

CENTRAL BANKING IN A DEMOCRATIC SOCIETY\*\*

BY

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**Key words:** monetary policy, central bank independence

1 INTRODUCTION AND MAIN CONCLUSIONS

It is a special pleasure for me to be here to give this lecture to honor Professor Tinbergen, because his many interests coincide so closely with my own. He spent much of his later life working on the economics of income distribution, a subject with which I began my professional life in my doctoral dissertation, and which has continued to be a focus of my concern. Tinbergen's thesis that the relative wages of skilled and unskilled workers depend on both supply and demand factors resonates throughout my work on optimal taxation.<sup>1</sup> Its importance has been borne out dramatically in wage movements in the United States and elsewhere during the past two decades.

From my present vantage point, I am especially appreciative of his devotion to the economics of development, which became the focus of his concern in the mid-1950s, in order, as Tinbergen (1988) explained in retrospect, 'to contribute to what seemed to me the highest priority from a humanitarian standpoint.'

But today, I want to focus on other aspects of his work: his contribution to economic policy, particularly the problems of controlling the economy, the relationship between instruments and objectives, and the scope for decentralization, which absorbed him and earned him international recognition in his early days. I have reflected a great deal upon these issues during the past four years, during which I served as economic adviser to the President of the United States, and especially the last two years, when I served as Chairman of the Council of Economic Advisers.

\* The author is on leave from Stanford University. The views expressed here are solely mine, and not necessarily those of any institution with which I am or have been affiliated. I wish to acknowledge the assistance of Jason Furman. Much of the research and ideas reported here are based on joint work with him.

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<sup>1</sup> See, for instance, Stiglitz (1986, 1998).

I had the good luck to serve at a time of rising prosperity – and even improved income distribution, lowered poverty, and increased inclusion in our society of previously marginalized groups, such as minorities. The President took much credit for these achievements, and I often quipped that if some of the glory of what was, at least in some dimensions, the strongest economy in three decades should rub off on the President, should not at least some of that rub off on his economic adviser? After all, as my staff jokingly pointed out, while I was Chairman of the Council the misery index – the sum of the inflation rate and the unemployment rate – was half of what it was when Alan Greenspan was Chairman of the Council. Others suggested that it was not the Administration which should get the credit, but the Federal Reserve Board.

To Tinbergen, this debate might have seemed strange indeed. Macroeconomic success depended on coordination of the monetary and fiscal instruments. It was the two working together. Curiously enough, economic policymaking in the United States – and in many other countries – is designed to inhibit this coordination and cooperation. We have created independent central banks, who may, and indeed are instructed to, pursue policies *independently* of the wishes of the elected officials. In the United States, the deliberations of the open market committee which sets interest rates is kept secret – even from the President of the United States. To be sure, in the past, presidents have not been shy about expressing to the Fed what they think it should do, but the Fed has not been shy about ignoring these messages. Early on in the Clinton Administration, we adopted a policy of not commenting on Fed policy, not because we did not have strong views – at certain critical stages, many in the Administration thought their policies were seriously misguided – but because we thought a public debate would be counterproductive. We thought the Fed would not listen, the newspapers would love the controversy, and the markets, worried by the uncertainty that such controversy generates, would add a risk premium to long-term rates, thereby increasing those rates, which was precisely what we did not want to happen.

There is an irony in all of this. The President is held accountable for how the economy performs – whether or not he has much control. Indeed, econometric models suggest that an infallible predictor of the outcome of presidential elections is the state of the economy;<sup>2</sup> just as the weaknesses of the economy were largely responsible for Clinton's election in 1992, the strength of the economy was largely responsible for his re-election in 1996. The Council's own econometric models in 1995 and 1996 corroborated the findings of others predicting an electoral outcome close to that which emerged – suggesting that President Clinton really did not need to do all that campaigning.

2 Interestingly, the perception of the state of the economy seems to be a more accurate predictor of electoral outcomes than the actual state of the economy. The incumbent party has won every election in which the University of Michigan's consumer sentiment index in the month before the election was above 92.

While the President is held accountable, his major tools for affecting the macroeconomy have been removed. Deficit stringency has removed the scope for discretionary fiscal policy (though fiscal impacts played a role in the fine tuning of the 1993 deficit reduction plan;<sup>3</sup> and the independence of the Fed has removed the Executive Branch's influence over monetary policy. Members of the Administration did communicate privately, in weekly, sometimes daily, conversations. We shared our views of what was happening to the economy – but we did not always agree. And according to the rules of the game that we adopted, we did not participate in the public debate on monetary policy.

In a democracy, public discussion and debate about issues of central importance, like the management of the economy, are essential. The Council of Economic Advisers did attempt to contribute to this discussion – but obliquely, especially in the Annual Economic Report of the President.

