economic activity as price inflation, real income growth, and employment, so that in form it would resemble the summary of forecast ranges currently reported. In substance, however, there is an important difference between forecasts and policy objectives. Requiring an explicit statement of monetary policy objectives would be a plausible and constructive step.

Even so, merely noting that in practice the Federal Reserve sets monetary policy within the gap spanned by the Administration's objectives and those of the Congress raises more questions than it answers. The most immediate of these is whether we do well, in the absence of close agreement between the Administration and Congress, to leave what amounts to the residual macroeconomic decisionmaking power to a semi-judicial body like the Federal Re-

serve System. The answer is probably yes, largely for want of a better alternative. Placing monetary policy entirely under Administration control is politically unrealistic. Having Congress make monetary policy directly would probably result in far less happy economic outcomes on average. Decision by judicial or judicial-type bodies has been a standard method of conflict resolution throughout American history, increasingly so in the 20th century. For roughly similar reasons, it is probably the best we can do here too.

The more important question for practical purposes is what we can do to promote a typically closer agreement on macroeconomic objectives between the Administration and Congress. The principal impediment that an improved policy structure may help to diminish in this context is the persistent failure to distinguish between what is desired and what is feasible. To be sure, some underlying conflict between what is a target and what is a forecast always affects the construction of economic policy proposals. Increasingly, however, major statements of macroeconomic policy ranging from the President's annual budget messages to actual legislation (for example, the Humphrey-Hawkins Act) have abandoned realism in specifying either the objectives to be sought by unspecified future policy or the consequences to be anticipated from specific policy proposals.

Here too, such matters are not entirely independent of the relevant policymaking institutions. One significant advance along these lines in recent years has been the inception and subsequent growth of the Congressional Budget Office. Another, albeit more halting, has been the Congressional budget process itself.

What additional mechanisms would help lead the Administration and Congress into agreement, or at least a more explicit statement of their differences, on basic macroeconomic objectives? A plausible beginning would be to institutionalize the annual passage of a "sense of Congress" resolution specifying, in as precise quantitative terms as is possible, that feasible path of the economy which Congress deems most desirable for a period of at least two years ahead. The process for consideration and passage of such a resolution could be either parallel to, or part of, the process that now results in each session's First and Second Congressional Budget Resolutions. The Joint Economic Committee would also be an appropriate setting for initiation of such a resolution. Presumably the Congressional Budget Office would play a major role in identifying what sets of objectives were feasible, but the choice among them would necessarily be a policy decision, not a technical judgment. Although some confounding of the desirable and the feasible would no doubt persist, at least to date that tendency has not importantly affected the Congressional budget process. Hence there is ground for guarded optimism about a parallel "macroeconomic objectives" process.

How would such a process, and the resolution it generated, affect the Federal Reserve's conduct of monetary policy? If the macroeconomic objectives identified by Congress were sufficiently similar to those of the Administration—as indicated, for example, in the Economic Report of the President—they would in effect constitute national policy. In all likelihood no formal amendment to the Federal Reserve Act would be necessary to insure their pursuit by mone-

tary policy. It would be helpful, however, also to require the Federal Reserve to explain, in its semi-annual report to Congress, how its stated plans for monetary policy in the year ahead conformed to the actions necessary to bring about the macroeconomic objectives endorsed by Congress. Even if these objectives differed sharply from those of the Administration, it would still be helpful to require the Federal Reserve semi-annually to relate its stated monetary policy plans either to the economic path indicated by Congress or to both it and the Administration's comparable proposal.

Finally, making sure that monetary policy pursues an appropriate set of macroeconomic policy objectives is only part of the story. The rest is harder.

Many different combinations of monetary and fiscal policies may be consistent with achieving the same path for aggregate-level prices, output and employment over a limited time horizon like a year of even two. Within these same overall totals, however, the specific monetary-fiscal policy mix importantly affects the composition of economic activity. As the experience of the 1980's to date has dramatically demonstrated, expansionary fiscal policy reined in by restrictive monetay policy raises real interest rates and real exchange rates, and thereby skews economic growth toward the consumer sector, including imports, and away from exports and fixed capital formation. A more balanced policy mix, combining less fiscal expansion with appropriately less monetary restraint, could have resulted in the same aggregate outcome but with less damage to the economy's investment and foreign trade sectors.

This interplay between the two major tools of macroeconomic policy clearly raises major obstacles to sound policymaking in the context of our current Federal Government institutions. What monetary policy is consistent with any given set of macroeconomic objectives depends crucially on what fiscal policy will accompany it. Conversely, whether any given monetary policy is or is not consistent with particular macroeconomic objectives depends on the accompanying fiscal policy. Except in a time frame significantly longer than the typical business cycle expansion or contraction, it makes little sense to talk about one policy in isolation from the other.

Who, then, bears responsibility for choosing the monetary-fiscal policy mix? In principle it is clear that the Administration and Congress do, just as they bear responsibility for determining the nation's macroeconomic objectives. There is no reason why the consumption-investment composition of economic activity is any less a matter of national policy than the aggregate level of economic activity. In principle, therefore, the Federal Reserve should make monetary policy around whatever fiscal policy the Administration and Congress choose, just as it should orient monetary policy to the objectives they set.

In practice, however, the parallel breaks down badly. Today there is no way to anticipate reliably the course of U.S. fiscal policy as far as two years ahead. If anything, the open exposure provided by the Congresional budget process has highlighted the lack of consensus on fiscal policy within Congress. At the same time, there is wide disagreement on key fiscal issues between the Administration and the dominant thinking within either party in

Congress. Today's situation may be extreme, but there is little ground for confidence that the future will be qualitatively different.

The practical coordination of monetary and fiscal policy is therefore likely to remain an unsolved problem for the foreseeable future. Given some broad level of agreement that the United States should not return to double-digit price inflation, together with the magnitude of the gap apparent in disparate views about taxes and government spending, the likely outlook is a continuation for some time of a fiscal policy on average too expansionary and a monetary policy on average too restrictive to serve adequately in promoting the economy's longer term prospects.

The Design of Monetary Policy

The events of recent years have shattered confidence in fixed monetary growth rules as the central focus of monetary policy. In the 1970's the acceleration of price inflation outpaced that of any familiar measure of money growth. In the 1980's neither the depth of the recession nor the subsequent deceleration of inflation corresponded at all closely to major sustained movements of money growth. Widely publicized predictions of either renewed recession or renewed inflation, based on temporary swings in money growth, have proved embarrassingly wrong.

The unreliability of the relationship between macroeconomic activity and "money" is hardly surprising in light of the vast changes that have occurred in financial instruments and institutions in recent years. It is no longer possible in the United States to separate transactions balances from saving balances, or even to draw clear lines between deposits and other liquid claims. Appeals to the tradition of the "quantity theory" founder on having to say what is the quantity and what is the theory.

In this setting a major retreat from the kind of commitment to monetary targets that characterized the 1979–82 period was—and remains—certainly warranted. Even so, financial quantities like the money and credit aggregates still have some role to play in the monetary policy process for several reasons. The available evidence indicates that money and credit aggregates do contain some, albeit limited, useful information about subsequent swings in economic activity. Quantitative objectives for money and credit growth can also serve a useful function in the process of Congressional oversight of monetary policy. It is also possible that public awareness of such objectives may be helpful in some further way, although on this subject there is little, if any, supporting evidence.

What role, then, should money and credit aggregates play in the design of monetary policy? The logical starting point for setting monetary policy should be the relationship between the macroeconomic objectives that policy seeks to achieve, in terms of prices, income and employment, and the actions that the Federal Reserve can actually implement—in practice, setting either nonborrowed bank reserves or short-term interest rates (or, equivalently, some measure of free reserves). Again, given the state of economic science, either relationship is subject to enormous uncertainty. Because banks hold reserves not voluntarily but to back deposits, the

connection between reserve aggregates and economic activity suffers from all of the same problems as does that for monetary aggregates. Interest rates are subject in this context to a different set of shortcomings, including the difficulty of knowing the "real" interest rate on any but very short-term debts when price inflation is uncertain, and of weighing the diverse effective interest rates on various borrowers and lenders subject to differential taxation.

Precisely because of these uncertainties, it is useful for monetary policymakers to do more than simply implement the rate of reserves growth or the short-term interest rate that they think is most likely to achieve their macroeconomic objectives. Specifying in addition the accompanying paths of money and credit growth that are most likely to be consistent with these objectives provides a benchmark for gauging, along the way, whether the chosen policy actions are having the desired effect. To the extent that the movements of these financial aggregates contain information about future economic activity, aberrant growth of money or credit flashes a signal warning that monetary policy in fact is not having the desired effect, and that new action is warranted. Because these signals are not fully reliable, however, such action should hardly be automatic. Money and credit are appropriate "information variables" to be used along with other kinds of economic intelligence, not "targets" to be pursued willy-nilly as if they were of some value by themselves.

Because of the usual murkiness surrounding the making of monetary policy, it is impossible to say exactly in what respects this "information variable" approach to the role of money and credit aggregates differs from what the Federal Reserve is already doing. At a formal level, the latest semi-annual monetary policy report to Congress specified a separate "target range" for the growth of each of three monetary aggregates, and a "monitoring range" for the growth of one credit aggregate. Even so, since mid-1982 the Federal Reserve has clearly adopted a more flexible attitude toward its monetary targets. In practice, policy responses to aberrant movements of the M's are certainly not automatic, but the degree of presumption in favor of such responses is simply unknown.

What the Federal Reserve should do is to treat each of its specified ranges as what it now calls a "monitoring range." At the same time that it reports its macroeconomic policy objectives to Congress, the Federal Reserve should specify ranges for money and credit growth that, as a matter of technical judgment, it considers most likely to be consistent with achieving those objectives. If growth of either money or credit then moves outside the specified range, in its next semi-annual report the Federal Reserve either should state explicitly why it has changed the corresponding technical judgment or, alternatively, should reaffirm its original judgment and state explicitly how it is modifying its policy actions.

This procedure clearly leaves important room for Federal Reserve discretion in the monetary policy process. It neither prescribes a fixed rule for setting money and credit growth ranges, nor calls for automatic policy responses to movements of money or credit growth outside the set ranges. This choice of guided discretion over rigid rules is inevitable. The necessary relationships are too unreliable to warrent imposing any simple rule, and the plausi-

ble but unforeseeable shocks to these relationships—including further financial innovations, side effects of fiscal policy, international capital movements, shifts in the public's portfolio preferences, changes in lending practices at major institutions, and so on—are too varied and too complex to make feasible a more involved rule that attempted to lay down in advance the appropriate policy responses.

Two further questions arise within this flexible information variable approach. Which aggregates should the Federal Reserve use as its information variables? And should the direct focus of its day-to-day open market operations be nonborrowed bank reserves or short-term interest rates?

When signaling devices are imperfectly reliable, it helps to use more than one. It also helps if these different signals draw on disparate sources of information. The Federal Reserve currently specifies growth ranges for one narrow money measure (M1), two broad money measures (M2 and M3), and one broad credit measure (domestic nonfinancial credit). There is no evidence indicating that a narrow credit measure contains useful information about future economic activity, and its omission is appropriate. The current list is redundant, however, in focusing in parallel on both M2 and M3. The Federal Reserve should therefore delete either M2 or M3, and specify monitoring ranges for the remaining three aggregates.

The choice between short-term interest rates and nonborrowed bank reserves (plus extended reserve credit) as the immediate focus of monetary policy operations is not straightforward. Both alternatives have logical shortcomings, and the available evidence does not clearly distinguish the likely performance of policy under either system. On balance the better choice is probably for the Federal Reserve to gear its policy actions in this sense to short-term interest rates—as it approximately does today. A key reason for doing so is to avoid much of the disruptive short-run volatility of interest rates that characterized the nonborrowed reserves procedure when the Federal Reserve experimented with it during 1979–82.

Potential Changes in Regulations and Requirements

Suggestions for a wide variety of further, more specific changes in Federal Reserve regulations and requirements have also emerged from the intense discussion of monetary policy in recent years. Some of these proposed changes would represent likely improvements, while others would not. Often the reasons why have little to do with how monetary policy affects macroeconomic activity. The list of such recent suggestions is far too long to treat comprehensively here, but a few are worth highlighting briefly.

The suggestion that borrowing from the Federal Reserve's discount facility bears an interest rate more consistently related to prevailing short-term market rates has merit. Offering what amounts to subsidized reserves, at a time when monetary policy is attempting to restrain economic activity through tightness in the money and credit markets, is self-defeating. In practice, such subsidized borrowings sometimes amount to as much as one-tenth of total reserves. The important caution, however, is that a penalty

rate on adjustment borrowing, set at some spread over the equivalent market rate, removes the safety valve feature provided by the discount window in the first place. (No one has suggested a penalty rate on seasonal borrowing or extended credit.) Removing this safey valve would not matter much as long as the Federal Reserve were focusing its open market operations on short-term interest rates, but it would make a nonborrowed reserves procedure unworkable.

Making reserve requirements more uniform across different classes of bank liabilities would probably also be a good idea, but not for any fundamental reason of monetary policy. The current structure of reserve requirements seems designed to give the Federal Reserve maximum control over a specific set of transactions deposits (roughly M1). By contrast, a uniform structure would give the Federal Reserve maximum control over total bank deposits (roughly M3) or, equivalently, total bank credit. Neither arrangement is particularly compelling by itself. The advantage of a more uniform system of reserve requirements would instead be to avoid having the rise and fall of market interest rates continually changing the reserve cost component of the marginal incentives affecting banks' choices among different liability structures. Such a step would be modestly valuable.

Imposing differential reserve requirments according to the composition of banks' asset portfolios would not be a good idea. The usual rationale offered for such a move amounts to subsidizing, in an implicit way, certain kinds of borrowing or certain classes of borrowers favored by public policy. There are other, and better, ways of providing credit subsidies. Moreover, we already engage in too much of this activity anyway.

Direct controls on credit extention by banks or other lending institutions would also not be helpful. The historical relationship between the growth of total net credit and the growth of economic activity may provide useful information for monetary policy purposes, but it does not suggest that direct nonmarket interference with the volume of credit extension provides a reliable means of guiding the economy. Such controls would only increase the standard discrepancies between the stated cost and the true cost of borrowing, and in all likelihood result in less efficient overall allocations of credit, and ultimately in less efficient allocations of real economic resources as well.

Finally, a broader and better designed system of bank capital requirements probably would be helpful. Insufficiently capitalized depository institutions constitute a significant threat to the U.S. financial system, and hence to the U.S. economy more broadly. Our current examination system is entirely inadequate to this challenge. Worse yet, our current deposit insurance system systematically subsidizes excess risk taking. None of these issues is specifically a monetary policy issue, however.

Summary of Conclusions

The departures from today's practice that could potentially improve matters most are in the political structure of monetary policy. The changes we need here will be hard to achieve, however,

largely because of the lack of realism that often pervades macroeconomic policymaking by both the Administration and Congress.

Changes in monetary policy design offer more modest potential benefit, but they are probably more easily achieved. The Federal Reserve System has already abandoned rigid commitment to monetary targets, and a revival of that strategy appears unlikely (nor would it be helpful). In its place we need a workable way of combining a limited reliance on money and credit targets with a better focus on more direct relationships between interest rates and economic activity. Given the state of economic science, and the pace of structural change in the financial markets, a major role for discretionary departures from quantitative rules is inevitable.

Finally, most of the frequently suggested changes in specific policy implementation procedures are of much less import in this context. Some are good ideas and others are not, but the reasons why often do not have much to do with macroeconomic policy and performance.

In sum, four principal changes would enhance the performance of U.S. monetary policy.

First, the Federal Reserve, in its semi-annual monetary policy report to Congress, should explicitly state the intermediate-term macroeconomic objectives underlying its intended monetary policy, including chosen feasible values for such aggregate-level measures as prices, income, and employment.

Second, Congress should adopt, in parallel to the Congressional budget process, a "sense of Congress" resolution outlining whatever Congressional consensus exists on intermediate-term macroeconomic objectives. In reporting to Congress, the Federal Reserve should explicitly state how its intended monetary policy conforms to the Congressional statement of macroeconomic objectives, and to the comparable statement by the Administration in the Economic Report of the President.

Third, the Federal Reserve should follow an "information variable" approach, using money and credit aggregates as signals possibly indicating the appropriateness of current policy, but not necessarily responding in any automatic way to aberrant movements of either money or credit. Within this approach, the Federal Reserve should establish "monitoring ranges" for the growth of one narrow money measure (presumably M1), one broad money measure (either M2 or M3), and one broad credit measure (domestic nonfinancial credit). When any of these measures falls outside the stated range, in reporting to Congress the Federal Reserve should explicitly state either why it is not responding to this development or what response it is making.

Fourth, the Federal Reserve should use short-term interest rates as the immediate focus of its day-to-day open market operations. It is simply not clear whether doing so would actually constitute a change from current Federal Reserve practice.

PART 2. MONETARISM

HOW TO GIVE MONETARISM A BAD NAME

(By Milton Friedman) [1]

It is widely believed that monetarism was tried in the United States from 1979 to 1984 and that it did not work in practice. That is very far from the truth. In October 1979, the Federal Reserve in desperation adopted monetarist rhetoric. It did not then and has not since adopted a monetarist policy.

If the question, "Are you now or have you ever been a monetarist?" were put to the seven members of the Federal Reserve Board, not a single one would say yes. As George Kaufman commented many years ago in a paper entitled "A Self-Fulfilling Prophecy," [2] the Federal Reserve has always opposed the use of monetary targets; it has always claimed that it could not in fact control effectively the quantity of money and it has repeatedly adopted policies that have corresponded to George Kaufman's title.

A monetarist policy consists of two essential items: First, the acceptance of a monetary aggregate by the monetary authorities as their primary target; second, the adoption of policies directed at producing a stable and predictable rate of growth in that monetary aggregate. This general description covers many variants—ranging from an absolutely fixed monetary growth target such as I have favored to the use of monetary growth as a means of fine-tuning the economy. Similarly, different monetarists have concentrated on different monetary aggregates, varying from the monetary base to M1 to M2 to still broader aggregates, and have had different objectives with respect to the desirable rate of monetary growth. But every variety of monetarist, whatever his specific formula, has regarded relatively stable and relatively predictable growth in a specified monetary aggregate as an essential feature of a monetarist policy.

In judging how such a policy would work, it is important to note that monetary growth tends in the first instance to affect the rate of growth of nominal income. An increase in the rate of monetary growth tends to produce after a variable interval an increase in the rate of growth of nominal income, and conversely. How the change in nominal income is divided between inflation on the one hand and real output on the other has become an area of considerable contention in the theoretical literature in recent years, especially since the emergence of the rational expectations doctrine and par-

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[1] Senior Research Fellow, Hoover Institution, and Professor Emeritus of Economics, University of Chicago. Adapted from a paper under a different title given at a meeting of the Mont Perelin Society, Vancouver, Canada, August 29, 1983.

[2] "Federal Reserve Inability to Control the Money Supply: A Self-Fulfilling Prophecy," *Financial Analysts Journal* 28 (September-October 1972): 20–23, 26, 57–59.

ticularly of its more extreme forms. I do not propose to go into that issue here. I shall bypass it by simply stating the empirical generalizations that seem to me to be justified for the United States and similar countries such as Britain and Japan which have been spared a history of continuously volatile and occasionally extremely rapid inflation.

For such countries, inflation tends to have a great deal of inertia, to change only slowly and gradually. The result is that a change in the rate of nominal income growth tends to show up first in output and only subsequently in inflation. Inflation tends to depend on the average rate of growth of nominal income—and hence of prior monetary growth—over a considerable period. It is much less affected, though it is affected, by the volatility of monetary growth and hence of nominal income. As a result, volatility in nominal income growth is reflected primarily in volatility in real output, employment, and so on. As to timing, on the average for the United States, Great Britain, and Japan, a change in monetary growth tends to be followed by a change in the growth of nominal income in the same direction after an interval of six to nine months, though during 1979 to 1982, the period of the misleadingly labelled "monetarist experiment," the lag has been shorter than that in the United States, and by a change in inflation after an interval of something like a year and a half to two and a half years. These time lags are of long standing. With this background, let me turn to a brief capsule history of monetary policy in the United States in the past few years.

1. History

1.1. From 1960 to October 1979

Monetary restraint, encouraged by President Eisenhower's willingness to suffer two recessions within four years (1957–58 and 1960–61) in order to bring down inflation, eliminated inflation by 1960. The end of inflationary expectations laid the groundwork for a long sustained expansion from 1961 to 1966—the postwar "high-tide" of the Federal Reserve System comparable to the 1923–28 period that Anna Schwartz and I designated the "high-tide" of the Federal Reserve System in our *Monetary History*.[3] As in the 1920s, this proved to be a passing phase, though the immediate aftermath was inflation rather than depression. The rate of monetary growth roughly doubled after 1960. At first, the effect was rapid economic growth but then inflation started to gain ground, leading to a brief period of monetary restraint and a mini-recession from 1966 to 1967.

[3] The rates of growth of money in the successive five-year periods from 1950–1955, 1955–1960 to 1965 were 3.2, 1.0, and 2.9 for M1; 4.0, 3.0, and 6.4 for the monetary aggregate we used in *Monetary History of the United States, 1867–1960* (Princeton University Press, 1963) and *Monetary Trends in the United States and the United Kingdom* (University of Chicago Press, 1982), equivalent to the former Federal Reserve M2; and 5.2, 4.6, and 8.4 for the current Federal Reserve M2 (our M4 in our *Monetary Statistics of the United States* [Columbia University Press, 1970]). It is interesting to compare these numbers with those in the earlier periods. The rates of growth of the monetary aggregate we used in *Monetary History* from 1918–1920, 1920–1922, and 1922–1927 were 14.1, −1.6, and +5.8. The periods preceding the "high-tide" were shorter and more extreme, but the earlier "high-tide" period itself and roughly the same growth rate as the later one.