Today, I want to address two issues which I felt stifled from discussing more openly during my tenure at the Council of Economic Advisers. The first issue concerns the principles of monetary policy in a low-inflation environment such has prevailed in the United States for the past decade and half – how should it set its targets? Should it seek to take pre-emptive strikes against inflation? Is it true that it cannot, or at least should not, wait to act until the 'white of the eyes of inflation' can be seen? The second issue is more fundamental: What should be the institutional arrangements by which monetary policy is set in a democratic society? How independent should the central bank be? And if it is independent, what should be its governance? Who should choose those who essentially control the economy, and what characteristics should these decision makers have? Though I do not wish to give away my bottom lines, to pique your interest, let me hint at the conclusions I shall draw:

1. Monetary policy matters, and the successful conduct of macropolicy in the postwar period has led to far greater stability of the economy. This is not to imply that American economic policy has been perfect – major mistakes, some arising from an imperfect understanding of the economy, have at times contributed to unnecessarily high unemployment or to the economy enjoying a stronger boom than intended.
2. In particular, I will argue that the strategies of opportunistic disinflation or pre-emptive strikes are based on a set of hypotheses about the economy for which there is little empirical support. I will argue, at least in the context of the American economy today, for an alternative, which I call cautious expansionism.

<sup>3</sup> Perhaps now that the United States appears on the verge of fiscal surpluses there will be more scope for fiscal policies. But some of the budgetary processes designed to curb public profligacy may inhibit the effective exercise of countercyclical fiscal policy.

3. There is a rationale for a *degree* of independence of the central bank, even in a democratic society. But the central bank must be accountable, and sensitive, to democratic processes; there must be more democracy in the manner in which the decision makers are chosen and more representativeness in the governance structure. The movement in the opposite direction in some places is particularly disturbing.

## 2 MONETARY POLICY MATTERS: THE STABILIZATION OF THE POSTWAR BUSINESS CYCLE

Before answering the two questions which are the focus of my concern today, I have to address a prior issue: Does monetary policy matter? For clearly, if monetary policy has no effect, then the design of monetary institutions, the choice of monetary policy strategy, and the coordination of monetary and fiscal policy do not matter. I believe strongly that monetary policy does matter – and it was not just frustration with our inability to use discretionary fiscal policy combined with envy of the economic power of those sitting along Constitution Avenue in the Federal Reserve Board building that led me to this conclusion. This conclusion was based on theoretical work that I had done before entering government<sup>4</sup> and recent empirical work by Francis Diebold and Glenn Rudebusch (1992), which we have confirmed and extended. Their findings have not received the attention they deserve; they shed light on a long-standing controversy about whether there are in fact business cycles or simply random economic fluctuations. Their somewhat surprising conclusion is that there appear to have been cycles prior to the Great Depression, but that in the postwar period, these cycles – in the sense of regular periodic movements in output – have been eliminated. Before turning to the statistical results, let me comment briefly on the circumstances that led up to my work in this area.

Though we did not control monetary policy it was important for us to have views on where the economy was going and what we thought monetary policy should be. My friend Jacob Frenkel (governor of the Central Bank of Israel) once quipped that central bankers have a fascination with fiscal policy – they are always willing to comment on the appropriate size of the deficit (zero), though they thought it inappropriate for the fiscal authorities to comment on monetary policy. By the same token, we had a fascination with monetary policy – and wished we could comment on it.

It is remarkable how little insight into these issues is shed by current macroeconomics. One major school of thought, Real Business Cycles, argues that there is no involuntary unemployment. It was hard to tell that story to the President, who was elected on a platform of ‘Jobs, Jobs, Jobs!’, or to the voters in California, when unemployment – they did not think it was just a superabundance of

4 See, for instance, Greenwald and Stiglitz (1990, 1993).

leisure – exceeded 10 percent. Another major school, new classical economics, with its emphasis on rational expectations, argues that monetary policy is ineffective, because the private sector would adjust its expectations and actions to undo any *systematic* monetary policies.<sup>5</sup> If correct, concerns about policy coordination are not of much importance! And if correct, the myriad of economists, in government and business, and the multitude of reporters, who were engaged in trying to figure out what the Fed was about to do, are all behaving irrationally. While these schools of thought might have little sway in the real world of government or business, they have had remarkable influence in academia over the past quarter century, especially in America. Both of these schools suggested that our difficulties in the Council of hiring macroeconomists from academia who knew something about the economy was of no consequence: they would be wasting their time in any case. Needless to say, these were perspectives with which I had little sympathy.

As the economy continued the robust recovery from the 1990–1991 recession, I was asked by reporters with increasing frequency, did I expect the recovery to end. Their view was that the economy was perched on a knife-edge, ready to fall off into a recession on one side or rising inflation on the other. Furthermore, they seemed to believe that the longer an expansion lasted, the more likely there was to be a downturn. In contrast, I believed in Keynes' animal spirits, and believed that those animal spirits might be driven, if ever so gently, towards a more favorable view of the economy, and hence stronger investment. The fundamentals of the US economy were clearly sound, but I wanted to make a further argument: that expansions do not end of old age, a popular way of saying that there was no such thing as a business cycle. The results in Figure 1 provide dramatic support for this argument as applied to the post-World War II US economy – the probability of an expansion ending appears to be independent of its length.<sup>6</sup> This result should not come as a surprise, if one makes three assumptions: monetary policy seeks to maintain expansions, monetary policy is forward-looking, and monetary policy is somewhat effective. For if there were any systematic time dependency – or dependency on time and other observable variables – the monetary authorities should seek to take offsetting actions. The result does not require that the monetary authorities be perfectly efficient, only that any errors have no systematic component to them.

5 In real business-cycle theory, monetary policy is not only not needed, but ineffective. In some variants of rational expectations models, monetary policy can have effects, but only to the extent that the actions of the monetary authorities are imperfectly observed, or observed with a lag.

6 Diebold and Rudebusch (1992) find no time dependence at all. Our results show a slight time dependence, which disappears once other, easily observed variables are taken into account. The existence of some time dependence, even with an effective monetary policy, is to be expected, if there are variables or events (like large excess inventories) the occurrence of which increases with the length of the expansion, and if monetary policy cannot perfectly offset the effects. Effective monetary policy eliminates any systematic cyclical fluctuation associated with such variables or events.

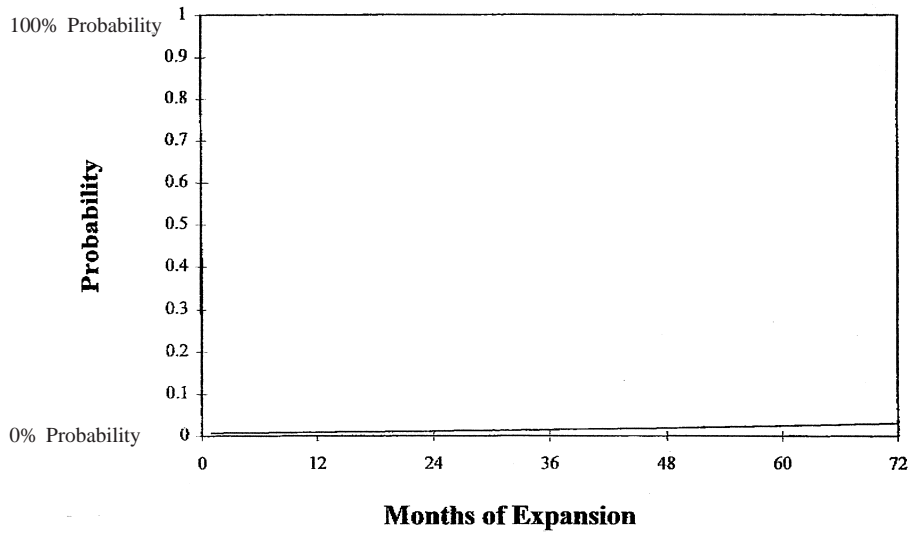


Figure 1 – Probability of an expansion ending, 1945–1997  
Note: Probability estimated using logit regressions on NBER Business Cycle dates.

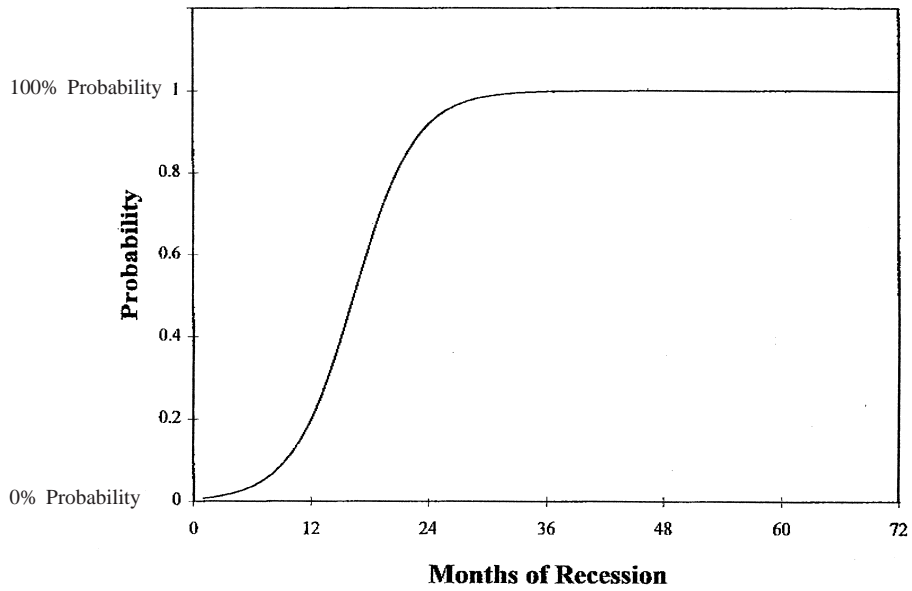


Figure 2 – Probability of a recession ending, 1945–1997  
Note: Probability estimated using logit regressions on NBER Business Cycle dates.