This episode was the beginning of a roller coaster of monetary growth, inflation, and unemployment that dominated the decade from 1970 to 1980. Each increase in monetary growth was followed by a rise in inflation, which led the authorities to reduce monetary growth sharply, which in turn produced economic recession. The political pressures created by rising unemployment led the Fed to reverse course at the first sign that inflation was tapering off. The Fed took its foot, as it were, off the brake and stepped on the gas. After an interval of about six months, the acceleration in monetary growth was followed by economic recovery, then a decline in unemployment, and, after another year or so, by accelerated inflation.

This roller coaster was superimposed on a rising trend. Each peak in monetary growth was higher than the preceding peak; each trough in monetary growth higher than the preceding trough. Each inflation peak was higher than the preceding peak; each inflation trough, higher than the preceding trough. Similarly, at each peak in the economy, unemployment was higher than at the preceding peak, and at each trough in the economy, unemployment was higher than at the preceding trough.

Monetary growth during the decade of the 1960s, while high enough to rekindle inflation, was nonetheless relatively stable, which explains why there was only a mini-recession during the decade. But then it became decidedly more erratic, with sharp ups and downs. The result was a more erratic economy as well.

Rising concern about inflation, and growing recognition of the role played by monetary growth in producing inflation, led the Congress in 1975 to require the Federal Reserve to specify targets for monetary growth. However, the Federal Reserve, which had opposed the congressional action, succeeded in rendering the requirement largely meaningless by (1) introducing a multiplicity of monetary aggregate measures; (2) specifying targets in terms of a range of growth rates, rather than dollar levels; and (3) shifting the base to which it applied its growth rates every quarter.

In practice, the Fed continued to target interest rates, specifically the Federal funds rate, rather than monetary aggregates, and continued to adjust its interest rate targets only slowly and belatedly to changing market pressure. The result was that the monetary aggregates tended on the average to rise excessively, contributing to inflation. However, from time to time, the Fed was too slow in lowering, rather than in raising the Federal funds rate. The result was a sharp deceleration in the monetary aggregates, and an economic recession. The time duration of these swings was relatively long—short gyrations lasting about six months, longer waves about two to three years up, one year or less down. Changes in rates of monetary growth were followed by changes in the same direction in both interest rates and economic activity after about six months, and by changes in the same direction in inflation after about two years.

1.2. October 1979 to Summer 1982

By 1979, inflation and interest rates had both reached double digits, and a flight from the dollar, which had begun in 1978, accelerated. Under pressure at the IMF meeting in Belgrade, Paul

Volcker flew back to the U.S. and on October 6, 1979, announced a major change in monetary policy "to support the objective of containing growth in the monetary aggregates . . . by placing greater emphasis on the supply of bank reserves and less emphasis on confining short-term fluctuations in the Federal funds rate."

The change was intended to produce lower and steadier monetary growth, at the cost, it was believed, of more variable short-term interest rates.

Unfortunately, while the objective was excellent, the execution was not. The Fed tried to achieve its new objectives by modifying its earlier procedures and without changing its regulations. In particular, lagged reserve requirements, which had hindered the achievement of the earlier objectives to a minor extent, proved an extremely serious hindrance for the new objectives.

As a result, while average monetary growth was lower after the change than before—which accounts for the subsequent decline in inflation—monetary growth became much more variable after the change rather than steadier. The period of the gyrations also shortened. The short gyrations lasted about one quarter, the longer waves about one year or less.

Interest rates and economic activity followed suit, fluctuating more violently and over shorter periods than earlier. In addition, the lag between changes in monetary growth and subsequent changes in interest rates, economic activity, and inflation shortened: from six months to about three months for interest rates and economic activity; from two years to a little more than one year for inflation.

Table 1, based on quarterly data, summarizes the experience since the change in monetary policy.

To the best of my knowledge, no earlier three-year period since the Fed was established shows such wide fluctuations in either monetary growth or economic activity as the three years from the fourth quarter of 1979 to the third quarter of 1982.

1.3. Since Summer 1982

Around July 1982, the Federal Reserve again appears to have made a major change in its operating procedures. By contrast with October 1979, it made no public announcement. On the contrary, it stated that it had not changed its procedures, but was giving less attention to M1 simply because institutional changes were introducing erratic disturbances into M1.

To judge from its behavior, the Fed reverted to its pre-October 1979 policy of targeting interest rates and of delaying adjustment to market pressures affecting interest rates. The result, as earlier, was surrender of control over the monetary aggregates. In the year from the third quarter of 1982 to the third quarter of 1983, M1 rose to close to 13 percent per year.

TABLE 1.—THE IMPACT OF CHANGES IN MONETARY GROWTH ON NOMINAL AND REAL GNP AND THE 3-MONTH TREASURY-BILL RATE

[Annual rate of growth]

Period for monetary growth	Number of quarters	M1	M2	GNP		Change in 3-month T-bill rate [1]	Period for GNP and T-bill rate
				In current dollars [1]	In 1972 dollars [1]		
79:4 to 80:2	2	1.3	6.0	5.2	−4.3	−4.2	80:1 to 80:3.
80:2 to 81:2	4	10.1	10.5	14.0	+4.0	+5.9	80:3 to 81:3.
81:2 to 81:4	2	3.9	9.6	1.1	−5.0	−2.1	81:3 to 82:1.
81:4 to 82:1	1	10.7	9.9	4.7	−.8	−.4	82:1 to 82:2.
82:1 to 82:3	2	4.2	8.6	3.2	−.2	−4.5	82:2 to 82:4.
82:3 to 83:3	4	12.9	12.7	11.3	+7.1	+1.2	82:4 to 84:1.
83:3 to 84:3	4	5.8	7.3	[2] 8.5	[2] +4.5	−.4	84:1 to [3] 84:4.
79:4 to 84:3	19	7.5	9.5	[2] 8.4	[2] +2.2	[3] −4.6	80:1 to 84:4.

[1] One quarter later to 82:3, two quarters later after 82:3.
[2] To 84:3.
[3] Preliminary.

The shift to the earlier policy appears to have been accompanied by a return to the earlier relation between monetary growth and interest rates and economic activity, a lag of two quarters rather than one. That change is embodied in the data in Table 1 for the period after 1982.

When account is taken of this reversion of the lag pattern, the consistent relation between the rates of monetary growth and subsequent changes in income and interest rates prevails after 1982 as it did before. Rapid monetary growth from the third quarter of 1982 to the third quarter of 1983 was followed by rapid growth in both nominal and real income and a rise in the interest rate. The subsequent slowdown in monetary growth was followed by a slowdown in both nominal and real income, and also in interest rates.

2. Evaluation

All in all, the period since the change in Federal Reserve policy, like the prior three years and the decades before that, strongly support the conclusion that erratic monetary growth produces erratic economic growth, and that the monetarist prescription of steady monetary growth would mean steadier, albeit not completely steady, economic growth.

2.1. Inflation

As noted earlier, inflation in the United States tends to be a fairly inertial phenomenon that reflects much earlier monetary growth. This is clearly shown in Table 2 which shows monetary growth for successive three-year periods beginning in the third quarter of 1973 and inflation in periods of the same length beginning two years later.

TABLE 2.—MONETARY GROWTH AND INFLATION

[All growth rates, percent per year]

Monetary growth			Inflation		
Period (year:quarter)	Monetary base	M1	Period (year:quarter)	Consumer price index	Implicit price deflator
73:3 to 76:3	7.8	5.1	75:3 to 78:3	6.7	6.3
76:3 to 79:3	8.6	8.3	78:3 to 81:3	11.8	9.1
79:3 to 82:3	6.9	6.1	81:3 to 84:3	3.9	4.3
82:3 to 84:3	8.9	9.3	84:3		

Whether measured by the monetary base or by M1, the rate of monetary growth speeded up significantly from the first period to the second period and then fell significantly in the third period. The movements in the consumer price index are much sharper than those in either the monetary base or in M1 both up and down. Partly this is because the consumer price index as it was constructed during most of this period gave undue weight to housing costs and hence to the interest rate, which was particularly volatile during these years. From this point of view the implicit price deflator is a better measure. The rise in the rate of inflation as shown by the implicit price deflator from the first period to the second is roughly the same as in M1—a 3.2 percentage increase in M1, as 2.8 percentage increase in the rate of growth of the implicit price deflator. On the other hand, the tapering off of inflation is much sharper—a 2.2 percentage point decline in M1, to 4.8 percentage point decrease in the rate of growth of the implicit price deflator. I believe that this difference is in considerable measure a consequence of the far higher volatility of both the monetary base and M1 in the third period than in either of the others. This is a point to which I shall return. The main point is simply that the recent decline in inflation is to be attributed to the slower average rate of growth in money over the three-year period from the third quarter of 1979 to the third quarter of 1982 than in the prior three-year period.

2.2. Monetary Volatility

Average is one thing, variability is a very different thing. Table 3 measures the volatility of the monetary base and of M1 in the same three-year periods used in Table 2. It measures the volatility of the nominal GNP, of real GNP, and of the implicit price deflator in three-year periods just six months rather than two years later than the periods for money, since changes in money tend to affect nominal income after a lag of about two quarters. The shorter lag between monetary change and nominal income change on the one hand than between monetary change and inflation is a major reason why monetary volatility is so disturbing for real income.

TABLE 3.—VARIABILITY OF MONETARY AND ECONOMIC GROWTH: STANDARD DEVIATIONS OF QUARTER-TO-QUARTER ANNUALIZED RATES OF CHANGE

[Continuously compounded]

Money			Economy			
Period (year:quarter)	Monetary base	M1	Period (year:quarter)	Nominal GNP	Real GNP	Implicit price deflator
73:3 to 76:3	1.3	1.5	74:1 to 77:1	3.8	5.6	2.7
76:3 to 79:3	.9	1.3	77:1 to 80:1	3.7	3.2	1.6
79:3 to 82:3	2.3	4.7	80:1 to 83:1	5.7	4.8	2.5

After declining somewhat from the first to the second period, monetary volatility rose drastically from the second to the third. The third period is the period of the so-called "monetarist" policy of the Federal Reserve. Nominal GNP shows precisely the same pattern. This is a relationship that Anna Schwartz and I investigated for a period of close to a hundred years in an article published some two decades ago. I have subsequently extended that analysis. It demonstrates that so far as the United States is concerned there is a close relationship between the volatility of money on the one hand and the volatility of nominal income and real income on the other. The results for real GNP in Table 3 may appear to contradict this conclusion but the appearance is deceptive. Real GNP is more volatile in the third period than in the second, but it is even more volatile in the first. The reason is that the first period reflects the aftermath of the price controls imposed by President Nixon in August 1971. Their release produced a rapid acceleration in inflation which was accompanied by a decline in real income. As a result, there is a negative correlation between the changes in real income and in the implicit price deflator during the three years from the first quarter of 1974 to the first quarter of 1977 while for the other two periods there is a very mild positive correlation. That is why there is higher volatility for both real income and the implicit price deflator in the first period than in either of the others.

The third period shows the increase in volatility from the second that is already recorded in a different way in Table 1.

3. Implications

It is interesting to speculate on what could reasonably have been expected from monetarism, if a monetarist policy had in fact been followed from the third quarter of 1979 to the third quarter of 1982 not only in the sense that a monetary target was aimed at, but that it was reasonably effectively achieved. In that case, the volatility of money would have been far lower. With respect to the related question whether it would have been feasible for the Fed to have achieved a much steadier rate of growth in the quantity of money, that question has been analyzed exhaustively by myself and others. The general consensus is that it clearly would have been possible if the Fed had been willing to make changes in its operating procedures, in particular, if it had been willing to elimi-

nate lagged reserve requirements, and target total reserves or the monetary base.

Suppose then that monetary volatility had been roughly the same in the third period as it was in the second, which itself is not an exceptionally high standard, since I believe that it would have been possible for the Fed to do considerably better than that.

In making this hypothetical evaluation, one qualification must be introduced. The course of events in 1980 was very much influenced by President Carter's decision to impose credit controls early that year and the subsequent removal of those controls. In judging the effects of a different monetary policy it would perhaps be best to abstract from that disturbance by assuming that no credit controls were imposed. At the same time it should be noted that the volatility resulting from the credit controls should be blamed on President Carter and not the Federal Reserve. However, the Federal Reserve System was responsible for exacerbating the effects of the credit controls by permitting an excessive decline in the money supply in response to the imposition of the credit controls and an excessively rapid growth in the money supply in connection with their elimination.

Let us assume therefore that M1 rose at the rate of about 7.1 percent from the third quarter of 1979 to the third quarter of 1980, 6.1 percent from the third quarter of 1980 to the third quarter of 1981, 5.1 percent from the third quarter of 1981 to the third quarter of 1982, averaging precisely the 6.1 percent that it did average over those three years. What would have been the course of events?

First, the recession that in fact terminated in July 1980 would almost surely have lasted longer but would have been considerably milder. Instead of the abnormally short six-month recession that occurred, the recession might have lasted somewhat longer than the typical twelve-month recession of the postwar period, let us say about 18 months. The recession would then have continued to about July 1981, ending up with a level of employment and output somewhat lower than was actually reached in mid-1980. However, somewhere around the middle of 1981 a revival would have taken place as declining inflation and the prospects of steady monetary growth worked their effect. There would then have occurred an expansion more nearly in line with other postwar expansions which lasted roughly three years. Unemployment would never have risen as high as it did. Output would never have fallen as low. We would have been spared the absolute decline in per capita real income and real wages that occurred over a period of four or five years. Indeed, real income and wages were lower in mid-1982 than they had been ten years earlier, an almost unprecedented event in the history of the United States.

The steadier monetary policy would have had a double effect on interest rates. On the one hand, a stabler economy would have introduced less disturbance to interest rates than the actual highly unstable economy did. In the second place, the financial markets would have not had to react to sharp ups and downs in rates of monetary growth. On both counts, interest rates would have been less volatile, and in my opinion they would also have been decidedly lower. The unprecedented volatility of the economy that actually

occurred produced a series of demands for distress borrowing on the part of business communities. When the recession seemed to have come to an end in July 1980 it was understandable and natural for businessmen to expect that it would be succeeded by a typical postwar expansion lasting something like three years. Instead, the expansion was cut short after one year in the middle of 1981. At this point businessmen were caught with commitments that they had undertaken that it was not feasible for them to terminate. The result was a highly unrealistic demand for credit. At the same time, a lack of confidence in Federal Reserve policy and the failure of actual policy to conform with Fed pronouncements led to great concern about whether inflation was in fact going to be controlled. As a result, long-term interest rates incorporated a sizable inflationary expectation and the long-term market was very thin. Neither borrowers nor lenders wanted to engage in long-term, financial contracts when neither knew whether the inflation rate five years later would be under 5 percent or over 25 percent. The burden of financing was concentrated on the short-term markets and short-term rates alternately zoomed and fell. It is my conjecture that, under the alternative assumed pattern of monetary growth, the average level of short-term rates might well have been something like 3 to 5 percentage points lower than they in fact were.

Lower and less volatile interest rates would have had one by-product that would have been desirable in the short run but unfortunate in the long run, namely, far less pressure for drastic institutional change and hence for deregulation of banking. Money market mutuals would have continued to grow, but would not have exploded as they did. A slowing of financial innovation would have removed a major excuse that the Fed offered for monetary volatility and later still for asserting that the relation between monetary aggregates and nominal income had become undependable. (Is what actually occurred another example of George Kaufman's self-fulfilling prophecy?)

Lower interest rates and lower unemployment would have meant lower government spending. Higher levels of economic activity would have meant higher revenues. On both scores the deficit would have been lower. The much needed cuts in tax rates would have been able to exert their full supply-side effect and there would have been far less resistance to the further reductions in spending and in tax rates that are so urgently needed.

In particular, the occasion never would have arisen for the introduction of a tax increase bill in 1982. Bad monetary policy does not alter the need to lower tax rates rather than to raise them.

Finally, a price would have been paid for all of those benefits in the form of a somewhat slower decline in inflation. While the high interest rates in and of themselves reduced the demand for money and thus tended to mean an increase in velocity, the high volatility increased the demand for money, as an increase in uncertainty invariably does, and thus tended to make for a decrease in velocity. These effects counterbalanced one another so that the velocity of M1 continued to rise until the fourth quarter of 1981, but from then on the forces making for lower velocity dominated, especially after interest rates fell sharply in the latter part of 1982.

All in all, I believe that the benefits from a stabler economy, a higher level of employment, a lower budget deficit, and less pressure to increase government spending would have vastly outweighed the cost of a somewhat slower decline in inflation. Had inflation declined as much as monetary growth, namely by 2.2 percentage points, the average rate of inflation from the third quarter of 1981 to the third quarter of 1984 would have been 6.9 percent instead of 4.3 percent, but inflation would be continuing to taper off, if we assume continuation of a policy of reducing the rate of monetary growth by 1 percentage point a year. On the other hand, the policy that was actually followed produced a more rapid decline in inflation—thanks not to monetary restraint but to monetary volatility—but only at heavy cost—both that already mentioned and the likelihood that the next several years will see an upsurge in inflation.

From the third quarter of 1982 to the third quarter of 1984 the monetary base grew at the rate of 8.9 percent per year and M1 at 9.3 percent per year, decidedly higher rates than during the prior three years. As a result, inflation probably bottomed out in mid-1983 and will rise—perhaps modestly, perhaps sharply—in the next year or two. However, monetary growth has been zero for the five months from June to November 1984, so we cannot rule out the possibility that the Fed will overreact, as it has so often in the past, and plunge the economy into another recession in 1985. In view of the continuation of highly volatile monetary growth since mid-1982, as documented in Table 1, and even more dramatically by monthly and weekly data, it is impossible to forecast future monetary growth with any confidence. I have repeatedly noted that it is far easier to predict the consequences of the monetary growth produced by the Fed than it is to predict what monetary growth the Fed will produce. The former is a question of economic analysis; the latter often appears to be a question of psychoanalysis.

A major legacy of the non-monetarist policy that the Fed has followed since 1979 has been, as implied at the outset, to discredit a proper monetarist policy, and thereby to have made it far more difficult for such a policy to be adopted. Prophetic self-fulfillment indeed.

Conclusion

Seventy years of Federal Reserve history speaks with a single voice about the unwillingness of the Federal Reserve to adopt any policy which is clearly spelled out and capable of being objectively tracked by persons outside the system. Every bureaucratic organization resists accountability and the Federal Reserve is no exception.

Resistance to the particular policy recommended by most monetarists—a steady pre-committed rate of monetary growth—partly reflects the general resistance to accountability. But the resistance is strongly reinforced by the mechanical character of the recommended policy. Its adoption would appear to—and largely would—reduce the Fed's operations to routine activities capable of being carried out by pre-programmed computers plus clerks. Its actions would come to be taken for granted—certainly they would not be

the subject of daily speculation in the financial press, of regular attention on the daily TV news shows. The head of any agency committed to such a routine quasi-mechanical task would hardly be regarded, as the chairman of the Fed now is, the "second most important person in the country."

I conclude that it is not, and has not been, in the self-interest of the members of the Federal Reserve Board to adopt a strict monetarist policy. All of us have a strong propensity to persuade ourselves that what is in our self-interest is also in the national interest. In this particular case, that propensity is strongly reinforced by the importance attached by the public to the activities of the Federal Reserve. How could a Board member, or a member of the open-market committee, live with himself if he shared my view that the activities they engage in when they manipulate the monetary instruments do far more harm than good?

I conclude that the likelihood that the Federal Reserve authorities will voluntarily surrender their discretionary powers by adopting a strict monetarist policy is close to zero.

Unfortunately, it is also not likely to be in the self-interest of the Congress to require the Fed to do so. The Fed provides the Congress with a handy whipping boy to blame for anything that goes wrong. It would not do so if the Fed were forced to adopt a strict monetarist policy.

Major reform and improvement in monetary policy will therefore require major institutional reform, which can in turn only come from either outside the Congress and the Fed, for example via constitutional amendment as a result of requests by state legislatures for a constitutional convention, or at a time of real crisis when something drastic has to be done.

The one eventuality is highly unlikely; the second is something all of us hope will not occur. In default, therefore, we shall, to paraphrase Adam Smith, have to accommodate ourselves to "the real mediocrity" of our circumstances, and hope that the continued scrutiny of Federal Reserve performance by monetarists will keep alive knowledge of the level of radical reform required, in case such reform does ever become feasible.

MONETARY STIMULUS: A CURE FOR UNEMPLOYMENT OR A RECIPE FOR INFLATION?

(By Jason Benderly and Burton Zwick) [1]

In the late 1960s, with inflation beginning to accelerate, Milton Friedman's (1968) presidential address to the American Economic Association hastened the demise of the Phillips' Curve notion that the unemployment rate could be permanently reduced by accepting a higher steady rate of inflation. Friedman's analysis emphasized a natural rate of unemployment and suggested that stimulative policies to maintain unemployment below its natural rate would be associated not with high but with accelerating inflation.

Bob Weintraub came to Washington shortly after Friedman's address and contributed to a broader understanding—particularly among policymakers outside the economics profession—about the long-term behavior of inflation and unemployment. Unemployment cannot be permanently reduced by monetary stimulus, and the long-term path of inflation is unrelated to the level of unemployment.

Unfortunately, he and other economists were less successful in forging a consensus about the dynamic intermediate-term path of inflation and the optimum conduct of monetary policy over the business cycle. Monetarists, and particularly proponents of rational expectations, argue that since unemployment cannot be permanently reduced by monetary stimulus, monetary policy should focus exclusively on a long-run inflation objective. Even though unemployment approached 11% in late 1982, Brunner and Meltzer (1982) strongly criticized the Federal Reserve for the rapid monetary expansion from mid-1982 to mid-1983 and warned that this growth would trigger another round of accelerating inflation.

Neo-Keynesians acknowledge the inability of policy to reduce unemployment on a permanent basis but argue that, whenever unemployment is above the natural rate, monetary stimulus should be applied to hasten the economy's return to full employment. With unemployment close to 9% in 1975, Modigliani and Papademos (1975) advocated money growth of up to 16% in 1976. In response to the high unemployment in early 1983, many neo-Keynesians commended the Federal Reserve for allowing faster money growth.