From this perspective, downturns come as a surprise, an unexpected event not anticipated, or imperfectly anticipated, or whose consequences were not fully calculated, perhaps because of misunderstandings about the structure of the economy. Monetary authorities seek to offset these effects, to restore the economy to its potential. In the short run, there is a tendency of monetary authorities to think of the downturn as a temporary deviation, which will correct itself shortly. Given the lags in the effectiveness of monetary policy, expansionary policies might then complement the natural forces of recovery, leading to inflation. Over time, if the downturn persists, political pressure – even on an independent monetary authority – to do something mounts; the policy of doing nothing, or doing too little becomes hard to maintain. Moreover, information about the true nature of the downturn becomes more apparent.

This pattern is clearly evidenced in the series of pronouncements of the Fed Chairman between 1991 and 1993. Even as the National Bureau of Economic Research was about to declare that the economy was in recession in July 1991, the Fed Chairman's Humphrey-Hawkins testimony (which he is required to give before Congress twice a year) did not indicate that the Fed was worried about recession.<sup>7</sup> To be fair, economic forecasters have almost always missed recessions. (Also, I should add parenthetically that one of the responsibilities of Fed officials is to maintain confidence in the economy. Private views may be more pessimistic than public pronouncements. Still, in this particular case, policy seemed to conform remarkably closely to the public pronouncements. Moreover, the Fed Chairman is a master of FedSpeak – some say a modern version of a Delphic oracle – which is designed to carefully calibrate what information is revealed and what is obscured rather than to provide complete enlightenment. This provides plenty of opportunity for him to make announcements that bolster confidence in the economy while being sufficiently vague so that in retrospect they seem to provide keen insights into the workings of the economy *regardless of what happens.*)

As the downturn persisted the Fed continued to see it as an unexpected shock leading to a 'normal' cyclical downturn that would respond to standard policies. This viewpoint is evident in the Humphrey-Hawkins testimony from February 1991 which reads '[n]onetheless, the balance of forces does appear to suggest that this downturn could well prove shorter and shallower than most prior post-war recessions. An important reason for this assessment is that one of the most negative economic impacts of the Gulf war – the run-up in oil prices – has been reversed. Another is that the substantial decline in interest rates over the past year and a half – especially over the past several months – should ameliorate the contractionary effects of the crisis in the Gulf and of tighter credit availability.'

7 The prepared statement reads, '[O]n balance, the economy still appears to be growing, and the likelihood of a near-term recession seems low.'

It was not until the economy was on its way to recovery, in February 1993, that the Fed finally recognized the ‘economy has been held back by a variety of *structural factors*,’ [emphasis added] most notably fundamental weaknesses in the financial system.<sup>8</sup>

As the nature of the problem became clearer, and as the political pressure to do something mounted, monetary policy was eased 24 times, contributing to the recovery. The pattern evidenced in our most recent recession is typical, as confirmed by the statistical data: Figure 2 shows that there is a strong time dependency in recovery.

TABLE 1 – AVERAGE DURATION (IN MONTHS) OF US BUSINESS CYCLE EXPANSIONS AND RECESSIONS

Time period	Recession	Expansion
December 1854–March 1991	18	35
December 1854–August 1929	21	25
October 1945–March 1991	11	50

Source: NBER

These patterns are markedly different from those that prevailed before the Great Depression. Since World War II, expansions are longer and recessions are shorter, as Table 1 shows. Figure 3 shows, using data for the United States for the period 1854 to 1918 that prior to the Great Depression, expansions did end of old age. The probability of an expansion ending increased markedly the longer the expansion continued, with a probability of approximately one-third in the second year, increasing to two-thirds in the fourth. By contrast, recovery from a downturn seems to have been largely a random event, as Figure 4 shows. While some of these changes could have been accounted for by changes in the structure of the economy, I suspect that it is improved macropolicy (including automatic fiscal stabilizers) that accounts for much of the change.

Incidentally, these results strongly rebut the claim of Christina Romer (1986) that there is no evidence of improved macroeconomic performance in the post-war period. Her argument relies on adjustments in output series which are debatable. Our methodology only requires qualitative assessments about whether the economy is expanding or contracting. Because it does not require measures for every subcomponent of GDP and because it can utilize data from other sources, the timing of expansions and downturns provides a far more robust way of assessing economic performance.

<sup>8</sup> In part due to the interaction of the 1986 tax reform which eliminated many of the tax subsidies to real estate that had been enacted in earlier legislation, with the regulatory forbearance that allowed the financial problems to mount, culminating in the savings and loan debacle in 1989.