In support of their prescription for monetary stimulus and rapid output growth in response to high unemployment, Modigliani and Papademos presented evidence which, by their interpretation, implied that the change in inflation is determined by the cyclical position of the economy, which they measured using the unemploy-

[1] Kidder, Peabody and Company. We thank Michael Hamburger for extensive discussion, Gary Bigg for research assistance and Michele Pirone for typing. We also thank James Galbraith for helpful comments on an earlier draft and for data used in his study of this same topic.

ment rate. They conclude that once the level of unemployment and several non-monetary variables are taken into account, money growth exerts little if any effect on inflation. Galbraith (1983) presented evidence to suggest that, once the cyclical position of the economy is considered, the change in output exerts no additional effect on inflation. As Modigliani and Papademos, he interpreted his evidence as supporting the Keynesian prescription for monetary stimulus and rapid output growth whenever unemployment is high.

In Section I of this paper, we compare Galbraith's results with the alternative evidence of Benderly and Zwick (1984). We show that, in inflation equations already containing the level of unemployment, the incremental effects of the change in unemployment are statistically significant. We then show that these incremental effects of the change in unemployment are more fully reflected by lagged money growth. Lagged money growth and the change in unemployment play the same role in explaining the dynamic path of inflation. In effect, the change in unemployment reflects monetary influences on inflation that are missed in models based solely on the level of unemployment. In Section II, we analyze inflation's dynamic response to monetary stimulus through simulations of four inflation models relating the change in inflation to (1) the level of unemployment; (2) the level and the change in unemployment; (3) the level of unemployment and lagged real money growth, and (4) lagged real money growth. The policy implications of our results are discussed in Section III.

I. Inflation Equation Estimates

a. The Benderly-Zwick Estimates

Benderly and Zwick (1984) report the following equation, estimated using annual data from 1955 through 1982. (t-statistics appear in parentheses)

$$\Delta\%P_t = \underset{(3.42)}{2.01} - \underset{(-3.38)}{.61}UN_t - \underset{(-2.00)}{.32}(UN_t - UN_{t-2}) + \underset{(5.06)}{.15}\%(P^e/P)_t$$

$$\overline{R^2} = .71 \qquad DW = 2.07 \qquad s.e. = .82$$

$\Delta\%P$, the change in the inflation rate, is measured using the personal consumption expenditures deflator. The use of the change rather than the level of inflation adjusts for the upward trend in the level of inflation over the post World War II period. UN, the unemployment rate, reflects the cyclical position of the economy and is measured using the unemployment rate for married males. The use of this almost trendless series avoids the problems of upward trend and changing demographic composition in the total unemployment rate series. $\%(P^e/P)$ is the growth rate of energy prices relative to all prices included in the personal consumption expenditures component of GNP.

As well as showing a strong influence of relative energy prices, this equation shows that both the level and the two-year change in unemployment are statistically significant determinants of the change in inflation. This evidence linking inflation to the change in unemployment (or output) parallels the results of Gordon (1980), Meltzer (1977) and Englander and Los (1983) and contrasts sharply with Galbraith's results. The evidence linking inflation to relative energy prices parallels the analysis of Rasche and Tatom (1977) and Jorgenson (1982).

Before turning to Galbraith's results, we report a second inflation equation where $UN_t - UN_{t-2}$ is replaced by $\%(M/P)_{t-1}$. M is measured by M1 (currency plus checkable deposits), so that $\%(M/P)_{t-1}$ is a measure of the growth rate of lagged real balances in $t-1$. We assume, as shown in another estimate below, that %P, the level of inflation, is largely determined by the trend growth in nominal money as measured by a distributed lag of nominal money growth. With inflation related to the trend growth in money, real balance growth—or money growth relative to inflation—is equivalent to money growth relative to its trend. Since the Federal Reserve controls the nominal quantity of money, real balance growth, or money growth relative to trend, is controllable by the Federal Reserve. That is, real balance growth is a monetary policy variable. Also, since real money growth specifically represents acceleration or deceleration of nominal money growth, the linkage of the *change* in inflation to *real* money growth in our equation for $\Delta/\%P$ is analogous to linking the *level* of inflation to *nominal* money growth.

$$\Delta\%P_t = \underset{(1.69)}{1.24} - \underset{(-2.06)}{.43}UN_t + \underset{(2.59)}{.29}\%(M/P)_{t-1} + \underset{(5.53)}{.15}\%(P^e/P)_t$$

$$\overline{R^2} = .74 \qquad DW = 2.10 \qquad s.e. = .79$$

In this equation, the t-statistic on the coefficient of $\%(M/P)_{t-1}$ is 2.59, higher than the t-statistic on $UN_t - UN_{t-2}$ in the previous equation. The $\overline{R^2}$ of .74 is also higher than in the earlier equation.

We now include $UN_t - UN_{t-2}$ and $\%(M/P)_{t-1}$ in the same equation.

$$\Delta\%P_t = \underset{(1.68)}{1.25} - \underset{(-1.97)}{.42}UN_t - \underset{(-.63)}{.12}UN_t - UN_{t-2} + \underset{(1.63)}{.23}\%(M/P)_{t-1} + \underset{(5.39)}{.15}\%(P^e/P)_t$$

$$\overline{R^2} = .73 \qquad DW = 2.14 \qquad s.e. = .80$$

The coefficient on UN_{t-2} falls from .37 to .12 and it becomes almost totally insignificant ($t = -.63$). On the other hand, the coefficient of

$\%(M/P)_{t-1}$ falls slightly from .29 to .23 and it loses some significance ($t=-1.63$). In the presence of the level of unemployment, the change in unemployment and lagged real balance growth are highly collinear but real balance growth is the more important determinant of inflation. While the change in unemployment (measured here over a two-year period) adds to the explanation of inflation provided by the level of unemployment, it is most appropriately interpreted as an imperfect proxy for the change in real balances or monetary effects missed in inflation models based solely on the level of unemployment.[2]

b. Galbraith's Inflation Estimates

Galbraith reported a quarterly equation for the level of inflation. To adjust for the trend in the level of inflation, he includes a dummy variable for each of the business cycles within his sample. (As shown below, when the dummy variables are included to adjust for the trend in inflation, the remaining variance of inflation is related to real money growth. This linkage of the "trend-adjusted" level of inflation to real money growth is analogous to linking the level of inflation to nominal money growth.) The principal economic variable in Galbraith's model is the cyclical position of the economy. He measures this cyclical position as GAIN, the percentage change in output from the previous business cycle trough. His use of GAIN is partly designed to avoid measurement problems with total unemployment, the more popular measure of the cyclical position of the economy. As mentioned above, we used the married male unemployment rate to avoid these problems. None of the results reported below were sensitive to the choice between GAIN and our measure of unemployment.[3] Galbraith uses the change in output as a change or growth measure. He does not include the effects of energy prices.

Estimates of Galbraith's equation, 1952:1–1983:2, are presented below. We omit his output growth variable which was insignificant ($t=-1.19$). Estimates using the change in the unemployment rate instead of output growth were also insignificant ($t=-.53$). And we use generalized least squares to adjust for first and second order autocorrelation of the residuals.[4]

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[2] The interchangeability of lagged real balance growth and the change in unemployment in an inflation equation follows directly from a real balance/natural rate model of unemployment originally developed by Stein (1982) and Benderly and Zwick (1984). This model suggests that money growth's effect on inflation operates mostly, but not completely, through the change in unemployment. The simulations in Section II use two equation systems based on Benderly and Zwick (1984).

[3] If the married male unemployment rate is regressed against GAIN and Galbraith's cyclical dummy variables, the $\bar{R}^2$ is .93 and the t-statistic on the coefficient on GAIN is 7.4.

[4] As in our earlier estimates, %P is measured using the consumption deflator rather than the GNP deflator. Galbraith's model and our model explain more of the variation in the consumption deflator than the GNP deflator.

$$\%P = \underset{(-.54)}{-.62} + \underset{(4.60)}{.12}\,GAIN + \underset{(.65)}{.73}D1 + \underset{(.65)}{.81}D2 + \underset{(.29)}{.32}D3$$

$$+ \underset{(4.40)}{5.64}D4 + \underset{(4.93)}{5.93}D5 + \underset{(4.73)}{7.08}D6 + \underset{(2.66)}{4.68}D7$$

$$\bar{R}^2 = .783 \quad DW = 2.03 \quad s.e. = 1.39 \quad Rho_1 = \underset{(4.56)}{.44} \quad Rho_2 = \underset{(2.01)}{.20}$$

His estimates suggest that inflation is a function of the cyclical position of the economy (GAIN) but not the change in output; our estimates suggest that inflation is affected by the cyclical position of the economy (the level of unemployment), relative energy prices, and lagged real balance growth, which can be proxied by the change in unemployment. As mentioned above, Galbraith interprets his equation as supporting rapid growth whenever unemployment is high.

Because lagged real balance growth—or the change in unemployment acting as a proxy for lagged real balance growth—affected inflation in our model, we introduced lagged real balance growth into Galbraith's equation. Real balance growth is measured as a moving average of quarterly data from t−5 to t−13. Being centered on t−9 quarters, this represents about a two year lag and parallels the results of Weintraub (1981) linking inflation to money growth two years earlier. The parameter estimates of this equation are as follows: [5]

$$\%P_t = \underset{(-.31)}{-.28} + \underset{(3.85)}{.09}GAIN + \underset{(.73)}{.71}D1 + \underset{(1.44)}{1.48}D2 + \underset{(.07)}{.06}D3 + \underset{(4.85)}{5.01}D4$$

$$+ \underset{(7.15)}{6.48}D5 + \underset{(6.50)}{7.53}D6 + \underset{(3.35)}{5.15}D7 + \underset{(2.45)}{.20}\%(M/P)_{t-5,t-13}$$

$$\bar{R}^2 = .785 \quad DW = 2.09 \quad s.e. = 1.383 \quad Rho = \underset{(5.25)}{.45}$$

The coefficient of real balance growth is statistically significant (t=2.45) and suggests that, given GAIN (or the level of unemployment), lagged real money growth exerts a statistically significant effect on inflation. This parallels our earlier estimates showing an effect of lagged real balance growth (or the change in unemployment acting as its proxy), given the level of unemployment. As mentioned above, we view %(M/P) as a monetary policy variable because (as shown below) %P is largely determined by the trend growth in nominal money. In this context, %(M/P) is the acceleration or deceleration in nominal money growth relative to its trend

[5] In this and the other inflation equations reported below, relative energy was also significant but left the other coefficients relatively unaffected.

and, given the Federal Reserve's ability to control the nominal quantity of money, is controllable by the Fed. The policy implications of including lagged real balance growth—or the change in unemployment—in an inflation equation are illustrated in the next section.

In interpreting real balance growth as a policy variable, we assumed that the level of inflation—in the absence of Galbraith's dummies that adjust for trend—is related to nominal rather than real money growth. Linking inflation and money growth is the Classical or monetarist explanation of inflation most notably associated with Milton Friedman. Galbraith explains the level of inflation with eight variables—GAIN and seven dummy variables. At least seven of these variables are without any inherent economic content. We replace Galbraith's eight variables with a single variable, lagged money supply growth. Lagged money growth is measured using a twelve quarter moving average of nominal money growth, from $t-1$ to $t-13$. Centered at $t-7$, this, as the earlier result centered on $t-9$, implies approximately a two-year lag as in Weintraub. We report this equation below.

$$\%P_t = \underset{(-1.10)}{-.90} + \underset{(6.67)}{1.08}\%M_{t-1,t-13}$$

$$\overline{R^2} = .777 \quad DW = 2.08 \quad s.e. = 1.408 \quad Rho_1 = \underset{(5.24)}{.47} \quad Rho_2 = \underset{(2.16)}{.20}$$

As expected, the coefficient on lagged money growth is highly significant. Its coefficient is not significantly different from 1.0, as implied by the quantity theory of money. Of greatest interest for our purposes, the $\overline{R^2}$ of .777 is only slightly below that of .785 using all of Galbraith's variables. This estimate suggests that Galbraith's variables essentially reflect the effects of lagged money onto inflation. It implies that Galbraith's dummies are picking up monetary effects on inflation that are missed by GAIN, or the cyclical position of the economy. In conjunction with the previous estimates showing a statistically significant effect of lagged real balance growth within Galbraith's specification, this estimate suggests the need to consider not only the cyclical position of the economy but also lagged money growth (or possibly the change in unemployment) as determinants of inflation in formulating monetary policy options.

II. The Dynamic Response of Alternative Inflation Models

In this Section, we present the simulation results of four distinct two-equation systems, in which inflation (%P) and unemployment (UN) are endogenous variables and money growth (%M) and relative energy price growth $\%(P^e/P)$ are exogenous variables.[6] The purpose of this Section is to analyze the intermediate-term path of inflation and show explicitly that inclusion of real balance growth

[6] The parameters of the unemployment and inflation equations presented below and included in the two-equation simulations were estimated with annul data from 1955 to 1982. Details of these estimates are presented in Benderly and Zwick (1984). For the development and simulation of other inflation-unemployment systems, see Stein (1982).

or the change in unemployment as determinants of inflation alters the conclusion of Modigliani-Papademos, Galbraith and other neo-Keynesians that there is no inflation cost associated with monetary stimulus to hasten the economy's return to full employment.

All four systems share the following unemployment equation:

Unemployment Equation

$$UN_t = \underset{(4.56)}{1.87} + \underset{(4.13)}{.46}UN_{t-2} - \underset{(-6.70)}{.42}\%M_{t-1} + \underset{(8.64)}{.46}\%P_{t-1}$$

$$\overline{R^2} = .75 \qquad DW = 1.70 \qquad s.e. = .59$$

UN is the level of the married male unemployment rate; %M is the growth rate of M1; %P is the growth rate of the consumption expenditures deflator (t-statistics appear in parentheses).

The four systems differ only with respect to how the inflation equation is specified. The four inflation equations are:

Inflation Equation 1:

$$\Delta\%P_t = \underset{(5.54)}{2.71} - \underset{(-5.99)}{.86}UN_t + \underset{(4.81)}{.15}\%(P^e/P)_t$$

$$\overline{R^2} = .67 \qquad DW = 1.95 \qquad s.e. = .87$$

This inflation equation is neo-Keynesian in emphasizing the level of unemployment as determining the change in the inflation rate.

Inflation Equation 2:

$$\Delta\%P_t = \underset{(3.42)}{2.01} - \underset{(-3.38)}{.61}UN_t - \underset{(-2.00)}{.32}(UN_t - UN_{t-2}) + \underset{(5.06)}{.15}\%(P^e/P)_t$$

$$\overline{R^2} = .71 \qquad DW = 2.07 \qquad s.e. = .82$$

Inflation Equation 3:

$$\Delta\%P_t = \underset{(1.69)}{1.24} - \underset{(-2.06)}{.43}UN_t + \underset{(2.59)}{.29}\%(M/P)_{t-1} + \underset{(5.53)}{.15}\%(P^e/P)_t$$

$$\overline{R^2} = .74 \qquad DW = 2.10 \qquad s.e. = .79$$

Equations 2 and 3 are the inflation equations reported in Section I.

Inflation Equation 4:

$$\Delta\%P_t = \underset{(-1.40)}{-.24} + \underset{(6.42)}{.47}\%(M/P)_{t-1} + \underset{(5.32)}{.16}\%(P^e/P)_t$$

$$\overline{R^2} = .70 \qquad DW = 2.15 \qquad s.e. = .84$$

This inflation equation is monetarist in emphasizing lagged money growth and ignoring unemployment.

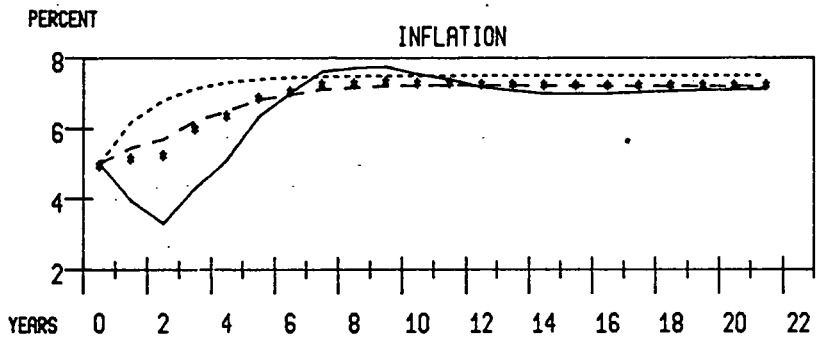
We assume the following initial conditions for the endogenous variables: $\%P_0 = 5\%$, $UN_0 = UN_{t-1} = 8\%$, which approximate the U.S. economic situation in 1982—cyclically low inflation and high unemployment (remember that UN is married male unemployment). The rate of money growth over the simulation period is held at a constant 8% per annum, which approximates the 1972–82 average rate of monetary expansion. The change in relative energy prices is held at zero.

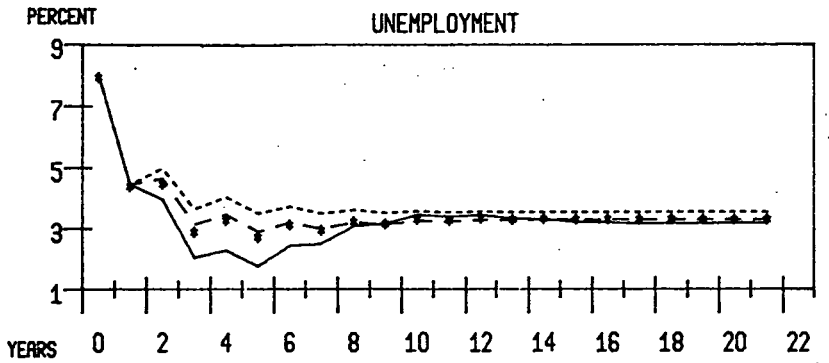
The upper panel of Figure 1 shows the inflation path for the four systems. Unemployment is shown in the lower panel. As expected, the high initial level of unemployment insures that inflation will decline in the neo-Keynesian system 1 until full employment is reached. Inflation declines in years 1 and 2 and remains below its initial 5% level until year 4. In system 2, where inflation responds not only to the level but also the change in unemployment, inflation accelerates immediately in year 1. The acceleration in system 2 is faster than in neo-Keynesian system 1 but slower than in mon-

etarist system 4. System 2's acceleration is quite similar to system 3 which includes both the level of unemployment and lagged real balance growth.

The responses of systems 2 and 3—intermediate between systems 1 and 4—show that including either the change in unemployment or lagged money growth moves inflation's intermediate-term path away from the pure neo-Keynesian view in the direction of the pure monetarist view. They imply a faster response of inflation to monetary stimulus to reduce unemployment. In conjunction with estimates in Section I suggesting that inflation models including the level of unemployment can be improved by including either the change in unemployment or lagged real balance growth, these simulation results suggest that neo-Keynesian assumptions about the inflation-unemployment relation understate the inflation risks of rapid growth. In effect, a more rapid convergence to full employment due to stimulative monetary policy in and of itself speeds up the inflation process. Such a policy also risks an overshooting of unemployment to below its full employment level.

FIGURE 1
DYNAMIC PATHS FOR SYSTEMS 1,2,3 AND 4*





*SYSTEMS 1, 2, 3 AND 4 SHARE THE SAME UNEMPLOYMENT SPECIFICATION, BUT DIFFER WITH RESPECT TO THE VARIABLES AFFECTING INFLATION.

_____ = SYSTEM 1	$\Delta\%P_t = f(UN_t, \%(P^e/P)_t)$
_ _ _ = SYSTEM 2	$\Delta\%P_t = f(UN_t, UN_t - UN_{t-2}, \%(P^e/P)_t)$
***** = SYSTEM 3	$\Delta\%P_t = f(UN_t, \%(M/P)_{t-1}, \%(P^e/P)_t)$
——— = SYSTEM 4	$\Delta\%P_t = f(\%(M/P)_{t-1}, \%(P^e/P)_t)$

III. Conclusion

Neo-Keynesians acknowledge the inability of monetary policy to reduce unemployment on a permanent basis but argue that, whenever unemployment is above the natural rate, monetary stimulus should be applied to hasten the economy's return to full employment. Monetarists, and particularly proponents of rational expectations, argue that since unemployment cannot be permanently reduced by monetary stimulus, monetary policy should be exclusively focused on a long-run inflation rate objective.

The differences between monetarists and neo-Keynesians reflect different assumptions about how quickly inflation will respond to monetary stimulus to reduce unemployment. The Keynesian prescription is based on the assumption that inflation responds slowly if at all to monetary stimulus until the economy reaches full employment. The monetarist prescription follows from the view that money growth is inflationary regardless of the level of unemployment.

This paper analyzes the response of inflation to monetary stimulus through (1) inflation equation estimates showing inflation's relation to unemployment and money growth and (2) simulation results of inflation's response to money growth under alternative assumptions about how money growth and the level of unemployment affect inflation. As expected, the simulation results show that models based on money growth imply a rapid inflation response thus supporting monetarist policy recommendations. Models based solely on the level of unemployment imply a slower response thereby supporting Keynesian recommendations.

Our inflation estimates show that models including both money and unemployment or including both the level and the change in unemployment explain inflation significantly better than models based solely on the level of unemployment. These models imply slower responses than models based solely on money growth and faster responses than models based solely on unemployment. They appear to suggest a compromise policy prescription. However, the results lie closer to the pure monetarist results than to neo-Keynesian results and underscore the riskiness of using monetary stimulus to quickly reduce the rate of unemployment. In effect, a more rapid convergence to full employment due to a highly stimulative monetary policy in and of itself speeds up the inflation response. Such a policy also risks an overshooting of unemployment to below its full employment level.

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A THEORY OF BIASED EXPECTATIONS

(By Robert D. Auerbach)*

I. INTRODUCTION

In 1978 Robert Weintraub asked me to assist him in analyzing a paper by Robert Barro and Mark Rush for a conference at which Bob would be a discussant (Barro and Rush, 1978, based on an earlier Barro article, 1977, and Weintraub, "Comments," 1978). The Barro/Rush paper was a test of one of the main models developed from a mushrooming school of macroeconomics called "rational expectations." A central rational expectations hypothesis was enunciated by the original developer of rational expectations, John Muth, *"I should like to suggest that expectations, since they are informed predictions of future events, are essentially the same as the predictions of the relevant theory"* (Muth, 1961, p. 316).