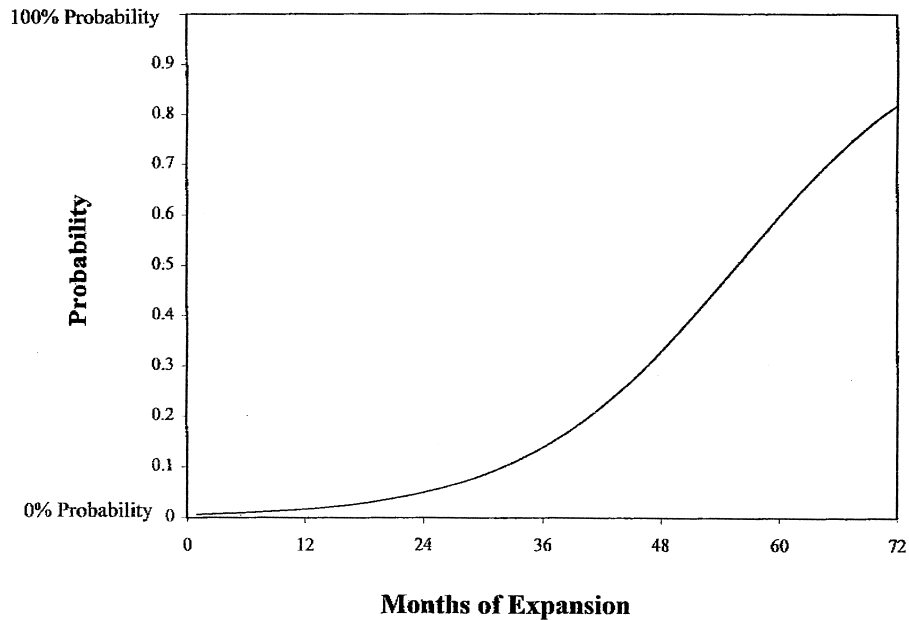


Figure 3 – Probability of an expansion ending, 1854–1929

Note: Probability estimated using logit regressions on NBER Business Cycle dates.

These results, while they show convincingly that monetary policy matters and has been used to improve the overall performance of the economy, do not require us to believe that the monetary authority behaves perfectly or even that it is efficient. I already discussed one example of a mistake: the Fed doing too little and acting too late to avert or minimize the depth and duration of the 1990–1991 recession. A second illustration is the current expansion which can be thought of as also partially attributable to mistakes, at least initially. There is a tendency to think of mistakes as one-sided – always working to the detriment of the economy. But mistakes, by their nature, should be random, and in at least some cases should work to the benefit of the economy. In this case, there were in fact two errors on the part of the Fed, with one more than offsetting the other.

Throughout the earlier 1990s, the Fed continued to have an overly pessimistic view concerning the NAIRU (non-accelerating inflation rate of unemployment), and the economy's potential for reducing unemployment without inflation increasing. But they also continued to underappreciate the role of financial markets and continued to fail to understand key aspects of banking behavior. Had they better understood these factors, given their beliefs about the NAIRU and given their strong aversion to inflation, they would have prevented the unemployment rate from declining below 6.0 percent to 6.2 percent. It might have been a long time

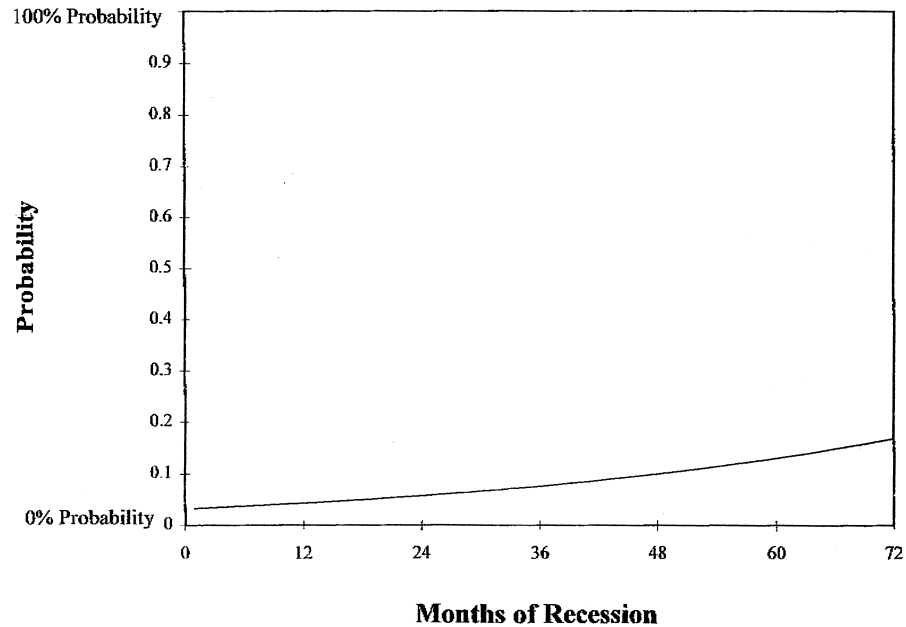


Figure 4 – Probability of a recession ending, 1854–1929

Note: Probability estimated using logit regressions on NBER Business Cycle dates.