The joint hypothesis of virtually all the rational expectations tests that have been conducted is that (1) Muth's hypothesis is true (individuals expect the solution values for variables in the economic model being tested) and (2) individuals, considered in the aggregate, do not make systematic "mistakes" in adjusting their expectations to these values. Mistakes are the deviations from the expected values of the variables that form individual's expectations. I shall call systematic deviations in adjusting to new expectations or skewed distributions of all the individual deviations "biased expectations".

I shall argue that Weintraub was not exactly correct when he concluded in his criticism of the Barro/Rush model that the model was flawed because it imposes the condition that the central bank must be irrational if it attempts systematic discretionary policy. It is shown that although in a world characterized by the Barro/Rush model of expectations of money growth, the central bank can adopt rational strategies to carry out discretionary monetary policy, the Barro/Rush model of expected money growth cannot be correct. In a Barro/Rush world (accepting their model) it is shown that the rational reaction of the public, in the advent that the central bank practices discretionary policy, is to regard all monetary policy as if it were unexpected. A more fundamental flaw with the Barro/Rush model is that it fails to consider the length of time over which expectations are formed. This and related problems are used to illuminate a basic problem in the use of the rational expectations hypothesis. I conclude with a suggested hypothesis that is related to these problems: expectations of values for variables such as the price level are likely to be biased, given the popularity and present

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state of forcasting models, of which the Barro/Rush model is an example.

II. The Barro/Rush Model

The Barro/Rush model was built partly from a theory developed by Milton Friedman (1968). Friedman's theory held that if the price level rises faster than workers expect it to rise, they will not take into account the higher prices in negotiating their wages and will suffer a decline in real wages. Only when the price level increases are expected by workers will money wages rise to maintain real wages. Therefore, unexpected price level increases will reduce unemployment as real wages fall, making employment of workers less costly.

Barro/Rush have extended this idea. They have built upon models developed in the rational expectations school. They develop what economists have called a "reaction function" for predicting future money growth. It is a relationship that makes money growth dependent on variables such as money growth in the prior two periods, past unemployment rates, and past deviations of government expenditures from their estimate of "normal expenditures". This relationship is fitted to the data in order to estimate *systematic* money growth, that is, money growth that is systemically related to these prior variables. Barro/Rush call this systematic money growth "expected money growth", the money growth expected by individuals in the private sector. The hypothesis is a variant of the rational expectations hypothesis developed by Robert E. Lucas Jr., Thomas. J. Sargent, and Neil Wallace, called the *LSW hypothesis*. It holds that expected changes in money growth are *neutral* in their effects. The price level, but not real variables, are affected. (See Lucas and Sargent, 1981.) If money supply changes are reflected in the price level; then expected money supply changes will have, as their counterpart, price level changes. If the money supply is expected to rise, prices would be adjusted upward to reflect these expectations; markets would clear at higher prices; and no real variables be affected as a result of the actual money supply changes.

Unexpected money supply increases (or decreases) would have much different effects. Prices and wages would not have been raised; unexpected increases in the public's money holdings would cause an increase in spending without a commensurate increase in prices and wages; and there would be real effects, such as a decrease in unemployment until wages are adjusted upward to restore the initial real values. Only unexpected changes in the money supply affect "real economic variables like the unemployment rate of the level of output" (Barro, 1977, p. 563).

III. The Weintraub Criticism

Weintraub did not agree with this theory and, interestingly, Friedman and Anna Schwartz have been highly critical of "much recent work on rational expections" (Friedman and Schwartz, 1982, pp. 556–7). Weintraub did not believe the behavior the Barro/Rush hypothesis implied for the central bank. Weintraub explained that it meant that the central bank, if it chose to reduce unemployment

with a discretionary monetary policy, was irrational according to the Barro/Rush hypothesis, since any monetary policy that was systematically related to past variables, such as unemployment, would have no effect on unemployment. Weintraub said, "More generally, logic would appear to rule out using unemployment in estimating expected M1 growth in the first place, except under the assumption that the Federal Reserve authorities don't know what they are doing or how the economy works. If the Federal Reserve authorities know that only unexpected M1 growth can affect the real economy, they are not likely to react to changes in real economic variables including unemployment in any systematic way, and any observed response of M1 growth to lagged unemployment rationally must be regarded as accidental" (Weintraub, 1980, p. 66).

IV. Control Games of the Central Bank

Weintraub's conclusion is not exactly correct; there are still rational systematic ways to conduct discretionary policy. The central bank could produce greater fluctuation about the value of money growth that had been regarded as systematic (as in the Barro/Rush model) by design, with the intention of destroying the expectations individuals have, so that the central bank could practice some discretionary policy. The new discretionary policy would be unexpected in the Barro/Rush model for a significant period of time and would affect unemployment. In time, Barro/Rush, and the public (if they act as Barro/Rush allege) would catch up with the central bank and discover the new systematic relationship. The central bank would have to play the control game again. It is reasonable to expect that if the game is played enough and expectations of a systematic relationship are annihilated repeatedly, the public will put less and less weight on the systematic relationships that can be estimated from prior variables as Barro/Rush have done. This point is developed below after one more control game is discussed.

The central bank could also systematically alternate between periods of positive and negative deviations from their past systematic money growth, eventually (quite rapidly if the deviations are very systematic) leading the public to expect the systematic deviations and not the expectations that they are alleged to have from the prior systematic relationship. Then money growth, controlled as to be consistent with the prior systematic relationship, would affect unemployment and other real variables.

The central bank need not be so precisely devilish that it adopts a monetary policy of destroying, in the manner described above, the kind of systematic relationship Barro/Rush have found. Given, the ingenuity of these two investigators, they would soon find a new relationship, albeit they must temporarily face a flurry of articles in the academic literature that will contain evidence of how the real variables changed in violation of their model. Instead the central bank can merely adopt either a generally accommodative or an anticyclical monetary policy—both being monetary policies in which money growth changes in response to prior changes in variables such as unemployment. Discretionary policy would then take the form of planned deviations from a generally accommodative or anticyclical policy. For example, if a recession was especially

severe, the anticyclical policy would be made more pronounced, with greater monetary growth than could be estimated from the past. If the central bank had an accommodative monetary policy they could switch for short periods of recession to an anticyclical policy which would then affect unemployment in the Barro/Rush model. This is so because the advent of recessions may be a nearly random event that would not show up in the systematic relationship that Barro/Rush have estimated.

Given a Barro/Rush world one could plausibly hypothesize that the reason the Federal Reserve has been so very slow in adopting procedures to imporve its control of the money supply is that it wishes to destroy some of the expectations of what it will do next if the public thought it had close control of the money supply. Failure to adopt efficient money control procedures that would reduce random fluctuations in the money supply is a policy that increases the impact of the Federal Reserve's discretionary policy on real variables, where discretionary policy leads to pronounced monetary changes that overcompensate for control problems.

Although this explanation may have validity if there was well defined systematic money growth, I believe a different explanation is more applicable to Federal Reserve monetary policy. That is, the officials of the Federal Reserve have had to make sharp changes in monetary policy for political reasons, as noted below, and do not wish to claim full responsibility for these abrupt discontinuities. They are delighted to reduce their embarrassment and enhance their reputation for consistency with the defense that they frequently have no control over what happens for long periods of time. That defense would be much less platable if they adopted better procedures and reduced the variation about the monetary targets they chose and they narrowed the target bands.

To illustrate this latter reason for using poor monetary control procedures, consider an example of unjustified protestations from the Federal Reserve officials for the episode of very fast money growth in the five months before the 1980 election. Consider also that Meiselman has found some evidence of a political monetary cycle in which money growth is rapid near the time of an election, preceded and followed by periods of slower money growth (Meiselman, 1984). The following question was submitted in writing to Chairman Volcker by Congressman George Hansen and the following answer (only the first sentence is presented) was given by Chairman Volcker (*Conduct of Monetary Policy,* Hearing 1981, p. 168):

> 7. The first chart on page 27 of your report shows that nonborrowed reserves were really quite stable from May to the end of 1980. The monetary base, adjusted for reserve requirement changes, increased from May to November by about 10 or 11% (on an annual basis), then turned nearly flat. M-1B likewise increased rapidly from May to November, then went flat. Apparently, stabilizing nonborrowed reserves through the period did not result in stable money growth. In view of the record, would not stabilizing of the money base have resulted in much more stable growth?

Answer. Under present institutional arrangements, with banks able to borrow from the Federal Reserve, we cannot have assured control over the monetary base (or total reserves) in the short run, in any event, it is not possible to say precisely what pattern of monetary growth might have occurred had the System stabilized the growth of the monetary base over this period. . . .

The reason for the fast money growth period to the November 1980 election was not that the Federal Reserve had no means of achieving slower money growth. Blaming fast money growth on their inability to alter the amount depository institutions borrow from their own discount windows, was not justified for a period as long as five months.

V. Why the Barro/Rush Model Must Be Wrong

A critical problem with the Barro/Rush model of expectations of money growth (and other similar rational expectations models) is that they do not identify the length of the period for which the expectations are formed. Consider the Barro/Rush model uses as explanatory variables for expected income, variables from the prior two periods, measured in quarters or years. Suppose someone enters into a three year contract for the delivery of merchandise. In entering this contract he or she is making an expectation of what will happen three years hence. However, at the time the contract is made, he or she could not know what the values of the variables in the Barro/Rush model will conceivably be. Therefore, if the central bank follows a systematic monetary policy using the variables in the Barro/Rush equation for estimating expected money growth (estimated from money growth, unemployment rates, and deviations of government expenditures from their estimate of "normal expenditures," all in the past two years) that policy will be unexpected for this individual. One could hypothesize that the individual expects the values of the variables in the Barro/Rush model prior to the time they enter the model and uses those variables for estimating money growth three years in advance. Once such indirect expectations of expected money growth are seen as a component of the Barro/Rush short-run model of expectations of money growth, it is apparent that among the many individuals in the population who form these expectations there is a wide distribution of expectations of money growth of largely unknown form.

This latter consideration is very important in identifying the expectations that individuals form. As the length of the period over which expectations are formed is extended, the distribution of errors becomes wider and wider, and the difference between expected and unexpected becomes more difficult to distinguish.

This problem of determining how much weight to put on an estimated expectations relationship arises even if the public is assumed to form expectations on the sole basis of a hypothesized reaction function of the Barro/Rush type. Suppose that the deviations from the systematic relationship that Barro/Rush have postulated changed from a very small proportion to a very large multiple of the variance of actual money growth over a period of, for ex-

ample, six months. (This change in the variation of the deviations can be statistically inconsistent with a finding that the overall variation of the deviations is not changing over time, a reason for not placing statistical confidence in the test results. The important question is: How much does the variation have to change to cause the investigator to note the presence of "heteroscedasticity," the term for changing variations that statistically flaw a test?) Will individuals continue to expect the same money growth and continue to set prices to the expectations Barro/Rush have postulated?

Events in the 1970s and 1980s (with price level and interest rate behavior that was atypical by historical standards) are likely to make individuals keenly aware of the possibility of changes in policy from previously held expectations. Overall mean constancy of the expected error term (in statistical terms, an ergotic state in which the average over time of a series tends to equal a fixed expected value) is unlikely to be a characteristic of the expectations of public. They will, in other words, pay close attention to any sign of signficant deviations from their prior expectations. What may be a *statistically* insignificant property of the deviations may be *economically* significant. It seems likely that before six months of money growth that is significantly "abnormal" the public is likely to place less weight on the systematic relationship and devote less resources to adjusting prices to the value estimated from the relationship. Whatever the precise measure of deviations are required to change the confidence in a relationship such as Barro-Rush have postulated, it is incorrect to consider that the public will place the same weight on the systematic relationship in forming their expectations over periods of differing levels of deviations from the expected value of money growth, unless they have long experience with deviations that are random. Therefore, on a logical (prior probability) basis, one cannot expect that only deviations in money growth from the systematic relationship found will affect unemployment, unless the systematic relationship is held with substantial certainty.

The systematic relationship found in the Barro-Rush model could not be held with any certainty by the public if the following four assumptions that are all perfectly consistent with the model are true. (1) The central bank is intent on discretionary policy. (2) Both the public and the central bank are aware of the above control strategies for destroying expectations, as could be assumed in a model of rational behavior. (3) The central bank can keep its specific strategy secret, a requirement for unexpected changes in money growth if (4) the central bank can control the money supply. The public will know that the central bank will annihilate any systematic relationships that cause the central bank's discretionary monetary policy to be thwarted, so the public would not expend significant funds to adjust to perceived systematic relationship in money growth. Thus in a Barro/Rush world (accepting their model), the rational reaction of the public, in the advent that the cental bank practices discretionary policy, is to regard all monetary policy as if it were unexpected.

One argument in support of the Barro-Rush model is the suggestion that the estimated expectations model and would apply equally well to longer time periods. In other words, if the model was

fitted to data grouped in three or four year periods, instead of quarterly or annual periods, the same results would obtain (the same coefficients would be estimated and would be applicable). The arguments implies that longer run factors affecting expectations of money growth are not important in forming expectations of money growth or that they affect expectations in the same way (leaving the same periodicities in the public's formation of expectations) as the short-run variables in the Barro/Rush model.

Clearly, long-run commitments cannot be ignored since a major source of cyclical fluctuations are the problems arising from longer term commitments in which adjustment costs are much greater than for the short-term commitments that are planned for the very short periods for which it is reasonable to suppose that the information would be available to Barro, Rush, and others.

Robert Weintraub described specific long-run determinants of money growth that are not among the variables that Barro/Rush used to estimate expectations. Weintraub developed persuasive evidence that Federal Reserve monetary policy is largely shaped by the President of the United States, conforming to the desires of the administration in power and without consistency over different administrations even when the same Chairman of the Board of Governors of the Federal Reserve has served (Weintraub, 1978). I have discussed that evidence; called it the "Weintraub hypothesis"; and extended the record of evidence up to mid-1984 (Auerbach, 1982 and 1985).

To show that these longer run determinants of expectations do not affect expectations of money growth in the same way as the shorter run determinants used by Barro/Rush, two examples are considered. The use of such a small sample means that it is not a very statistically significant piece of evidence. However, there are not many data points for the hypothesis Weintraub advanced for the entire period from Treasury-Federal accord in the 1950s, when the Federal Reserve began some form of an active discretionary monetary policy, to the present. [Weintraub's data included what he called "fundamental" changes in monetary policy in 1953, 1961, 1969, 1971, 1974, and 1977—six data points. I have extended these data points into the Carter and Reagan administrations. See also Meiselman's political monetary cycle for which data are based on six national election periods from 1960 to 1980 (Meiselman, 1984).] For this long period of chronological time there are not enough observations to make statistically significant tests. That does not mean that one cannot put economic significance on contradictory evidence.

In the first example, consider that the Chairman of the Federal Reserve testified to the Congress in the summer of 1980, a presidential election year, in the middle of which the administration wanted more rapid money growth after originally asking for slower money growth. There had been five months of negative growth in M1 since January of 1980. The Chairman testified that the Federal Reserve would not reinflate (Budget Committee of the U.S. Senate, July 24, 1980). The Federal Reserve had already begun to inflate with record money growth up until November 1980, when the administration in office was defeated. (No similar prior period can be found since World War II in which money growth grew at a record

negative growth for five months followed by a record positive growth for five months.) The summer of 1980 marks a sharp change in monetary policy that appears to have been related in part to political factors. Such a sharp change in Carter's announced policies to fight inflation do not seem likely to have occurred without a national election later in the year and it is reasonable to presume that many individuals did not think the slow money would persist in an election year.

For another example, consider the arguments to continue fast money growth (kept secret for five years) that Arthur Burns gave to the Federal Open Market Committee in the two meetings before the presidential election in 1972 (Auerbach, 1985, pp. 565–566). Money growth was very fast that year by historical standards; though not necessarily unexpected, given that it was an election year.

Ignoring the effects of election years when there is a likely change in administrations or the change in administrations, from Carter to Reagan, in estimating expected money growth, would produce errors that individuals who are familiar with the Weintraub hypothesis or recent empirical evidence produced by Meiselman and not likely to make (Meiselman, 1984). The changes in money growth from these determinants would have been missed if one looked at only prior money growth, the relationship of government expenditures to their past average, or prior unemployment rates.

Hopefully, these political determinants and other important long-run determinants of money growth can be incorporated into economic models. These would have to be models that included variables such as the public's expectations of election results and their assessment of the expected monetary policies of each candidate. In the case of the Carter and Reagan administrations, where there were conflicting signals given to the Federal Reserve, the models would have to be even more complex. (See Auerbach, 1985, pp. 501–509 and 565–575.) The models would also have to incorporate the interesting result which the Barro/Rush model leads. That is, the likelihood that the public would expect a central bank intent on discretionary policy to purposely destroy their expectations of money growth by using the control strategies explained above.

VI. Biased Expectations

Longer run determinants of money growth, such as those postulated by Robert Weintraub, have not been rigorously estimated (using modern statistical technologies) as have the short-run determinants in models, such as the model developed by Barro and Rush. In large part, this is because there is too little data on long-run determinants during periods in which monetary targets have been an objective of central banks. It seems likely, however, that the public does take these longer run factors into account. Would many active bond and stock traders fail to take into account the position of present and prospective federal administrations' monetary policies in forming their expectations of future money growth? At present, the forecaster who takes long-run factors into account

must work with a small sample and rely more on logic and theory than on rigorously supported statistical evidence.

The public also receives an avalanche of information from large forecasting models that are currently popular. The large models use current estimates of variables, such as those used in the Barro/Rush model. These estimates are inserted in the large models as soon as they become available, causing the forecasts from the large models to be continually revised, as they should be in order to reflect the latest available information. The same problem exists for these large models as for the Barro/Rush model. Estimates of the long-run determinants of money growth and other variables, such as those developed by Weintraub, are not used and even if they were, there are not enough observations to derive statistically significant results. The results are likely to be dominated by the variables that are fitted to more observations. It is uncomfortable to publish a model with results that are heavily weighted on six observations of election periods that are thought to be fundamental determinants of money growth used in forming expectations.

Therefore, insofar as very popular large models and rational expectations models, such as the Barro/Rush equation for predicting expected money growth, are used to forecast changes in the money supply and other variables, individuals who predict variables such as money growth are likely to combine the results from these models with their knowledge of the longer run determinants of money growth. This violates a central tenet of the rational expectations literature stated by John Muth: *"I should like to suggest that expectations, since they are informed predictions of future events, are essentially the same as the predictions of the relevant theory"* (Muth, 1961, p. 316). This statement is violated because the current models provide incomplete information.

In so far as these popular large models or the rational expectations models, together with Muth's central tenet, are given predominant weight in setting expectations to the exclusions of known long-run determinants, individuals will form biased expectations. [The likelihood of biased expectations over a number of years together with an example has been discussed by Friedman and Anna Schwartz (Friedman and Schwartz, 1982, pp. 556–71).] It is likely, therefore, that (1) money growth labeled "systematic" in the Barro/Rush model will affect real variables. (2) The distinction between expected and unexpected money growth is flawed and may be of little significance once longer term expectations (longer than several years) are considered. (3) Continued work on theories of government may produce operational theories with quantifiable variables that help to identify longer run expectations and to influence their formation. (4) However, if expectations of money growth are rigorously identified, a rational central bank, intent on discretionary policy, will destroy them by practicing the money supply control strategies I have described and a rational individual's response will be to spend little or no funds in adjusting to any systematic money growth he or she perceives.

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FROM MACROECONOMICS TO REDISTRIBUTION

(By David I. Fand)*

I. INTRODUCTION

The extraordinary growth in government since 1965 manifested by a massive shift of resources from the private to the public sector was catalyzed by the short-run orientation and activist focus of Keynesian macroeconomics. Liberal activists and others who favored redistribution prevailed with increased expenditures to fight unemployment and increased taxes to fight inflation. Thus, if the economy appeared to be expanding rapidly, the activists called for an increase in taxes to stem inflation; if the economy appeared to be slowing down, they called for an increase in expenditures to thwart recession.

Consequently, whether the economy was heading up or down, the activists and the redistributionists were successful in expanding the public sector. Moreover, since their concern with unemployment exceeded their fear of inflation, expenditures tended to grow even faster than taxes. Consequently, though taxes have increased at an extremely rapid rate, expenditures have gone up even more.

In effect, the activists and their redistributionist allies succeeded in transforming issues of public finance—the appropriate allocation of resources between the private and public sectors—into issues of short-run macroeconomic stabilization. From a public finance point of view, one should have focused instead on the explosive escalation of the public sector.

Since the Reagan election in 1980 there has been more of a tendency to separate public finance issues from short-run macroeconomic stabilization. Thus, in the Reagan economic program, tax cuts were designed to deal with the public finance issue of limiting the resources taken by government from the private sector, while monetary policy was to deal with the question of inflation and macroeconomic stabilization. And the Reagan tax cuts were motivated by the public finance considerations—to expand the private sector and shrink the public sector.

There are many views about the appropriate allocation of resources between the public and the private sectors, but there is a growing consensus now that we have gone too far in the past two decades—especially the years before Reagan—in raising taxes, discouraging incentives, and shrinking the private sector. There appears to be considerable support for policies to slow down, and even reverse, some of the redistribution of the past.

In this paper we will review some of the factors that led to the transition from early Keynesian macroeconomics, which may have

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had a bias toward expansionism, to its later stages where it evolved into activist redistributionism. The earlier Keynesian approach was concerned primarily with stabilizing aggregate demand and high employment, and it suffered from a relatively benign neglect of inflationary dangers. In the later period, Keynesianism was transformed into a paradigm of activism and redistributionism evidenced perhaps most clearly in the evolution of macroeconomic policy in the Carter administration.