– possibly never – before we learned about the economy’s real potential.<sup>9</sup> It was our good fortune that they did not see accurately where the economy was going!

To understand what happened – and why the Fed failed (fortunately) to see the strength of the recovery – we need to return to the early days of the Clinton Administration. When the President took office in February 1993, he moved quickly to introduce a deficit-cutting budget. Eventually the Congress enacted a plan to reduce the deficit by \$500 billion over five years (in contrast, the 1997 balanced budget legislation only cut the deficit by \$200 billion over five years). Old-style Keynesians warned that deficit reduction would undermine the fragile recovery. Those of us who believe that the markets were forward-looking, understood that credible, pre-announced deficit reduction would lower interest rates and thus stimulate the economy. What took us all by surprise was just how much it was stimulated.

<sup>9</sup> Indeed, I have argued that there is a ‘reverse hysteresis effect:’ as the unemployment rate is reduced, previously marginalized workers are drawn into the labor market, develop and maintain worker and job search skills that might otherwise have atrophied, and the economy’s NAIRU is thereby actually lowered. If this is the case, then the ‘mistake’ of allowing the unemployment rate to fall below 6 percent was actually crucial in the economy’s longer-term improved performance. See Stiglitz (1997).

Parsing out how credit should be divided up became a preoccupation. To be sure, the strong economy played a role, but this just leads to the further question of how much of the strong economy was attributable to deficit reduction? We were more willing to take credit for higher growth than for the increasing profit share (which led to higher tax revenues), a result partly of the low interest rates, but also partly a reflection of wage performance. But by any reckoning, the tax increases and expenditure reductions in the Omnibus Budget Reconciliation Act of 1993 (OBRA 1993) were directly responsible for more than half of the deficit reduction that followed.

But in spite of all of the rhetoric, the connection between deficit reduction and economic recovery remained somewhat of a puzzle: Should not the Fed be able to manage monetary policy to maintain the economy at full employment, that is, at the NAIRU? Nothing in the modern theory of monetary policy suggested that the Fed's ability to do that should be affected in any way by deficits or deficit reduction, so long as the changes were appropriately anticipated and offsetting actions undertaken. If the government ran a slightly larger deficit, then the Fed would have to run a slightly tighter monetary policy; the short-run macroeconomic performance would be the same, but the composition of output would shift from private investment to government spending, potentially impairing long-run growth.

As I thought about it more, I finally recognized the connection, but it was more subtle and based on the link between financial markets and economic activity. It is an interesting story, and illustrates that while two wrongs do not make a right, in economic policy two mistakes can more than offset each other, and result in an economic boom.

In the 1980s, banks had significant holdings of long-term Treasury bonds. This represented a gamble on falling interest rates. Banks were allowed to take this gamble because accountants valued these bonds at face value and regulators judged risk by the chance of default – which was zero in this case – not by the likely volatility of asset prices (interest rate risk).<sup>10</sup> When interest rates rose in the late 1980s, the value of bank assets fell, which together with substantial losses on loans, forced many banks to curtail their lending. Subsequently, with the 1993 deficit reduction and the lowered inflationary expectations, interest rates declined. The result was a major revaluation of bank assets at the same time that loans were again becoming more profitable. Given their increased net worth and cash flow, banks were both willing and able to increase their lending. And this is pre-

10 The Fed made a mistake in the way that risk was assessed. This was widely recognized by, among others, members of the Administration who argued with the Fed, but to no avail. But the misguided regulation allowed banks to gamble; and because of the subsequent deficit reduction – and resulting lower interest rates – the gamble paid off. But the gamble could just as well have failed (after all, the market was paying high interest rates on long-term bonds, largely because the market anticipated higher interest rates in the future). And had it failed, the banking system would have been in a disastrous shape.

cisely what they did. Had this effect been anticipated by the Fed, it is unlikely that they would have allowed the Federal funds rate to stay so low for long.

### 3 THREE PROPOSITIONS ABOUT MONETARY POLICY

The effective conduct of monetary policy is extraordinarily difficult. It requires assessing the state of the economy today and in the near future. It requires a detailed knowledge of the economy, so that the consequences of various actions – interest rate increases and decreases – can be carefully assessed. Monetary policy is necessarily conducted in an environment with considerable uncertainty, and therefore requires careful balancing of risks, including the risks of inflation, the changes that it might increase or accelerate, and the costs of disinflation.

One leading monetary policy strategy responds to this uncertainty by recommending that policymakers act to eliminate projected rises in inflation. The argument for aggressive, pre-emptive strikes against inflation is based on three premises. The most fundamental premise is that inflation is costly. This provides the motivation for trying to avert or lower inflation. The second premise is that once inflation starts to rise it has a tendency to accelerate out of control. This belief provides a strong motivation for erring on the side of caution in fighting inflation. Finally, the third premise is that increases in inflation are very costly to reverse. The implication of this premise is that even if you care much more about unemployment than inflation, you would still keep inflation from increasing today in order to avoid having to induce large recessions to bring the inflation rate down later on. All three of these premises are hypotheses that can be tested empirically.

In many countries throughout the world, monetary policy seems to be based on a belief by policymakers in these three premises, even when these beliefs are not fully incorporated in the formal models that the staffs of the central banks employ. I would like to discuss the evidence underlying each one.

#### *The costs of inflation*

Many people treat inflation as if it were something that was costly in its own right. This, of course, is not true. Individual utility functions only depend on quantities; prices do not enter because, by themselves, they do not make people better or worse off. The same is true of the social welfare functions that politicians *should* use in guiding their thinking. Putting unemployment or output in the social welfare function might be reasonable, although even here we must worry about a number of finer points, including the valuation of leisure. Putting inflation into the objective function is, however, never justified. Instead, inflation only matters in so far as it effects the two variables we do care about: output and its distribution. When economists or commentators speak about balancing the costs of inflation against the costs of unemployment they are implicitly mixing an objective function (which weights output and distribution) with a model of the

economy (which links inflation with these variables) and combining them into a reduced form. This shorthand is acceptable, as long as we remember it is just that – a shorthand. All too often, however, this shorthand turns into a rigid assumption.

What then is the evidence concerning the costs of inflation? There is an old theoretical literature that emphasizes menu costs, shoe-leather costs, tax distortions, and the increasing noise introduced into the price system. Estimates of the deadweight loss imposed by these distortions in countries like the United States have, for the most part, been disappointingly small from the perspective of inflationary hawks.<sup>11</sup> In the last decade, an increasingly sophisticated literature has attempted to measure the costs of both the level and variability of inflation indirectly by examining their consequences for the level of output and growth. Probably the most persuasive studies were done by Bruno and Easterly (1986) who found that when countries cross the threshold of 40 percent per year inflation they fall into a high inflation/low growth trap. But below that level, there is no evidence that inflation is costly.<sup>12</sup>

Others, like Barro (1997) and Fischer (1993), have used cross-country growth regressions in an attempt to quantify the impact of inflation on growth. They have confirmed that high inflation is, on average, deleterious for growth, but again have failed to find any evidence for costs of low levels of inflation. Fischer also found the same results for the variability of inflation.<sup>13</sup> (The strength of the nonlinearity in the relationship between inflation and social welfare is clear from the outcome of research conducted by the United States Federal Reserve Bank. Despite the efforts of their minions of first-rate economists – some of them devoting much of their time to analyzing the costs of inflation – the Fed has still failed to find definitive evidence of costs of inflation in the United States. Should they eventually succeed in finding such results, they will only have proven that data mining does work, not that inflation does not.)

Recent research by Akerlof, Dickens, and Perry (1996) has argued that low inflation is actually beneficial. Some inflation, according to this view, helps maintain full employment by facilitating the downward adjustment of real wages. Their

11 In a recent paper Martin Feldstein (1996) argues that one of the largest costs of inflation is that it exacerbates the distortions in the unindexed tax system, giving rise to costs that are not the usual second-order Harberger triangles but first-order trapezoids. He estimates the present value of the gain from lowering the inflation rate from 2 percent to 0 percent to be 35 percent of the initial level of GDP. One of the main problems with Feldstein's analysis is that it neglects distortions in the tax system that are ameliorated by inflation, like accelerated depreciation.

12 The null hypothesis in this, as in most other studies of inflation, is that inflation is costless. The failure to reject this null at low levels of inflation does not prove that inflation is costless, only that we have no evidence that it is costly.

13 Because the level and variability of inflation are so correlated, Fischer reported great difficulty in disentangling their separate effects at any level/variance of inflation. This point holds true more generally: Any study of the consequences of inflation probably also picks up costs associated with the variability of inflation.

simulation suggests that maintaining zero inflation would be consistent with a 10 percent long-run unemployment rate. This is probably too high – surely people would eventually become less resistant to nominal wage cuts after some experience with zero inflation. Still, their research forcefully reminds us that we need to weigh the costs of low inflation against its benefits.