In Section II we illustrate the transformation from early Keynesian macroeconomics and consider a number of policy discussions which have helped shape this evolution toward activist policies and redistribution. In Section III we discuss the link between activism, the strong U.S. dollar, and the American hegemony in the post-war period. In Section IV, we discuss some other factors shaping this evolution. Our conclusions are presented in Section V.

II. The Evolution From Keynesianism to Activism

In this section we review several areas which have helped shape the evolution from early Keynesian macroeconomics toward activist policies.

A. Managed Money

Starting with the creation of the Federal Reserve System and with renewed emphasis in the post-World War II period, discretionary monetary policy in the United States has sought to achieve varying domestic policy goals. At times, the focus of policy was to achieve stable prices; at other times, reducing unemployment. In some periods, monetary policy was used to protect the balance of payments; at other times, to protect the exchange value of the dollar. These goals vary over time; they are dependent on objective conditions, the international monetary system (fixed or flexible exchange rates), the severity of domestic problems, and the members of the FOMC who make the decisions. Until 1979, monetary control measures targeted interest rates and credit conditions; from 1979–1982, the FOMC has set as its targets the monetary aggregates and money growth rates; and from 1982 on it set interest rates and borrowed reserve targets.

Before the evolution of modern discretionary central banking, the world operated under some variant of the gold standard. In such a system, domestic monetary policy is determined, more or less, by the balance of payments, depending on the degree to which countries are playing by the rules of the gold standard regime. Surpluses in the balance of payments are supposed to lead to domestic monetary expansion; and deficits, to domestic monetary contraction. There is very little role for discretionary policy under an automatic international monetary system linked to gold.

In a regime of managed money and discretionary central banking, policy makers such as the FOMC have typically sought to mediate among alternative policies. Monetary policy is no longer a relatively automatic and straightforward response to the balance of payments or to changes in price levels, interest rates, and exchange rate movements. Moreover, since monetary policy may often provide the wherewithal for intervention, it is not surprising that this

policy area is one that has received so much of the attention of the activists. And as it is currently constituted, monetary policy is rather a fairly intricate decision-making process that may involve adjudication among sharply conflicting policies, goals, and objectives.

At the end of World War I, many people assumed that discretionary monetary policy—managed money—should do better than an automatic gold standard. Prices and wages were viewed as not being sufficiently flexible on the downward side to permit the cost structure in many countries to adjust readily to the vicissitudes of the balance of payments. A substantial consensus emerged that central banking and managed money, coupled perhaps with some degree of policy activism, would do better than an automatic gold standard.[1]

B. Printing Money and the Creation of Wealth

The changing relation between nominal money, which can be printed, and real wealth or capital, which must be produced, is another factor that has created policy difficulties in the past two or three decades.

The relation between money and wealth is analytically difficult and has many facets. There is a sense in which money is wealth. For an individual, it is certainly true that the more money one has, the wealthier one is. But it is not necessarily true for the society as a whole; for if each of us has more money, it does not follow that we all have more wealth; perhaps all that will happen is that prices will rise proportionately to the increase in money.

But the creation of additional money can add to wealth in particular circumstances. Unfortunately, these conditions are far from general. While fiscal expansion and money creation in the 1930's and early 1940's could have, and did, increase the wealth of the American society, the speed-up in money growth in the 1960's did not increase our wealth, income, or output. Indeed, the high, and accelerating, rates of monetary growth in the 1960's may have reduced wealth.

This brings us to a second aspect of the relation between money and wealth—that faster money growth can, at times, also reduce wealth. Indeed, this may characterize the period since the mid-1960's, and this negative relation between money and wealth seems to characterize many of the industrial countries, all of whom appear to be suffering from stagflation.

The key to the puzzle relating money and wealth is that when prices have been stable and are expected to remain stable, the printing of nominal money is equivalent to the printing of real wealth and capital because the additional nominal money, in a

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[1] This was probably a common view at the end of World War I. Yet, as we look around at the high inflation, the seemingly high unemployment, the low productivity, and diminished economic growth—the universal stagflation—that have afflicted most of the industrial countries, especially in the period 1965–1980, one may wonder whether the post-World War I consensus on the advantages of a discretionary system may not have oversimplified the problem to a considerable degree.

There is probably today a keen realization that managed money has led to intolerably high inflation rates and that we need to find some alternative that would better insulate the monetary policy process from the inevitable short run pressures. And some are arguing for a return to the gold standard.

regime of stable prices, constitutes additional real wealth. On the other hand, when the creation of additional money raises inflationary expectations sufficiently, it reduces the real value of the existing monetary balances and thus contributes to a reduction in real wealth.

The link between government actions and inflationary expectations is thus crucial. If there is excess capacity, and expectations are that prices will be stable and not rise, the government can create new money and, in effect, print real wealth and capital. But when capacity utilization is high and inflationary expectations emerge in response to government action, the printing of money easily becomes counter-productive. As the government creates new money, it is literally destroying private wealth by raising inflationary expectations.

C. The Paradox of Thrift

Another doctrine which created a climate of opinion favorable to fiscal activism followed from the Keynesian idea of the paradox of thrift. This idea generated a presumption that there were inadequate investment outlets and that social spending of many kinds was therefore in the public interest.

One of Keynes' contributions was to go behind the savings and investment processes and to explain what he called the paradox of thrift. He argued that an attempt by the public to save in the conditions of the 1930's would not increase investment and economic growth, but would, paradoxically, lead to a reduction in output.

The paradox of thrift was that as more people attempt to save in order to invest, increase the capital stock, and facilitate economic growth, they may, in fact, succeed in reducing economic output. In these conditions, the desire to save more leads to less employment, output, and income.

Keynes called this the paradox of thrift because we normally associate more thrift with more investment and output; in contrast, when the paradox holds, additional thrift may lead to a decline in output. Note that additional spending by the government here leads to additional private output. Thus, it is possible to have both more social spending and more private spending simultaneously when the paradox applies. This possibility of having more of both, the possibility of many, many free lunches, is thus a direct consequence of the paradox.

Unfortunately, many of our policies in the past two decades seem to assume that one could have both more public spending and more private spending and that increases in the public sector will not require reductions in the private sector.

The paradox of thrift is a convenient paradigm for political leaders who seek to satisfy the competing demands of different constituencies. There are always conflicting demands, and the easy way to deal with these demands is to opt for additional government expenditures and deficits. But it is difficult to argue today, in light of the stagflation and high interest rates of the past decade, either that larger deficits will lead to greater output, or that increased public spending will lead to increased private spending.

D. Fiscal Drag and Fiscal Mortgage

Fiscal drag—the notion that our tax structure serves as a drag on the American economy and prevents it from achieving a robust rate of growth—gained a wide audience in the latter half of the 1950s.

In the early 1960s an influential analysis of why the United States seemed not to be growing as much as expected—or believed possible—was attributed to fiscal drag. This doctrine asserted that recoveries in the United States economy were being choked off because our progressive tax structure was pulling too much out of the private economy—thereby preventing a robust recovery. Kennedy's Council of Economic Advisers, in its first Economic Report, sought to rationalize the incomplete recoveries of the 1950s, primarily in terms of the restrictive effects of fiscal drag. The concept of the full employment surplus was developed as one way to measure and highlight the phenomenon of fiscal drag.

The obvious solution to fiscal drag was to cut taxes as first recommended by the Kennedy Council. But as time went on, some activists highlighted the alternative of increasing expenditures as a better way to overcome debilitating effects of fiscal drag.

Many of the expenditure programs that were set up initially in the 1960s were not screened as carefully as they might have been, but were justified implicitly because the additional public spending was viewed as necessary to overcome fiscal drag.

The acceleration of government spending and deficits since 1965 are unbelievably large. They were rationalized—at least in the initial period—by this philosophical notion that some of these expenditures were essential not so much for their specific and stated purposes but to overcome the depressing effects of fiscal drag. It is not entirely surprising that what first appeared as a problem of fiscal drag in the early 1960s soon emerged as a problem of "fiscal mortgage" at the end of the decade.

The summary of expenditures, revenues, and deficits for a few selected years shown in Table I illustrates the emergence of the fiscal mortgage.

TABLE I.—FEDERAL BUDGET RECEIPTS, OUTLAYS, AND DEFICITS FOR SELECTED FISCAL YEARS

[In billions of dollars]

Year	Receipts	Outlays	Surplus or Deficit (—)
1960	92.5	92.2	0.3
1965	116.8	118.4	—1.6
1970	192.8	195.7	—2.8
1975	279.1	324.2	—45.2
1980	517.1	576.7	—59.6
1985	745.1	925.5	—180.4

As expenditures exploded, the government increased revenues by direct measures through taxation and indirectly through inflation-bracket creep. In the 1970s, expenditures, revenues, and deficits were accelerating, causing the private sector to shrink relative to the public sector. The Reagan three-year tax reduction was moti-

vated in part by a desire to redress this shrinkage of the private sector.

E. The Inflation-Unemployment Trade-Off

The concept and interpretation of a negatively inclined Phillips Curve is another doctrine which may have generated a climate of opinion that was more accepting of fiscal deficits, high rates of monetary growth, and inflation. The slope of the long-run curve relating unemployment and inflation was assumed to be negatively inclined. This gave rise to the notion of a trade-off—that by accepting additional inflation, we could *permanently* lower unemployment.

The negatively inclined curve seemed to predict that a little bit of inflation could yield desirable public policy aspects, as this may have led the public to be a little more tolerant and positive of what would otherwise have been viewed as inflationary policy. For two decades, policies in many industrial nations have been implicitly or explicitly based on this notion that a country can achieve a permanent reduction in unemployment if it is willing to accept some additional increases in the inflation rate.

The trade-off notion was taken to mean that if a society is willing to accept a little more inflation, it would thereby gain more output and employment.

The trade-off idea assumes some degree of money illusion—that people somehow confuse money wages and real wages. Critics of the Phillips Curve have always questioned whether people will fail to see through the mirage of inflation, especially if it continues for some time. The decade of the 1970s suggests that people ultimately do see through the money illusion, and while the Phillips Curve trade-off may have worked in the early 1960s, its alleged benefits were not realized in the 1970s.

III. Activism, the U.S. Dollar, and International Hegemony

We have discussed a number of post-Keynesian ideas: managed money; money and wealth; the paradox of thrift; fiscal drag; and the inflation-unemployment trade-off. Taken together, these doctrines all seemed to suggest that political leaders could create more income and more wealth domestically by actively pursuing policies of monetary and fiscal expansion. Interestingly enough, these doctrines also seemed to suggest that monetary and fiscal activism would increase our international wealth and power. The dollar was an international money that was widely respected. No one questioned its authority. The United States Government could exert extraordinary influences on world affairs because it could, seemingly, solve many problems by making dollars available.

Up until the mid-1960s, America exerted unique and far-reaching influence in world affairs because the dollar was the most respected international monetary system. And we could supply these dollars to foreigners without causing inflation to accelerate domestically because dollars were not only widely used as a means of payment but also widely respected as a store of value.

The United States was then in the condition that De Gaulle referred to as "deficits without tears." The United States could run

deficits, obtain resources from other countries, and pay for these resources by supplying foreigners with dollars. And so long as foreigners were willing to hold additional dollars, this was a relatively painless way to increase American influence, power, resources, and hegemony.

IV. Additional Influence Shaping the Liberal-Activist Approach

We continue with our analysis of how early Keynesian macroeconomics with its bias toward underestimating inflationary dangers, was transformed into an activist approach which helped bring the American economy into an advanced state of stagflation.

In Section II we have reviewed several factors which promoted an activist approach and brought about the shift in focus from public finance to fiscal policy, wherein issues concerning the appropriate allocation of resources between the private and public sectors were somehow transformed into questions of stabilization. We have suggested that this played a key role leading to the emergence of a short-run and activist orientation of macroeconomic policy.

There are other factors that one may mention to distinguish the activist and conservative approaches to macroeconomics. Liberal activists have emphasized fiscal policy and have tended to favor discretion. They have opposed rules and guidelines, and they typically emphasize the cost of unemployment.

Conservatives, on the other hand, are more inclined to highlight the role of monetary policy in stabilization, tend to favor rules and guidelines, and emphasize the dangers of inflation. The tradition of an independent central bank may have been a factor leading liberal activists to assume that they had a better chance of using political action to change fiscal policy than to change monetary policy. As a consequence, the tradition of an independent central bank may have oriented activists toward fiscal policy and away from monetary policy.

Another major influence on the liberal activist approach is the emergence of an aggressive orientation toward redistributionism at some point in the early 1970s. Perhaps the ideas were there in the late 1960s. Nevertheless, in the early 1970s redistribution is clearly becoming an important part of the picture, and perhaps should be viewed as an independent force shaping the evolution of the liberal activist approaches.

V. Conclusions

We have just reviewed several Keynesian ideas concerning discretionary monetary policy, money and wealth, the paradox of thrift, fiscal drag, and the inflation-unemployment trade-off which seem to suggest that activist and stimulatory policies would result in more wealth, in more output, in more employment and in more hegemony. In the early part of the post-war period—probably up to 1965—stimulatory policies may have resulted in more wealth and output with only a relatively modest rise in inflation.

The acceleration of government spending since 1965 was phenomenal. In the climate of opinion emerging during the fiscal drag

debate, these accelerating government expenditures were viewed as essential not so much for their specific and stated purposes but even more so to overcome the depressing effects of fiscal drag. Consequently, as spending of all kinds were encouraged and accelerated, what first appeared as a problem of fiscal drag in the 1960s emerged as a problem of fiscal mortgage at the beginning of the 1970s.

As expenditures exploded, the government increased revenues by direct measures through taxation and indirectly through inflation-bracket creep. In the 1970s, public expenditures, revenues, and deficits were accelerated, causing the private sector to shrink relative to the public sector.

In the latter part of the 1970s it was becoming clear that expansionary policies were not working and were leading to less output and more inflation. The Reagan economic program was motivated by a desire to redress this shrinkage of the private sector.

PART 3. INFLATION

WHY IS INFLATION SO LOW?

(By William G. Dewald)*

There has been a genuine difference of opinion between monetarists and non-monetarists with respect to inflation forecasts for 1984 and 1985. Inflation hovered about a 4 percent annual rate in 1984.

Non-monetarists, who link inflation to excess demand, generally contended that there had been too much slack in the economy for inflation to accelerate. Unemployment in 1984 remained above 7 percent and industrial utilization barely over 80 percent. Furthermore, federal deficits kept both real interest rates and the foreign exchange value of the dollar high, a consequence of which was a flood of imports that damped U.S. inflation pressures. Non-monetarists could also point to what appeared in 1984 to have been modest wage increases coupled with rising labor productivity to support their forecast that inflation was not about to reignite.

Many monetarists, who link accelerations in monetary growth to accelerations in inflation roughly two years later, were initially surprised that the speed-up of monetary growth from about a 5 percent rate from mid-1981 to mid-1982 to a 13 percent rate from then until mid-1983 was not reflected in inflation.[1] Based on the historical record, an acceleration of inflation to 9 percent or more was overdue. Such a forecast was given credence by nominal interest rates remaining high enough that even at a 9 percent inflation rate lenders could earn a real return. Investors were either monetarist enough to expect inflation to reignite or, as supply-siders contended, they were willing to pay high real interest rates because of extraordinarily high profit potentials, accountable to the 1981 tax cuts and unusually good new investment opportunities. Whatever the explanation for high nominal interest rates in 1984, the issue was whether inflation would stay low. The conclusion of my argument is that inflation might well stay low if the Federal Reserve can in the future keep M1 monetary growth to annual rate of 6 percent or less as it had in the year ending mid-1984.

MONETARY GROWTH AND INFLATION: THE LONG TERM

In the first half of 1984, inflation, as measured by the GNP implicit price deflator, was running at an annual rate of only 3.8 per-

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[1] The best example is Milton Friedman's "A Recession Warning," *Newsweek*, January 16, 1984, p. 68, in which he argued that there would be more inflation in 1984 because of the speed-up in monetary growth in 1982 and more unemployment because of the slow-down in monetary growth in the last half of 1983.

cent. It was only 4.2 percent in 1983. That news was heralded as very good compared with 9 percent inflation in 1980 and 1981. Inflation in 1983 was actually the *lowest* for any of the 16 years since 1967. Over this period inflation averaged 6.5 percent, so that a dollar in 1983 was worth only 37 cents of 1967 purchasing power.

Compare the 1968–83 inflation record with that of the previous 16 years, 1952–67. The highest inflation rate was 3.4 percent in 1957, an observation that had induced a highly restrictive policy response amid widespread concern about so-called administered price inflation. How inflation perceptions have changed! In 1984, 4 percent inflation seemed low but it was not low compared with annual inflation that averaged only 2.1 percent from 1951 through 1967. Though 4 percent inflation in 1984 was better than 9 percent, it was substantial, and, as the record is interpreted, avoidable.

What caused inflation to accelerate so much after 1967? Table 1 shows three proximate factors that account for the 4.4 percentage point acceleration in inflation. The principal one was a 3.4 percentage point increase in M1 growth. It accounts for three-fourths of the acceleration in inflation from 1952–67 to 1968–83. The remainder is accountable to a 0.1 percentage point speedup in the turnover of M1 in generating GNP and a 0.9 percentage point slowdown in the rate of real GNP growth.

TABLE 1.—ACCOUNTING FOR INFLATION

[Annual percent change]

	Inflation	+	Real GNP growth	=	M1 Growth	+	GNP/M1 velocity growth
1952–67	2.1		3.5		2.8		2.8
1968–83	6.5		2.6		6.2		2.9
Change	+4.4		−.9		+3.4		+.1

Source: "Economic Report of the President," 1984 and "International Financial Statistics" DFI data base printout, Sept. 11, 1984.

What in turn determined these proximate factors? *Real growth* declined because of such factors as increased imported oil prices, an influx of baby boom entrants into the labor force, rising tax rates, and even economic inefficiencies accountable to inflation itself. Important as all of these supply factors were, their combined effect accounted for no more than 0.9 percentage points of the acceleration of inflation from 1952–67 to 1968–83.

M1 velocity increased because of such factors as technological improvements in the payments system and increased efforts to keep real money holdings low in the face of increased nominal interest rates which in turn were related to increased inflationary expectations. Important as all of these money demand factors were, their combined effect accounted for no more than 0.1 percentage points of the 4.4 percentage point acceleration of inflation.

M1 growth is the main factor explaining inflation being comparatively low in 1952–67 and high in 1968–83. What accounted for it speeding up from 3.2 percent to 6.2 percent a year after 1967 is shown in Table 2 to be principally an acceleration in monetary

base growth.[2] This was offset to some extent by a decline in the M1 money multiplier with respect to the monetary base adjusted for required reserve ratio changes.

TABLE 2.—ACCOUNTING FOR M1 MONETARY GROWTH

[Annual percent changes]

	1952–67	1968–83	Change
M1 growth	2.8	6.2	+3.4
BA monetary growth base	2.9	7.5	+4.6
M1/BA multiplier growth	−.1	−1.3	−1.2

Source: International Financial Statistics. M1 is Money series 34, BA is the monetary base adjusted for required reserve ratio changes, Federal Reserve Bank of St. Louis.

Table 3 accounts monetary base growth mainly to increases in Federal Reserve holdings of federal government and agency securities and a net reduction in required reserve ratios. These factors were augmented to some extent by changes in net other sources of the monetary base such as U.S. Treasury accounts, official gold and foreign exchange holdings, and Federal Reserve float and discounts and advances.

TABLE 3.—ACCOUNTING FOR MONETARY BASE GROWTH

[Annual percent changes]

	1951–67	1967–83	Change
Monetary base adjusted for required reserve ratio changes	2.9	7.5	+4.6
Percentage points of monetary base growth accountable to:			
Federal Reserve holdings of U.S. Treasury and agency securities	3.1	5.9	+2.8
Required reserve ratio adjustment magnitude	.6	.9	+.3
Net other sources of the monetary base	−.8	.7	+1.5

Source: Data from table 2 sources.

All told, it is clear that inflation in the period 1968–83 was fueled mainly by Federal Reserve purchases of securities and reductions in required reserve ratios, actions that in principle are controllable and need not have been taken.

What prompted the Federal Reserve to pursue such expansionary policies? To answer that question requires more than accounting definitions. One explanation is that the Federal Reserve bought securities in an unsuccessful effort to prevent interest rates from rising, because of persistent Federal budget deficits, but in so doing caused inflation and hence interest rates to increase. Cumulative deficits were a mere 0.6 percent of GNP over 1952–67 but 2.7 percent over 1968–83. Another explanation is that the Federal Reserve tried to curb, again unsuccessfully, the rise in unemployment which averaged 4.7 percent a year in 1952–67 but 6.8 percent in 1968–83. For whatever reason, the Federal Reserve pumped base money into the U.S. economy at an increased rate after 1967, which supported the high growth rate in M1 money and in turn increases in total spending and the price level. That is the long-

[2] The monetary base includes currency and bank reserves that are issued by the U.S. Treasury and Federal Reserve Banks.

term historical record: U.S. inflation has been closely linked to monetary growth and it in turn in recent decades to Federal Reserve purchases of government securities.

Monetary Growth and Inflation: The Short Term

Linking monetary growth to inflation is a far riskier exercise over short than long periods. But there is often a link. I have estimated a small monetarist model of the U.S. economy with quarterly data for 1953 through 1980.[3] In response to an anti-inflationary policy, in the framework of the model it takes the economy an average of four years to eliminate inflation totally, but 80 percent is eliminated in two years. This estimate is borne out by the ordinarily quite close relationship between M1 monetary growth and inflation two years later, as shown in Chart 1.[4]

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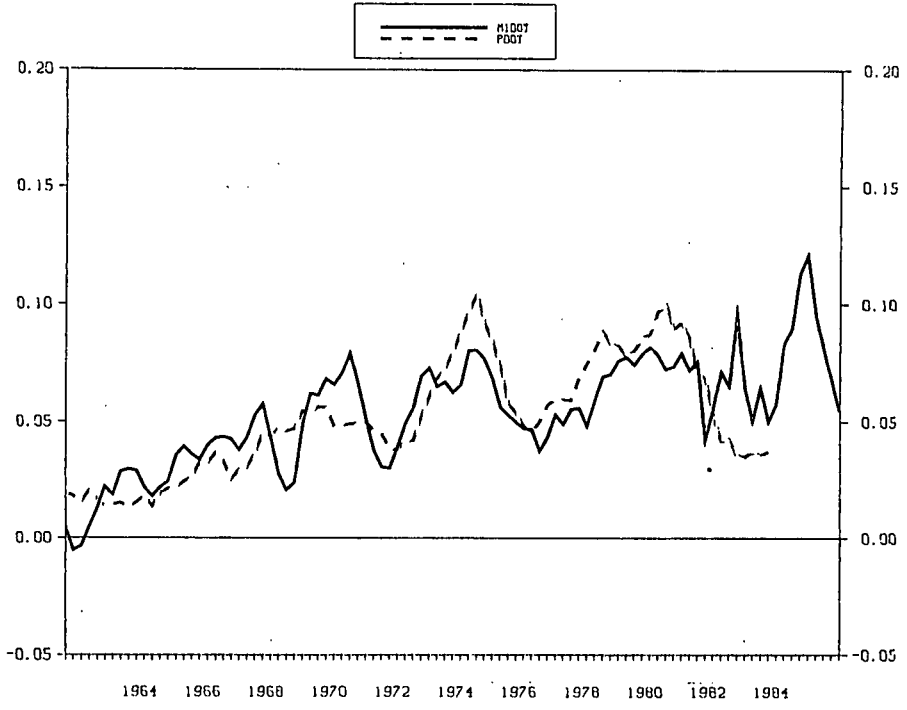
[3] William G. Dewald, "How Fast Does Inflation Adjust to Its Underlying Determinants?" Federal Reserve Bank of San Francisco *Proceedings of the Fifth West Coast Academic/Federal Reserve Economic Research Seminar, November 1982, 221-39.*

[4] Robert E. Weintraub, *Three Large Scale Model Simulations of Four Money Growth Scenarios*, Staff Study, Subcommittee on Monetary and Fiscal Policy, Joint Economic Committee, September 1, 1982 "[F]rom 1968 to 1981 . . . the rate of GNP inflation tracked M1 growth lagged two years very closely." p. 56.

Chart 1

Inflation (PDot) and M1 Growth Lagged Two Years (M1Dot)
(Percent change relative to year earlier quarter)



Does the relationship still hold? As mentioned and as Chart 1 shows, M1 monetary growth accelerated sharply about mid-1982. If the historical pattern were repeated, inflation would have been accelerating around mid-1984 which in September 1984 was not at all apparent.

Chart 1 makes clear both the long-term and short-term relationship between M1 growth and inflation. What is plotted is quarterly percent changes relative to a year earlier of the GNP deflator and M1 money, the latter lagged two years so that current M1 growth is associated with inflation two years later. With respect to the long run, the chart shows that persistent high rates of M1 growth in the past have been associated with high rates of inflation, e.g., the 1960s compared with the 1970s. With respect to the short run, the chart shows not only that accelerations and decelerations in M1 growth generally have been associated with corresponding accelerations and decelerations in inflation with a lag of about two years but also that not every wiggle in M1 growth is reflected in inflation.

Is inflation about to explode in 1984 in response to the large injection of M1 into the economy two years earlier? Perhaps, but there are reasons that suggest not. One is real growth; another is the change in the composition of M1 toward less actively used transactions balances. Continued appreciation of the dollar in terms of foreign currencies and lower impact prices could also decrease inflation, but only temporarily. What are the prospects in 1984 and 1985 for inflation as a consequence of (1) real growth, (2) M1 velocity growth, and (3) import prices?

1. Real Growth

Slower inflation in 1984 than monetary growth two years earlier might be due to the sheer *magnitude of the 1980–82 recession*—deepest since the Great Depression of the 1930s. The unemployment rate peaked at 10.7 percent in December 1982. That allowed for a considerable recovery in real growth which was further enhanced by 1981 tax cuts stimulating private investment and enlarging productive capacity. Real growth was 6 percent in 1983, about par for the first year of a recovery but well above the 3 percent average since 1951. Real growth was even higher than 6 percent in the first half of 1984, well above the average for a second year of expansion.[5] Continued above normal real growth was a reasonable possibility. Unemployment was only down to 7.5 percent by mid-1984, well above the "high employment unemployment rate" of about 6 percent below which inflation is presumed to accelerate. Real growth could be further enhanced by continued favorable terms of trade between U.S. and foreign goods. Since every extra percentage of real growth reduces the inflationary effect of monetary growth by a matching percentage, unusually high real growth rates in 1984 and prospectively again in 1985 might account, to some extent, for the apparent break in the historical relationship between monetary growth and inflation.

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[5] Real growth at 5.5 percent was the OMB high growth assumption. Office of Management and the Budget *Mid Session Review of the 1985 Budget*, August 5, 1984. The Department of Commerce "Flash" real growth estimate for 1984:Q3 was 3.6 percent.

2. M1 Velocity Growth

A second reason why the acceleration in M1 growth beginning mid-1982 has not been reflected in inflation in an apparent *increase in the demand for money* accountable to two factors.

First, the demand for transactions balances increased because the *decline in inflation reduced interest rates.* For example, the three-month Treasury bill rate fell from an average of over 16 percent in May 1981 to 8 percent by September 1982. It hovered in an 8 to 9 percent range until 1984. No comparable interest rate decline had been observed in U.S. experience. It is reasonable to argue that such a large reduction in the cost of holding transactions balances significantly increased the demand for them. In the experience of other countries when hyperinflation was stopped, for example Germany after World War I, there has been a substantial increase in the demand for money, allowing a given rate of monetary growth to be associated with less inflation than previously. Though the U.S. inflationary experience of the early 1980s was not hyper, comparable forces were at work to increase money demand (and slow the velocity of money circulation) when inflation decelerated.

Second, the demand for transactions balances increased because of a liberalization in regulations governing *payment of interest on transactions balances.* Table 4 records the explosive growth in "other checkable deposits" after the Monetary Control and Deregulation Act of 1980 extended the authority of institutions to pay interest on a variety of financial instruments. "Other checkable deposits" include automatic transfer savings (ATS), negotiable orders of withdrawal (NOW), credit union share drafts, and thrift institution demand deposit accounts.

Table 5 reports annual deposit turnover statistics for demand deposits (other than at major New York City banks), ATS–NOW accounts, and savings deposits. It is clear that "other checkable deposits" such as ATS and NOW accounts with turnover of about 15 times a year are not being used for transactions purposes nearly as much as are ordinary demand deposits with turnover of about 250 times a year. Consequently, the rapid increase in "other checkable deposits" as a component of M1 has changed the relationship between M1 and spending that previously existed. Unfortunately, it is very difficult at this point in time to say by how much.[6] We know that ordinary demand deposits were actually lower in mid-1984 than in 1980. Though currency and travelers checks have grown at about the overall pace of aggregate M1 growth, other checkable deposits have grown so much from virtually zero in the late 1970s that in 1984 they comprised 36 percent of total checking accounts. It is not surprising that such a dramatic switch from a high octane monetary mixture to a low one would be associated with a change in the relationship between injections of money into the economy, spending growth, and inflation.

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[6] Rik W. Hafer, "Examining the Recent Behavior of Inflation", *Federal Reserve Bank of St. Louis Review* (Aug/Sept) 1984, 29–39. Hafer estimates that velocity growth was slowed by about 1.5 percentage points because of the inclusion of low velocity components in M1.

TABLE 4.—COMPOSITION OF M1 GROWTH

[Annual percent changes]

	M1	Percentage points of M1 growth accountable to		
		Currency and travelers checks	Demand deposits	Other checkable deposits
1981	6.5	1.9	−7.3	12.0
1982	8.7	2.3	.8	5.6
1983	9.3	3.0	.8	5.5
1984 (through May)	7.2	2.3	.7	4.1
Composition of M1, May 1984:				
Amount (billions)	$541.0	$158.0	$245.2	$137.8
Percent	100.0	29.2	45.3	25.5

Source: December daily averages, May daily average for 1984. Federal Reserve Bulletin, July 1984, table A 13.

TABLE 5.—ANNUAL DEPOSIT TURNOVER

	1981	1982	1983	1984 (through May)
Demand deposits	186.2	211.5	238.1	264.7
ATS–NOW accounts	14.0	14.5	15.4	15.6
Savings deposits	4.1	4.5	5.3	5.3

Source: Federal Reserve Bulletin, July 1984, table A 14.

Both the extraordinary decline in nominal interest rates and the extraordinary growth in other checkable deposits have likely contributed to the observation that the GNP velocity of M1 money at 6.3 in 1983 was unchanged from 1980. Since the demand for transaction balances paying competitive interest rates would not be much affected by rising inflation and nominal interest rates, the long-term 3 percent growth in the M1 velocity of money that was observed since the early 1950s may well be behind us. M1 velocity may be expected to behave more like M2 velocity which in recent decades has shown no upward trend.

My guess is that M1 velocity will in the future grow at about 2 percent a year. That prediction is based on the assumption that there is no growth in the income velocity of currency, that the income velocity of ordinary demand deposits increases as it has in the past, and that other checkable deposits remain about half the total of ordinary demand deposits. Such assumptions are roughly consistent with the 3 percent trend growth in M1 velocity in recent decades when M1 did not include interest bearing checkable deposits, and the recent comparative turnover rates of other checkable deposits and ordinary demand deposits.

If income velocity does increase approximately 2 percent in 1984 and again in 1985, 6 percent M1 growth—the midpoint of the Federal Reserve's announced target range—would be associated with inflation remaining at 4 to 5 percent if real growth were 3 to 4 percent—its long-run average. Thus, keeping sustainable inflation low is not unreasonable, a view reinforced by announcements from both the Federal Reserve and the administration that anti-inflationary and pro-growth policies will continue to be pursued.

3. Import Price Deflation

One reason why inflation might temporarily decelerate some from current rates is that the import price deflation of the past several years might accelerate. Though import prices have only a short-run effect on inflation, the effect can be marginally important. For example, since 1980, as the trade weighted exchange rate of the dollar appreciated by over 65 percent relative to foreign currencies, import price deflation contributed to the deceleration of inflation from its peak of over 9 percent in 1980. Table 6 records annual import price inflation and overall inflation for 1981 through mid-1984. The estimated contribution of import prices was important in explaining the slowdown of inflation in 1981 and 1982. But import prices were not important in explaining the comparatively low inflation rates in 1983 and 1984. Import price deflation would actually have to accelerate to contribute much to lowering inflation. Should the import price deflation of recent years be reversed for some reason, the overall inflation rate could temporarily be raised by 2 percentage points a year or more. But that effect too is only transitory and would not contribute to sustained inflation which, as the historical record makes clear, is mainly a monetary phenomenon.

TABLE 6.—IMPORT PRICES AND INFLATION

[Logarithmic percent changes]

	Import price inflation	Estimated contribution of import prices to inflation [1]	Inflation
1981	−2.1	−2.6	8.6
1982	−3.0	−2.0	4.2
1983	−3.6	.2	3.7
1984 [2]	−.5	.02	3.8

[1] Based on quarterly data for 1953–80, import prices were estimated to initially increase inflation over 5 quarters but this effect is almost completely offset over the next 5 quarters. See William G. Dewald, "How Fast Does Inflation Adjust to Its Underlying Determinants?" Proceedings of Fifth West Coast Academic/Federal Reserve Economic Research Seminar, Federal Reserve Bank of San Francisco, December 1981, p. 235.
[2] First half.

Conclusion

Looking back at the disinflationary and deregulatory actions of the early 1980s, monetary policy was doubtless more contractionary or less expansionary than previous relationships would have indicated. This fooled a lot of monetarists who in retrospect were generally wrong in not recognizing that the demand for real transactions balances defined to include other checkable deposits really did change after 1980. Such an error has not disconfirmed the fundamental hypothesis of monetarism that major changes in monetary growth will, in the long run, be reflected in spending growth and sustained inflation. Rather, it has shown how changes in the economic structure, perhaps because of policy actions themselves, alter relationships such that finely tuned policies or predictions can not be expected to be consistently accurate in the short run, which supports the conclusion that monetary policy not just keep money growth on the right track but keep track of what is the right money.

PRICE STABILIZATION: A PROPOSAL

(By James K. Galbraith)*

Inflation by 1984 was no longer our most salient economic problem. Since 1981, inflation had fallen, more quickly than most expected, to rates lower than before the Vietnam War. The defeat of inflation proved a vital ingredient in restoring national morale in 1983–84, and along with economic recovery contributed mightily to President Reagan's re-election landslide.

Yet, the durability of this accomplishment remains in doubt. Deficits of unprecedented peace-time dimension are part of the reason. Surveys of inflation expectations still show widespread fears of a significant rise. Interest rate yield curves reflect these fears. Respected voices in government and in the financial community, including the Chairman of the Federal Reserve Board, continue to warn that inflation is only dormant, not dead.

This paper reviews the recent history of inflation in the United States, to assess the present degrees of risk. Concluding that these are small but not negligible, it goes on to advocate precautionary steps that might be taken. Finally, it attempts to survey and place in their appropriate context some of the major non-monitarist proposals for anti-inflation policy that have been in circulation over the past five years.

The reader will detect a lack of sympathy for the monetarist viewpoint in this paper, and may wonder why it appears in a volume dedicated to Bob Weintraub. Bob would not have minded. Total disagreement on all substantive issues pertaining to monetary policy was, for nearly a decade, the firm basis of our friendship.

1. Recent Inflationary Patterns

The characteristic inflation process of recent times may be divided into three distinct phases. First, we have the gradual tightening of markets and build-up in inflationary pressures which appears to be a natural concomitant of economic growth. At the least, this process strengthens many different economic actors, to the point where many may feel partially empowered to displace an adverse assistance terms-of-trade shift onto others. Second, we have the possibility that such a shift, a supply shock, may occur. And third we have the transmission of the shock though the economy, its incorporation in contracts and in wage and price expectations, and the ensuring struggle over who ultimately will bear the real income loss.

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*Deputy Director of the Joint Economic Committee in the 98th Congress. The views expressed are not necessarily those of the Joint Economic Committee or its Members. The author thanks Peter Neumann for exceptional research assistance. A version of this paper will appear in a forthcoming Middlebury College conference volume.

The typical experience of postwar business cycle expansions has been that inflation rates rise slowly, beginning within two years after the trough quarter, and continuing until policymakers perceive an inflation crisis. The latter then react, either with controls or some variant thereof or else with measures to end the expansion.

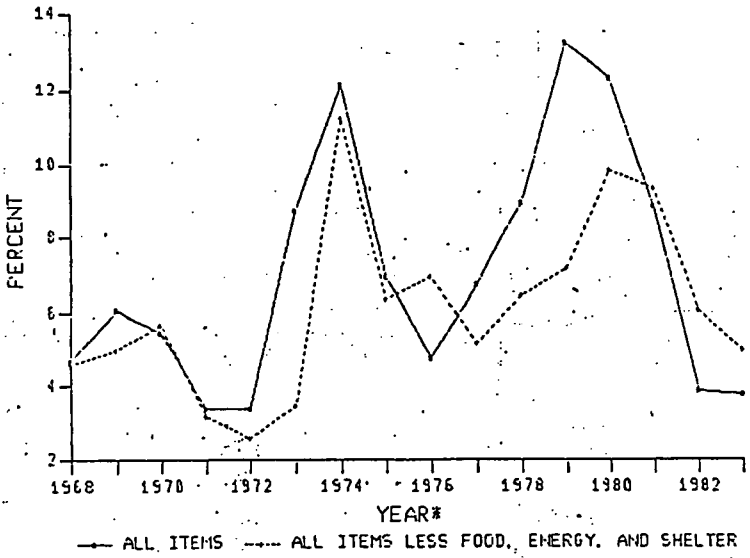
Within these cycles, upward shocks to the inflation rate have tended to occur relatively late in the expansion phase. This may not be wholly coincidental: as a recovery matures, vulnerability to shocks increases. The first oil shock of 1973 occurred after real output in the United States had risen 16.7 percent above the 1970 trough, and the second oil shock of 1979 occurred after U.S. real output had risen 22.3 percent above the 1975 trough. (As of the third quarter of 1984, real U.S. GNP was 11.8 percent higher than in the fourth quarter of 1982.)

Supply shocks in and of themselves need not precipitate an inflation policy crisis. But if they occur after a sustained period of robust expansion, then the danger arises that economic agents hurt directly by the shock will feel themselves in a position to seek to recoup their real income losses. The inflation impulse may then be transmitted from external shock to internal cost-push. Internal cost-push measures can reverberate through the economy for a long time, and may come to an end only when all important parties accept as permanent at least some of the redistribution of real income implied by the original supply shock. And that, on past occasions, has required a massive change in agents' perceptions of the strength of their bargaining positions, achieved only at high cost.

The expansion of 1975–80 provides a reasonably clear example of this process at work (figure 1). Inflation had been cut in half by the preceding recession. It then began to increase very slowly, as growth resumed, from 1976 through 1978. In 1979, inflation surged, under the influence of the oil shock, rising food prices, and higher interest rates. In 1980, these sources of inflation spread through the economy as a whole, in a process of struggle over the allocation of real income losses. An effort to allocate the losses chiefly to the household sector, via the credit controls of March 1980, was only partly successful. In 1981, however, the Federal Reserve put an end to the argument. The move to extreme restriction in April 1981 created an environment in which no one could escape large losses. In the general concern over falling absolute levels of real income the secondary dispute over relativities was temporarily lost sight of.

FIGURE 1

CHANGES IN THE CONSUMER PRICE INDEX
1968 - 1983



*Changes from December to December based on unadjusted indexes.

External shocks are inherently unpredictable. Perhaps the development of the Strategic Petroleum Reserve, coupled with stockpiling in other countries, conservation measures and the declining solidarity of OPEC, will prevent another shock from that source. Perhaps not. Food may present a less reassuring picture, as the policies of 1983–84 have eaten away at officially held surpluses of most grains. Other potential sources of commodity price pressure are simply not known.

One evident danger of an inflation shock at present writing lies in the historically high value of the dollar. Any number of events, perhaps most particularly a change in U.S. policy or in U.S. monetary leadership, could precipitate an international portfolio shift out of dollar-denominated assets. Should that happen, U.S. import prices would probably rise. Such increases in the cost-of-living might then, depending on labor conditions, be transmitted through higher wages to domestic costs and prices as well.

It is also possible that the long-anticipated return of the dollar to a lower "equilibrium" exchange value will *not* occur. In such an event, continued domestic expansion in the United States would continue to leak demand pressures overseas, where for the immediate future they will fall on the suppliers of Europe, the Middle East, East Asia and Latin America. In no case, for the present, is there a shortage of supply. Thus a high exchange rate strategy, if it can be sustained without provoking a renewed recession in the U.S. domestic economy, might sustain growth for a while with little revival of inflation. How much longer is another question. In 1971, after a long period of dollar overvaluation and sustained growth in demand, commodity prices, and then wages around the world, exploded under the pressure. The concurrent dollar devaluation of late 1971 brought the inflationary pressures of those events homeward with a vengeance. As Krugman (1984) has observed, inflation lent abroad through an artificially high exchange rate must be borrowed back, sooner or later, with appropriate interest.

In either event, we may conclude that only the timing of an eventual return match with inflation is affected. The danger of inflation has not been banished forever. It continues to justify attention given to the development of policies to fight it, even though implementation of such policies may remain, for a time, low on the political agenda.

2. Criteria for Anti-inflation Policy

There are, broadly speaking, two classes of reasons to oppose inflation: one political, one economic. It is important to distinguish between them, because the nature of an anti-inflation policy varies according to which is accorded the greater importance.

For most Europeans, Germans and Austrians in particular, the evil of inflation is axiomatic. Inflation destroys the constitutional order. It does so, as Keynes wrote, by a process of pernicious and arbitrary redistribution. His argument likens inflation to a revolutionary process:

> The sight of this arbitrary rearrangement of riches strikes not only at the security, but at the confidence in the equity of the existing distribution of wealth. Those to

> whom the system brings windfalls, beyond their deserts and even beyond their expectations or desires, become "profiteers", who are the object of the hatred of the bourgeoisie, whom the inflationism has impoverished, not less than of the proletariat. As the inflation proceeds . . . all permanent relations between debtors and creditors, which form the ultimate foundation of capitalism, become so utterly disordered as to be almost meaningless, and the process of wealth-getting degenerates into a gamble and a lottery.

Then comes the famous pasage:

> Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose (Keynes, 1919, p. 149).

Modern economists are not so accustomed to thinking in symbolic and political terms, or of casting economic policy so forthrightly as the guardian of a political order. And so the postwar literature on inflation has de-emphasized its political dangers and sought to define instead its economic costs.

Part of the purely economic costs of inflation are said to stem from effects on relative prices. One story is that the variability of relative prices and hence the costs of gathering information about prices and investment opportunities for the future increase as inflation rates rise. A second is that inflation depresses business confidence, raises questions about the sustainability of effective demand, and so undermines investment and productivity growth. Unfortunately, while a persuasive case for such costs can be made in principle, they are not susceptible to being measured.

Economists also point to the effects of inflation on holders of money. One result is financial innovation: the creation of liquid financial instruments which are more or less fully indexed against inflation, to be held as substitutes for non-interest-bearing money. A second form of innovation attempts to increase the velocity of money which must be held for transactions purposes: more frequent trips to the bank, electronic transfers, and so on. These effects absorb real resources; however in relation to the size of the economy it may be argued that the costs are small.

Another result, particularly where indexed financial instruments may not be available, is excess holding of stocks of real materiel: inventories, commodities, works-in-progress, and the like. In extreme situations, such activities can seriously impede real production, as in Germany toward the end of the Second World War, when manufacturers held inventories rather than deliver on orders for real goods, since to do so would have merely added to cash balances which were rapidly becoming worthless (Galbraith, 1952). Hoarding of real resources is especially a serious consequence of hyper-inflation, particularly in economies with underdeveloped financial markets. On the other hand, one may question its relevance to recent experience in the United States.

It is a source of discomfort to some economists that the economic costs of inflation are so hard to measure and so largely defined in terms of market imperfections: uncertainty about the future, transactions costs, imperfect financial markets, and non-market-clearing behavior. It is difficult to model the real effects of inflation in the pure theoretical context where none of these things exist. It appears that the closer one's model comes to approximate the perfectly competitive, perfect-information free market economy of the neoclassical ideal, the less one can say with formal certitude about the costs of inflation.

The pursuit of pure theory, for many economists, seems to require a belief that the consequences of uncertainty, transactions costs, imperfect markets and disequilibrium behavior are relatively small. As Hahn (1980) pointed out, this is a problem for those economists whose instincts against inflation are the most strong. And this paradox has led to one other ground for attack on inflation, which might be described as purely esthetic. We can have, the argument goes, any rate of inflation at any level of output and employment that we like. So why not zero?

Rutledge testified to the Joint Economic Committee in 1981:

> . . . Zero percent inflation is the only inflation that makes any sense. You may have wondered why God put a zero in the middle of all the numbers. That's because that's the optimal inflation rate. It's the only one; 6 is not much more than 5 or 11 is not much more than 10, but zero is right in the middle and that's the only credible inflation rate over the long term.

This argument has the virtues of clarity and simplicity. But it hardly motivates the loathing that the experience of inflation inspires in public life.[1]

The citizenry exhibits a powerful preference for a near-zero rate of change in the general price level. Many are prepared to support politicians who deliver this result even at a very large cost in foregone real income. This suggests, that for most people, the political and constitutional reasons for opposing inflation may be the true ones.

A political/constitutional interpretation of the costs of inflation helps explain the charged nature of the inflation policy debate, and has implications for the design of anti-inflation policy.

In the first place, constitutional issues override economic concerns, and a threat to the constitutional order cannot be evaded. The appropriate question cannot be, as some would have it, "How much inflation are we willing to put up with to achieve a given reduction in unemployment"? Rather, it must be, "How little inflation must we have, irrespective of all other considerations, so as to pose no significant threat to the constitutional order"?

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[1] Mr. Rutledge and JEC Chairman Henry Reuss promptly had the following exchange:

Representative REUSS. Well, now, to examine that, is zero the optimal unemployment rate too?

Mr. RUTLEDGE. No, I would not say that.

Representative REUSS. Did God switch signals on that?

Mr. RUTLEDGE. No. God never made a target for unemployment as far as I know, in the St. James version anyway.

This means that in the design of anti-inflation policy, all policies which keep inflation below the threshold level are appropriate. None which fail to do so are tolerable. The public is prepared to support extraordinarily costly means of reducing inflation to within tolerable bounds, so long as they are persuaded that no credible, effective, less-costly alternative means of achieving the same objective exists.

The political/constitutional perspective suggests that we have perceived inflation in a way which is nearly the reciprocal of how we should have perceived it. We have sought to minimize the price change in a given unit of time. We should in addition seek to maximize those periods of time when prices do not change. These are not incompatible goals, obviously. But policy measures which would not be relevant to the former may become relevant when both objectives are considered in tandem.

It is long periods of price stability, when inflation is below the threshold at which it is thought to be a problem, which breed the self-assurance, confidence in government, and sense of resilience which healthy political institutions require. It is such periods that policy should seek to build, to reinforce, and to return to if they are interrupted. The plain may be subject to an occasional flood, and it is clearly nice to be able to keep the floods small. But, large or small, if floods are not too frequent people live there nevertheless. What matters for them is how long the plain can be expected to remain dry, not how much water passes over it when it floods.

That being so, anti-inflation policy will succeed—and be perceived as having succeeded—if it only concentrates a given amount of price-level change into a short period of time, and so permits a relatively rapid return to price stability following an external shock. This is true even though that stability may imply as large or larger reductions in terms-of-trade or real incomes than might be achieved by allowing a longer period of inflationary adjustment.

The discussion so far suggests that four general questions should be asked of any proposed anti-inflation policy.

First, does it effectively deter inflationary behavior, and so reduce the total change in the price level below what would otherwise occur? This is the traditional question all analysts ask of all anti-inflation regimes. It addresses the issue of the economic costs of inflation itself. The apparent showing, in some models, that the Nixon price controls did not reduce inflation over the period 1971–74 as a whole has done more than any other single analysis to discredit price-wage controls with economists as an anti-inflation regime.

Second, does a proposed anti-inflation policy reduce the length of time during which a given change in the price level will occur? Does it speed the return to stable prices? This question addresses the political and constitutional issues. To the policy-maker, timing is everything. And time to recover in an atmosphere of price stability may even be worth the cost of a larger change in the price level.

Third, what does implementation of the policy cost? Assuming that more than one credible alternative exists, it is imperative to choose that which loses the least in production and employment, and also infringes least on individual liberty, free collective bar-

gaining and other social values, and which also requires the least in bureaucratic and administrative overhead to function. Obviously there are trade-offs between the different parameters of cost. It is possible that some alternative policy may be designed to dominate along the three main dimensions of economic cost, political cost, and administrative cost. Any such alternative would be highly desirable.

A subsidiary question is who gains and who loses. Some policies impose more costs on some groups than on others. A priori, it would seem that the ideal anti-inflation regime would not disturb the ex ante distribution of income and political power, and so avoid entanglement in subsidiary disputes which might engender opposition to the regime itself.

Fourth, is the proposed anti-inflation regime feasible? This is a vital, difficult and usually neglected question. But it obviously does little good for abstract thinkers to propose grand changes in the constitutional order, when such changes cannot be enacted.

Given these common problems, it would seem sensible, before proceeding to evaluate the relative merits of differing formal incomes policies, to discuss preliminary steps that meet the above criteria and might be taken to improve the climate for anti-inflation policy in general. The next section sets forth three areas of policy which require attention. Two of these, relating to macroeconomic policy and to buffer stocks, are familiar ground for economists and will provoke little controversy. The third relates to the question of timing and reduction of compliance costs, and necessarily breaks new ground. However, there is some theoretical discussion (for example Buiter and Miller 1984) which tends to underpin the practical arguments made here.

3. Three Practical Preliminary Steps

As we have seen, the cycle of inflation since 1969 has consisted of three waves: a gradual tightening of markets in a long economic expansion, followed by a supply shock in a major external market or commodity, followed by incorporation of the inflationary effects of that shock into domestic price and wage decisions. The main anti-inflation alternatives, whatever their merits, are not intelligently tailored to this sequence, yet they are uniformly either costly to implement or difficult to enact.

An efficent anti-inflation reform ought to begin with the least-cost, most effective measures. If these prove sufficient, it may then be unnecessary to broach the more powerful but more controversial instruments, and the tough political choices, that the existing menu of policies provides. If later the stern steps are still necessary, it is possible that good groundwork will make them effective earlier and at lower cost than would otherwise be the case.

A feasible set of preliminary, practical anti-inflation steps is presented here. It is geared explicitly to the three phases of the threat.

3.1. First Stage: Productivity Policy in the Expansion

The first steps against inflation must be taken before inflation has become a problem, in the phase of the business cycle when capacity utilization and investment remain relatively low, commod-

ities are in ample supply, and labor is still weak and exhausted from the preceding phase of contraction and unemployment. Here, however, it is vital that the appropriate lessons be drawn from the recent past.

From 1979 to the present, with intermittent interruption, the United States has lived with an official ideology of slow growth. The premise of that ideology has been that slow-but-steady economic expansion provides, from appropriate initial conditions, the optimal expansion path toward high employment with stable prices. A too-rapid expansion would, according to this argument, destroy confidence in continuation of a non-inflationary environment, lead to a much more rapid increase of inflation itself, and in doing inevitably undermine the basis for continued economic growth.

The adherents of this ideology did not publish in 1983 and 1984 the parameters of sustainable non-inflationary growth as they conceived it. But the Administration and the Federal Reserve did publish official forecasts of the rate of real economic expansion that they considered attainable in each of those years, and each issued documents [2] which implicitly argued that these forecasts were consistent with optimal policy implementation. Presumably, higher rates of growth were rejected either because they were thought to be beyond reach, or because it was feared they would bring an unacceptable undermining of the expectations-altering anti-inflation regime which the authorities were attempting to keep in place.[3]

In that event, the official forecasts were proved wrong on both counts. Much higher real growth occurred, along with lower inflation (table 1). The high real growth was due to strong fiscal stimulus, and to the fact that when the chips were down, the monetary authorities, as they have done historically, declined to deny the liquidity which strong economic growth required. A chief reason for lower inflation was high rates of induced productivity growth, which could have been predicted from past business cycle experience, but which, inexplicably, had been ruled out of account in official thinking. A second reason was a resolute high-dollar strategy, requiring that a substantial part of the expansion be financed overseas.

TABLE 1.—OFFICIAL FORECASTS AND ECONOMIC PERFORMANCE, 1983

	Administration	Federal Reserve	Actual
Real GNP [1]	3.1	4.0	6.1
Inflation [1]	5.6	4.5	4.1
Unemployment [2]	10.4	10.15	8.4

[1] Change, percent, 4th quarter to 4th quarter.
[2] 4th quarter, all workers.

The combination of fiscal stimulus and high real interest rates cannot, of course, endure. Business cannot conceivably find enough

[2] *The Economic Report of the President* and the semi-annual reports of the Federal Reserve to Congress under the Humphrey-Hawkins Act of 1978.

[3] Democratic Members of the Joint Economic Committee disputed both points at the beginning of 1983 and again at the beginning of 1984. In both years, JEC Reports argued that higher growth rates were attainable, would not generate higher inflation, and might induce such strong productivity growth that inflation would actually be reduced (JEC, 1983, 1984).

domestic outlets for productive activity at required after-inflation rates of return of seven percent or better to keep up the present growth of investment for very long. One simple reason (among others) for this is that sustained high profitability requires sustained high real growth. And the economy does eventually face short-run resource constraints; it cannot continue indefinitely to expand in real terms at rates above six percent.

To prolong the expansion, the strategy should be to sustain investment even as growth of consumption and production slow down. This will help maintain demand, and put off for the longest possible time the effects on prices of reaching resource constraints. To do this, the required rate of return must fall.

A fall in the required rate of return could, and may, happen automatically via a simple mechanism: rising expected rates of inflation. At stable long nominal rates, rising inflation expectations will induce business to continue, for a while, to take out loans at thirteen or fourteen percent rates of interest, even though such loans can only finance projects with lower and lower real expected returns. This is because businesses will expect to repay their borrowing in depreciated coin.

But this phenomenon too has its limit. If actual inflation rises, businesses will anticipate a deflationary policy response, which will depress the expected marginal efficiency of capital, and so make even low-expected-real-return projects hard to find. And if inflation does not rise, businesses will eventually find their capital reserves depleted by the need to pay high real rates of interest on loans financing projects which are not yielding high real returns on investment. In either case, investment is likely to fall, albeit a little later than it otherwise would.

A better solution is to change the policy mix, and so bring about falling required real rates of return in the context of steady or falling expected rates of inflation. This is the argument behind the case, as set out for example by the Joint Economic Committee Democrats (1984), for dramatic action to reduce fiscal deficits, combined with enough monetary easing to maintain a relatively high path of nominal (and real) demand growth. The Democratic Platform for 1984 reflected the same strategy and the same objectives.

At the same time, structural policies to enhance productivity are needed, to extend for the longest possible time the remission from demand-induced increases in prices. After a while, the Verdoorn law runs out: high rates of productivity growth cannot be generated forever by high rates of demand growth alone. Other measures are needed.

This is not the place to review the many different avenues to higher medium- and long-term rates of productivity growth. Measures which would help include a more neutral incentive structure in the tax system, continued deregulation of certain economic activities (such as transportation), free trade, and increased public investment in education, training, public capital facilities and basic scientific research. It is possible that a high dollar strategy fosters higher productivity so long as total domestic demand remains strong, since such a strategy open U.S. markets to low- and medium-technology imports and crowds out these activities, while high technology activities which are not yet threatened by emerg-

ing foreign competition enjoy super-normal real returns on investment and exports and opportunities for expansion.

With a strong growth strategy, a sensible policy mix providing for declining real required rates of return on investment as full employment approaches, and structural productivity policies to raise the marginal efficiency of capital at high utilization rates and so sustain productivity growth past the point where it would otherwise tend to collapse, we will have in place a first line of defense against inflation. First lines of defense can weaken an enemy, harass him, delay his advance, and provide time for the defense. But no wise defender would rely on them entirely.

3.2. Second Stage: Buffer Stocks

Buffer stocks are a second, though comparatively modest line of defense. Already we have noted the surprising behavior of oil prices in the face of dire military uncertainty in the Persian Gulf, and made the suggestion that it is the very existence of the Strategic Petroleum Reserve which is responsible for this.

Benefits of a buffer stock can be measured along several dimensions, but the most important are clearly reduction in price variability after a supply disruption, and increased certainty of supply. Thus, in assessing the need for a buffer, three considerations are paramount: the risk of a supply disruption, the cross-elasticities of substitution with other commodities which determine whether such a risk is worth worrying about, and the costs of storage.

The considerations limit the useful reach of buffer stock policies to a few major items. Although the risk of a disruption in, say, copper supplies may be great, the ready availability of the close substitute aluminum eliminates a need for a separate buffer in copper. On the other hand, there is no assured short run alternative to oil for many uses, such as gasoline, heating oil and jet fuel. Likewise, although other grains can in principle substitute as foodstuffs for wheat, they are unlikely to be available in sufficient quantity to make up a sudden shortfall. Oil and wheat should therefore be stored. It may be that they are the only commodities for which anti-inflation stockpiles are cost-effective.

How much should be stored is partly a matter of cost. Storability is obviously a major factor in assessing costs. The real resource costs of storing oil in salt domes are the cost of excavating the domes and supplying associate equipment (pumps and pipelines), plus the interest on the capital required to purchase the oil, plus the opportunity cost if oil is scarce on world markets (which it presently is not). Physical deterioration is not a factor. In the case of grains, actual storage costs must include provision for deterioration of the product in storage. Opportunity costs may also be higher.

Any buffer stock policy requires prudent judgments of social risk and return. But it should be remembered that the least storable commodity of all is labor. Oil not used today is still there tomorrow; labor time lost is gone for good. Buffer stocks can be thought of as a limited but necessary adjunct to anti-inflation policy: a way to maintain an anti-inflationary margin of slack in the most social-

ly and economically cost-efficient manner, so as to avoid having to maintain such a margin in the market for labor.

3.3. Third Stage: Shortening the Adjustment to a Shock

Let us suppose that an external price shock occurs. Such a shock entails, in the first round, a transfer of real income from the domestic economy to the external purveyor of the commodity in question. This will be resisted. Anti-inflation policy must then be essentially a matter of achieving a stable adjustment of income shares.

To be consistent with the general principles discussed earlier, the design of inflation policy should thus seek to achieve this adjustment in the shortest possible time. A specific proposal to accomplish this might consist of the following two elements:

A *wage signal,* consisting of a uniform discretionary, prospective inflation adjustment in the public sector; and

Synchronized reception of that signal, achieved by voluntary calendar coordination of wage contract discussions.

Since these proposals are novel, a brief description of how they might work is called for.

3.3.1. THE SIGNAL TO WAGES: DISCRETIONARY PROSPECTIVE INDEXATION

Is there a way to design a deterrent to inflationary wage-price behavior which avoids heavy economic costs but also does not dramatically disrupt the existing power relationships between labor, management and government? A logical solution to this puzzle might be to find another element in social life not so far engaged in the struggle against inflation, and then to give this element the strongest possible reason for supporting the anti-inflation policies of the government, and for pressuring labor and management alike to comply.

Here is the idea. Let the President, each year, in the budget, announce a *single, uniform, prospective adjustment* for inflation in the year ahead. Make it applicable to all Federal programs which convey or guarantee cash income to individuals: salaries, pension, welfare benefits, and the minimum wage. Let a statute constrain the President's choice, within broad limits: say, zero as a floor and the previous year's consumer price index plus productivity growth as a ceiling. Let the President's choice take effect on, say, the first of July, unless overturned or revised by an act of Congress.[4] Let State and local governments tie their own inflation adjustments to the President's choice.

The effect would be to create a large body of the citizenry—well over 60 million persons [5]—who would know with fair certainty by February 1 what inflation adjustment they will receive for the year. *And each of these citizens will be expecting the same adjust-*

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[4] The procedure could follow that currently used to award pay increases to federal employees.

[5] The following individuals would be affected by DPI: Social Security recipients (36.1 million), military and civilian civil service retirees (1.8 million), active duty soldiers and civilian employees of the Federal government (4.9 million), current employees and retirees of state and local government service (13.3 million and 2.3 million respectively), recipients of the minimum wage (5.3 million), and recipients of Aid to families with Dependent Children, Supplement Security Income, General Assistance, food stamps, and unemployment compensation. Ignoring welfare recipients because of double counting problems, the total comes to 58.4 million citizens, or about one quarter of the population.

ment. Each will therefore know exactly what wage and price settlements in the year ahead are consistent with achieving the norm for real income stability—and so for inflation—thus defined. It would be the largest and most pervasive lobbying force for a social objective ever created by the stroke of a single pen.

Under the Discretionary Prospective Indexation (DPI) system, the responsibility for setting the norm of anti-inflationary behavior would fall squarely on the President.

Responsibility for fighting inflation would thus shift from its present isolated stronghold at the Federal Reserve System—which has neither the tools nor the authority to do the job properly at a tolerable economic cost—to the seat of power at the White House. The President would be responsible for picking a number, and for propagating and defending his choice. To succeed, he would have to consult extensively in advance with all parties whose cooperation would later be required. Thus a political intercourse, not now present on these issues, would begin, even before the adjustment was announced, that would engage business and labor in working toward its success. The President would then have to work to assure that the inflation result *ex post* is such as to leave adjustees with neither a large real and relative income loss nor a windfall gain. Should the number chosen prove too low for reasons that could not be transparently explained, the President would suffer the wrath of a huge proportion of the electorate who would suffer a decline in their standards of living. Should the number prove too high, he would suffer the consequences of the resulting inflation. He could not run and he could not hide, as Presidents are wont to do, from the responsibility of, as near as possible, getting it right.

The DPI system has several attractive features which the alternatives lack. It mobilizes an entirely dormant force in society on behalf of anti-inflation policy. So, it gives government a new tool, rather than merely refurbishing existing but worn-out implements (such as guidelines) or redirecting instruments (such as tax policy) already directed elsewhere. It relies on a clear signal of appropriate behavior, amplified through millions of indirect participants in the price-wage cycle who are in direct personal contact with the key players. Yet it creates no new powers of government (merely reorganizing and focusing a function which already exists), imposes no new political, administrative or compliance-monitoring burdens, and inflicts no economic cost. It has the characteristics, in short, of a radio signal: inchoate and indecipherable in the natural state, but capable of being organized into a powerful instrument of persuasion and behavior modification at a low marginal expenditure of time, energy, and real resources.

3.3.2. RECEIVING THE SIGNAL: PAY CALENDAR SYNCHRONIZATION

Under the DPI system, timing is as critical as under any other. The signal will have maximum effect only if the receivers are all tuned in and turned on when it is sent. The mechanism to achieve this is readily at hand.

Presently, as is well known, major union wage contracts are negotiated in the United States on a three-year cycle, while minor contracts may follow a different pattern. This arrangement grew

up in the aftermath of World War Two out of a desire to reduce the bitter inter-war labor conflicts and time lost to strikes, particularly in the automobile industry—a historical reason whose underlying cause can now surely be addressed by other means. The relative timing of different union settlements appears to have been set by happenstance. No one planned it; it serves no special purpose. The system of overlapping wage cycles as a whole has nothing to recommend it save inertia; it forms no essential part of the power relations of either management of labor.

The inertial character of U.S. wage settlements is sometimes thought to be an advantage in face of a supply shock, since it slows down the inflation that tends to occur in response. But this is a complete misunderstanding. As argued earlier, the social objectives of anti-inflation policy include not only reducing the speed of wage-price change, but also shortening the length of any inflationary episode. The U.S. system slows inflation and stretches it out. Thus we were plagued by the inflation shock of 1973 for three full years, whereas by 1976 the Japanese, whose initial price run-up was worse than ours, could afford to have forgotten about it altogether.

A simple alternative would be to require that the wage provisions of all labor contracts also expire each year on the first of July. Wage negotiations could be encouraged, but not required, to begin shortly after announcement of the DPI and expiration of a congressional review period, say on the first of April. That is all. There need be no requirement for advance consultation, notification or approval of any subsequent agreement.

Pay Calendar Synchronization (PCS) is, like DPI, a nearly costless reorganization of existing activity. Once in place, it is self-administering. It imposes no additional bureaucracy, paperwork or other compliance costs on the government or on private parties. For the most part, it could be arrived at in a wholly voluntary way, without the prod of a statutory injunction. It is analogous to the way in which, without formal agreement, interested individuals turn on their radios for the news on the hour rather than at a quarter past. Yet it might be expected to have a profound effect on the resulting behavior.

PCS would coordinate the timing of wage decisions and present them all with a common norm. With all contracts up at once, all workers would face the same macroeconomic conditions. With all contracts open at once, definitive information on relativities would become hard to obtain, and would in any event be diffused by the multiple goings-on. And the government would be in on the game. Any union seeking more than the DPI plus productivity would, from a moral standpoint, be out on a limb. Any company offering less would, absent a clear and present competitive threat, be asking for trouble.

The importance of making the link from DPI to PCS helps explain why the former must be discretionary, and cannot operate by an automatic formula. Under the DPI–PCS system, there would be a danger of things getting out of hand, of an explosive increase in wages and prices in angry rejection of the President's guidance. If the formula were automatic, such a revolt could be couched in impersonal, technocratic terms, and the possibility would exist for political authority to attempt to escape from the line of fire. With a

discretionary system, the President must stand his ground, a general rejection of the guideline becomes a personal rejection of political authority, and workers or businesses may be less inclined to take up the battle. The possibility of a failure—that they will do so anyway—merely points up the inherently political character of the process. If the President cannot work with business and labor to avoid such a disaster, the voters would and will turn to someone else.

If carefully chosen and intelligently explained, the DPI signal would become the single primary source of information around which wage negotiations would turn. There would, of course, be a dispersion of final settlements around the norm, related to productivity growth, profitability and bargaining strength within a company or industrial sector. That is as it should be. All that is required for success is that the average annual increase of wages not exceed the DPI plus average productivity growth. So long as that condition holds (and there is no subsequent supply shock), then CPI inflation will not exceed the DPI adjustment, and the real incomes of the DPI beneficiaries will hold constant or rise.

4. Anti-Inflation Policies of the Last Resort

The preceding steps are preliminary and not definitive. They can fail, in which case sterner measures will be required. This section considers four main alternative anti-inflation policies for which a scholarly and a historical record exists. I would identify, first, two distint types of principally monetary anti-inflation policies. Next we turn to the record of guidelines and controls, and then to the more recent proposals for tax-based incomes policies and market incentive plans. In each case, an attempt is made to evaluate these proposals by the criteria set forth earlier.

4.1. Conventional Monetary Policy

Conventional monetary policy works against inflation by exploiting the short-run Phillips curve trade-off. That is, it creates unemployment, excess capacity, undesired inventories, and commodity gluts, and so places a general downward supply-and-demand pressure on prices. Such regimes undeniably work; they lower inflation dramatically by comparison with what it would be under conditions of continued high production and employment. They are feasible but in a limited sense: it is possible to launch conventional monetary policy into action against inflation only *after* inflation has emerged as an important political problem. The pre-emptive or preventive value of such policies is nil. Such regimes are insensitive to fine points of timing; they do not seek to lessen political risks by crowding a given change in the price level into a shorter period of time, but only to reduce the total change in the price level from beginning to end of any given time frame. Finally, although it implies no formal impairment of political liberty and carries no administrative cost, the conventional monetary regime is immensely costly in economic terms—in lost output, lost employment, and lost opportunities of productivity gain.

4.2. Expectations-Altering Monetary Regimes

The new idea in monetary control of inflation has been an effort, since 1979 in both the UK and the U.S., to shift the Phillips curve inward (as well as move along it) by altering market perceptions of the maximum rate of inflation that the monetary authorities will tolerate. In an environment where it is known that rising rates of price inflation will be met with an overpowering response from the authorizes, the argument goes, individual actors will be deterred from seeking price and wage settlements incommensurate with official stabilization objectives. In this way, an indirect political cost, the constraint on liberty inspired by fear of official reaction, is introduced in hope of reducing the direct economic cost of achieving a given anti-inflation objective.

There is something obviously desirable about the effort to substitute the indirect, internalized concept of deterrence for part of the direct material impoverishment on which monetary anti-inflation policies otherwise depend. However, the effectiveness of and economic cost-savings achieved by the particular means employed are both subject to doubt.

In the first instance, expectations-altering monetary policies seek to deter inflationary price and wage behavior by making an even greater impression on private parties of the ultimate costs of such behavior. That is, to establish credibility they impose vast preemptive costs on real output and employment over and above what would be required to reduce inflation to acceptable levels in a conventional monetary policy, and then seek to persuade all concerned that a return to inflationary wage-price setting will bring a return of the same repressive policies and associated costs. To this extent, expectations-altering policies are actually more costly immediately than conventional policies, and can be justified only if the deterrence works—if the success in bringing down inflation is more durable under such regimes as production and employment recover. I have examined the evidence for this proposition in an earlier paper (Galbraith, 1983), and have not found it especially hopeful.[6]

Once the consequences of inflationary behavior have been defined through example in the public mind, expectations-altering monetary regimes seek to continue effective deterrence by establishing norms for social behavior in the aggregate. This is the function of the annual money supply targets, which imply a composite annual target for acceptable inflation and for real output growth.

It is most likely that this aspect of the new monetary policy has had no effect whatsoever on public behavior. In the first place, the relationship between the various monetary targets and real economic variables is unstable, obscure and poorly understood, a prob-

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[6] Benderly and Zwick criticize my 1983 analysis in their contribution to this volume. But their criticism leaves my conclusion untouched, which is that the rate of growth *of the economy* exerts no independent influence on the inflation rate when unemployment is high. This result is *not* inconsistent with the finding of a rate-of-change affect on inflation for *unemployment*, because, typically, unemployment does not fall rapidly when real growth rates are high early in the expansion. To the contrary, rapid declines in unemployment have been associated with falling productivity growth (and rising inflation) *late* in the typical expansion, when real growth is constant or decelerating. As for the Benderly-Zwick prediction that rapid real growth (such as began in early 1983) should produce rapidly rising inflation two years later—well, the proof of that pudding is in the eating.

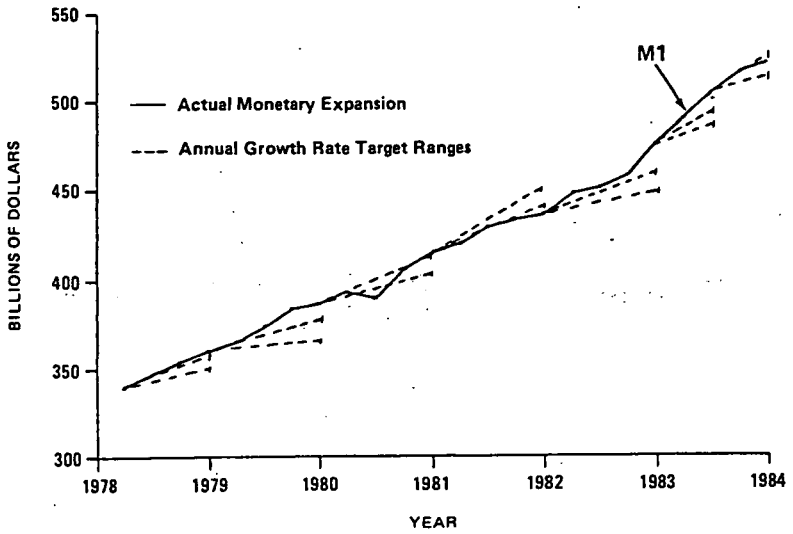
lem compounded by the good-bad composite nature of an implied nominal GNP target. Second, the targets are not credible, having been hit virtually never in the five years since they were introduced (figure 2). Third, they provide no explicit guidance to individuals, unions or companies on appropriate wage-price settlement behavior, an issue further confused by the authorities' ideologically-motivated denial that monetary targeting/signalling policies could in principle be translated into guidelines. Finally, even if monetary signals were translated into wage-price targets, it does not follow that particular individuals have incentives to abide by them. To the contrary, any one can gain, though all may later lose, by acting in a way which is incommensurate with the official stabilization objectives.[7]

Thus expectations-altering monetary regimes may prove not more effective, and yet more costly, than their conventional predecessors. They do introduce an important new concept, that of the *costless signal* to market participants. But the attempt is obscured by the jargon in which it is couched, and unaccompanied by any mechanism that would enable even the susceptible businessman or trade unionist to translate a willingness to cooperate into meaningful action.

[7] A 1981 JEC study has addressed similar questions in the context of the UK experience under Mrs. Thatcher, where it has been shown that "contrary to prediction, it is not necessarily irrational for wage earners to negotiate for wage settlements in excess of the money supply targets" (Hill 1981:82).

Figure 2.

FEDERAL RESERVE TARGETS AND PERFORMANCE
1978 – 1983



4.3. Controls and Guidelines

Mandatory price or wage controls have been imposed in the United States on three occasions in history: during World War Two, during the Korean War, and from August 1971 through January 1973.

No one seriously questions the effectiveness of price control in the first two cases. In the case of the Nixon controls, there is a dispute. Some analysts claim that inflation suppressed during the control period came back entirely after controls were lifted, so that the total change in the price level from 1971 through 1974 was not different than it would have been, absent the controls (Cagan, 1979). This view is not universally accepted, however (Blinder and Newton, 1981). In either event, as the objectives of the controls were arguably set by Nixon's re-election requirements in 1972, and as no one doubts that inflation from August 1971 through the election was lowered by the controls, it seems unreasonable to judge the Nixon controls by a broader historical standard.

Effective controls eliminate the direct output sacrifice of fighting inflation, and permit the economy to generate vastly higher rates of production and employment than would otherwise be considered possible. (Between 1940 and 1945 real GNP increased 112.4 percent, but after 1941 controls kept average rates of price inflation down to 3.3 percent per year.) On the other hand, controls impose the highest possible political costs on individuals, and imply the highest administrative overheads, of any anti-inflation regime. They eliminate one entire dimension of market freedom. They imply either a system for rationing or a toleration for shortages. And if designed to last for more than a very brief time, they require thousands or tens of thousands of administrators to assure a compliance.[8]

If critics of the Nixon controls are right, and controls are not effective in reducing the total change in the price level from the beginning to the end of the relevant analytical time frame, then the only thing controls accomplish is to reorder the timing of price changes. In the Nixon period they did so in a perverse way: a period of price stability achieved at great political cost was followed by a burst of rapid inflation. Of all imaginable time distributions of price level change, from the standpoint of constitutional stability this was probably the worst. Thus if one grants a benefit of the doubt to the anti-control position on the general criterion of effectiveness, one must also rule against controls on the timing question, and inversely. (However, the World War Two experience points to the opposite conclusion. In that case, controls reestablished price stability *after* a burst of inflation in 1941. And so, controls built confidence in the political authority for the duration of the war.) Finally, the feasibility of controls in peacetime for more than a brief period of time is open to question. Price controls in war-time worked with the assistance of production controls, rationing in the World War Two case, and large numbers of volunteer

[8] According to a Congressional Research Service study, "The Nixon Administration needed almost 4000 staffers to administer its selective controls program in 1971–74. During the Korean conflict over 15,000 administered the controls program. In World War II, the controls program, in full operation, required a staff of 60,000, plus the efforts of 100,000 volunteers throughout the country who monitored compliance at the local level" (CRS, 1980).

enforcers over and above the very large official bureaucracy established for this purpose. In peace-time, prolonged controls require an element of flexibility, and must withstand tests of fairness and due process, both of which imply even larger demands on the legal-juridical and administrative systems. The effective use of controls in the future may be confined to the use of a limited-duration, universal-coverage price or price-wage freeze, useful only as a transitional device.

A second dimension of feasibility in the case of policies for which no legal authority exists is whether such authority can be enacted. For the present generation of political leaders, peace-time price controls are a silver bullet which has already been fired, and which missed. Authority to impose controls on a stand-alone basis will not again be granted to the Executive Branch, except possibly in a galvanizing emergency. (Conceivably, though, authority to impose controls on a stand-by basis might be granted, under a different administration, as part of a comprehensive reform of the wage-price determination process.)

Guidelines have all the properties of mandatory controls to a lesser degree. As to their effectiveness, weaker claims are made by proponents, and, as to their costs, weaker criticisms are mounted by detractors. There is a fair consensus that the Kennedy-Johnson guidelines may have had some significant effect, though small, through the collaboration of labor in keeping wage claims within the growth rate of productivity. In the case of the Carter guidelines, experts quibble over whether an effect can be found; no one suggests that it was important.

Guidelines, unlike controls, do not permit economic expansion much if at all beyond what could otherwise be done, thus they do not materially reduce the economic cost of fighting inflation. On the other hand, their political and administrative cost, while not negligible, is far smaller. As with controls, the administrative complexity of guidelines tends to grow as time passes, so that their usefulness in any given episode may be constrained to periods of short duration. Guidelines are as feasible politically at present as controls are, which is to say discredited but not necessarily permanently so.

4.4. TIPs and MAPs

The late nineteen-seventies saw a flurry of interest in schemes to use the tax system to reduce incentives for inflationary price and wage behavior. One such TIP plan was actually proposed in the lameduck 1981 *Report of the Council of Economic Advisers*. A variant operating on the same principles, known as a Market Anti-inflation Policy or MAP, would establish a transferable-coupon rationing system for the right to raise prices and wages.

TIPs and MAPs have (with trivial exceptions) never been tried; thus their effectiveness cannot be judged, and their potential effectiveness is a matter of dispute. It is clear, however that TIPs and MAPs would work, if at all, only quite slowly. They would respect the sancity of existing contracts, and modify those contracts only to the extent that the incentive scheme placed effective restraint on wage- and price-setters as contracts were renewed. TIPs would

have no effect, even then, on companies and individuals who by virtue of other provisions of the tax law escape tax liability altogether. Thus TIPs and MAPs are the essence of a strategy of gradual deceleration in the inflation rate.

Advocates of TIPs and MAPs argue that they would greatly reduce the economic cost of a disinflation policy, while imposing only trivial indirect political costs, no different from those imposed through many thousands of special provisions already in the tax code. These claims are unobjectionable, giving advocates the benefit of the doubt on the effectiveness question.

Administrative costs are another matter. Advocates of TIPs as opposed to guidelines suggest that they could be essentially self-administered, requiring little addition to the resources of the Internal Revenue Service. Such claims ignore the increased administrative burden falling elsewhere, in particular on those who write the tax code in the first place, and those who pay the taxes. In the case of tax-payers, TIPs would appear to require a quantum increase in record-keeping and computation, since tax liability would come to depend not only on current-year income, but also on the rate-of-change between current and past year income. In the case of tax-writers, TIP provisions would certainly fuel endless campaigns for special treatment, leading to massive further complications in the tax code.

In the present political environment, TIPs are infeasible for a reason that could not have been foreseen by their original authors: the exhaustion of special-interest politics in the tax-writing committees of Congress. It is likely that for the next several years all major debate in the tax area will focus on achievement of a massive, revenue-raising tax reform. The position of legislators who might otherwise be sympathetic to a TIP is already taking shape, and consists of a generalized assault on special interest provisions of the tax code in a last-ditch effort to preserve the income tax as the heart of our revenue system. It is simply inconsistent for a legislator to advocate, on the one hand, extreme tax simplification and base-broadening, and on the other a complicated new system of tax incentives and penalties. TIPs will be crowded out, if not precisely by the deficit, then by the political imperative of taking action to correct it.

5. Conclusion: Unifying Concepts for Policy Design

The weaknesses of TIPs and MAPs, controls and guidelines, and monetarist policies emerge most clearly when each is viewed through the prism of two concepts.

The first is the effort expended to *deter* inflationary price-wage behavior at any given time, whether through exhortation, guidelines, controls, or high interest rates and recession, and at whom that effort is directed. Second is the total *time* required for the policy to work. The first concept addresses the costs of *implementing* anti-inflation policy. The second addresses the costs of *complying* with such policy.

Deterrence of inflationary behavior is achieved by making continued inflationary wage and price settlements so costly that firms and workers cease to agree to them. *Time* is required for the effects

of deterrence to spread through a sufficiently large fraction of the economy, so that enough individual decisions are taken to have the required aggregate effect. This second, vital issue has, we shall see, been generally overlooked.

5.1. Deterrence and Costs of Implementation

Each of the alternative anti-inflation policies discussed in this book relies on deterrence of inflationary behavior in one form or another. A key difference between these strategies, from a political standpoint, is in the locus of responsibility for deciding the precise terms of deterrence, and hence on the allocation of costs.

With conventional monetary policies, this locus is "the market". Individuals and companies are left to make their own judgments about appropriate nominal wage and price settlements. This is, clearly the ideal solution in the abstract. Monetary anti-inflation regime are as a rule accompanied by official disclaimer of any intent to enforce an "incomes policy". Yet this advantage carries an offsetting cost: the buffers of slack demand, foregone profit and foregone employment required so that a sufficient proportion of economic actors arrive at the "right" individual price-wage decisions are forbiddingly high. And, as a rule, the costs fall on those economically lest able to bear them.

Expectations-altering regimes seek to establish a norm for wage-price behavior, but in an oblique way, through the establishment of monetary targets. The central bank thus assumes the mantle of normsetter. As we have seen, however, this is neither credible nor effective.

Controls and guidelines transfer the onus of responsibility for setting an anti-inflation norm entirely from the private sector to the public. This is the source of the effectiveness of such policies and their achilles' heel. The costs, being mainly political, fall most heavily on those most capable of resisting them. So long as the government enjoys sufficient legal or moral authority to gain acceptance for the norms it sets, and so long as the practical administration is widely viewed as wise or anyhow exiguous, controls can work. As soon as faith in the government's mandate or its judgment weakens, controls have a tendency to collapse.

Tax-based incomes policies and transferable coupon schemes attempt to combine public and private responsibility: the government sets the norm, but uses economic rather than legal or moral incentives to achieve compliance. TIPs and MAPs thus combine weaknesses of government intervention with the costs of conventional monetary anti-inflation regimes—although each in attenuated form. The effectiveness of any given incentive will depend on the state of the economy; the stronger the underlying growth of demand, the greater the profit opportunities from defying the TIP norm and paying the penalty instead. For this reason, advocates of TIPs and MAPs stress that they can be expected to work only in conjunction with restrictive fiscal and monetary policies, and that their purpose is to reduce the costs of monetary disinflation, not to eliminate such costs altogether.

Conversely, TIPs and MAPs are vulnerable to political modification much as controls and guidelines are. If faith in the standard-

setting authority is not strong, pressure will inevitably be brought to bear to reduce costs of non-compliance. Advocates of TIPs sometimes make the argument that because such schemes work through the market, they will be free of political channels of influence. This is, however, not so.

5.2 Timing and Costs of Compliance

In making deterrence effective, transmission of information is only part of the problem. A single, clear, weighty, morally persuasive signal to workers and businesses is certainly better than a vague, obscure or insincere one. But the effectiveness of a behavior-modifying policy depends also on the costs of compliance.

Organized labor settles wages through a long-term contract. For those for whom response to a wage signal of the type described above would mean breaking an existing contract, the costs of immediate compliance can be high. Yet if existing contracts are to be respected, and an economy makes key wage decisions, as ours does, on a staggered three-year cycle, then a given behavior-modifying policy must be sustained for three full years before all workers have been affected once. Three years is too long to maintain a single inflation guideline, in the face of rapidly changing world market developments.

None of the principal alternative anti-inflation policies pays explicit attention to the timing issue. Each dissipates its force over the existing time pattern of wage settlements and the existing structure of administered prices. And each suffers increased cost and diminished effectiveness as a result. Conventional and expectations-altering monetary regimes find their greatest frustration in the nominal-wage resistance characteristic of U.S. labor compensation. Once a given pattern of nominal settlements has taken hold, it takes a long and difficult effort to break it. And the costs—of foregone output and prolonged unemployment—cumulate over time. Controls and guidelines find that timing frustrates every effort to be fair. One cannot freeze the price-wage action at any point, since in an overlapping game of catch-up someone is always ahead, someone always behind. The inevitable tangle of special cases and hardship exemptions acts corrosively on the prestige and long-term viability of controls. TIPs and MAPs would find these problems present at the creation, and complicated by the statutory nature of the governing norm. Requests for special treatment in the name of fairness would clog the tax-writing committees, instead of the administrative courts.

In sum, it is the present author's view that formal anti-inflation policies offered to date have suffered an organic defect. They are politically costly to put into effect. Therefore nothing happens before inflation becomes a serious problem. But when inflation does become a serious problem, it is too serious for these policies to effectively contain. It is the old story of the roof which doesn't need fixing in good weather and is too leaky to fix when it rains.

For this reason, I urge again that attention focus on practical steps first. A practical step may be defined as one which, once put in place, imposes the lowest continuing costs of implementation on the government and the lowest continuing costs of compliance on

the people. The first two elements of my preliminary strategy—productivity policy and limited buffer stocks, meet these tests. I believe that something like a DPI-PCS system, once in place, would do so as well.

5.3. A Concluding Analogy

A hundred years ago, at the urging of the great railroads, America undertook a remarkable experiment in social coordination. This was the reform of the system of Time: the creation of the four standard time zones, and synchronization of watches, clocks, and—most important—timetables. Prior to the reform, each city maintained its own standard, often differing by no more than a few minutes and travelers, telegraphists, and train switchmen faced nightmares of translation and coordination.

Time reform was perhaps not necessary to the progress of economic life. The computer, already by then a rhetorical possibility, could have kept everything sorted out. But time reform did greatly reduce various inefficiencies involved in running a large national system of railroads. It was a practical measure, virtually without economic cost, and it was put into effect very largely by voluntary action.

Fighting inflation—at least the early stages—can be seen today as something of the same sort of problem. We ask our price system to convey very large amounts of information. Each actor in the wage and price determination process views the whole from his or her own subjective standpoint, weighing the available information in idiosyncratic ways. Differential benefit indexation atomizes popular opinion. Differential contract timing distorts worker perspectives. The result is a pattern of action with a large economic and social cost: mis-used and mis-interpreted economic information, wasted effort based on mis-guided forecasts, and the erosion of national self-assurance and confidence in political institutions which follows from inflation.

To avoid these threats, we apply macroeconomic instruments whose use vastly amplifies the economic cost, and which bring on real human suffering and hardship. It is as though, a hundred years ago, we had attempted to cure the national neurosis over timetables by shutting down the railroads or perhaps requiring the trains to run at a slower speed.

This paper has argued that there ought to be a better way. It would consist of a carefully arranged, four-stage improvement in the anti-inflationary properties of the economic system.

The first three measures can be put in place now. They are (1) measures to raise the trend rate of productivity growth in the expansion, (2) measures to improve the flexibility and effectiveness of national buffer stocks, and (3) measures to speed the adjustment and stabilization of wage decisions when a relative price shift occurs. These measures require only small sacrifices. They may or may not prove totally effective. Even with the best rails and switching system, and the most streamlined cars, there is a limit to how fast the train can go.

Thus we come in the end to the need to make a clear choice among alternative means of fighting inflation should measures de-

signed to delay and minimize the evil circumstance not suffice. This choice, between market-based mechanisms with high economic costs and political mechanisms with lower economic costs, cannot in the final analysis be made on technical grounds. It is, perhaps, the most vital economic policy decision of any enduring democracy.

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