*The acceleration of inflation*

The second premise of many inflation hawks is that inflation is like a genie, once you let it out of the bottle it will just keep on expanding. Stepping off precipices, sliding down slippery slopes, and falling off the wagon are other metaphors that often dominate popular thinking about inflation. Again, these metaphors can be subject to rigorous testing. Relatively few people have done this, in part because most economic models assume that inflation does not accelerate, a position that is at variance with the conventional journalistic wisdom. My own tests have provided no basis for believing the conventional wisdom.

One test is to nest non-accelerationism as a special case in an accelerationist model. You can, for instance, estimate empirical Phillips curves in which the change in inflation depends not just on unemployment but also on the past change in inflation. In the United States, this coefficient is insignificant.<sup>14</sup> Alternatively, techniques like logit can be used to infer whether or not the likelihood of inflation increasing depends on, among other variables, the level or the rate of change of inflation. These tests also find no evidence whatsoever that changes in inflation are more persistent than can be accounted for by the persistence of the unemployment rate. In fact, after controlling for the unemployment rate, we find just the opposite: when inflation has been rising it is more likely to reverse course and start falling – the exact opposite of the conventional wisdom (Figure 5). The difficulty of finding evidence – or casual experience – which supports the precipice hypothesis probably explains why it is rarely a feature of standard economic models. However, this hypothesis is still all too present in discussions about the proper stance of monetary policy.

*Inflation is costly to reverse*

The third premise is that inflation is costly to reverse. The standard mantra is that even if we cared very little about inflation it might be worthwhile to endure a little extra unemployment today in order to avoid increasing inflation leading to a recession down the line. This premise is based on fallacious backward induction. It asks what should the Fed's reaction function be today given a fixed reaction function in the future. Even framed in this way, this argument is based on two somewhat shaky premises.

The first premise is that you cannot slow the economy down without creating a recession, and worse, you cannot create a small recession. One rationale for

<sup>14</sup> Results are available on request.

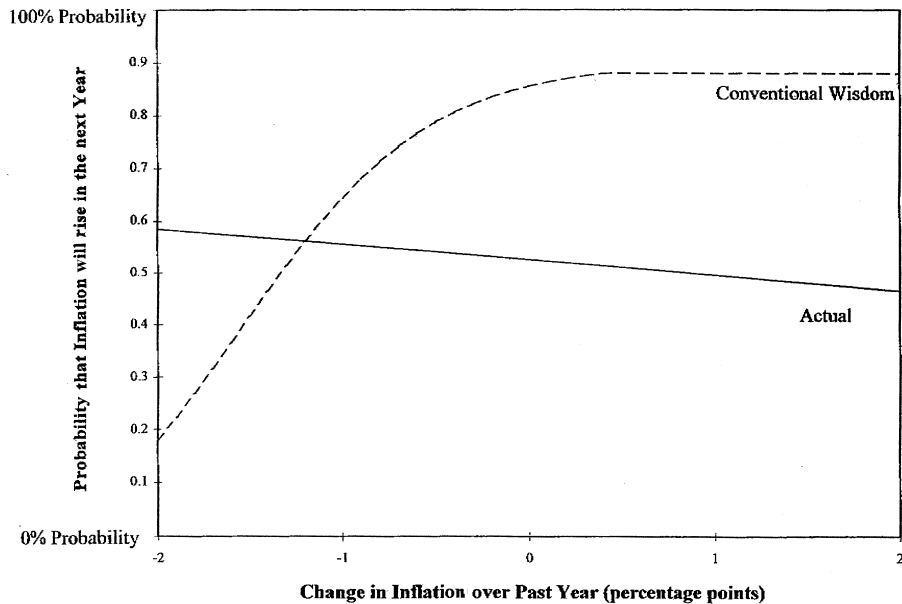


Figure 5 – Probability of rising inflation

Note: Probability estimated using logit model that controls for the unemployment rate.

this belief is that slowing growth triggers inventory build-ups that in turn further dampen production. Whatever the merits of this belief, as a matter of logic there is no reason why it should apply any more strongly to a tightening in the future than to a tightening today. If you really believe that fine tuning is impossible and even mild restraints risk triggering a major recession, then there is little argument for pre-emptive tightening.

To be sure, several economic downturns have been due to excessive zeal by the monetary authorities in response to inflation. But one needs to interpret this evidence carefully. The Fed has managed on many occasions 'to trim the economy's sails' without inducing a recession. There will be mistakes in monetary policy. Sometimes policymakers will act excessively, and this will cause a downturn. But this does not mean that tightening necessarily must aim to overshoot, and must aim to overshoot by a lot. The fact that occasionally the Fed steps on the brakes too hard does not mean that it always steps on the brakes too hard; it only means that those are the cases which we are most prone to notice.<sup>15</sup>

15 There is one argument that may have some merit – were it not for the results reported below. Assume that there were large nonlinearities in the *risks of responses*, such that a large increase in the interest rate is far more likely to induce a recession by overshooting. With nonlinearities in the costs of inflation, a higher inflation rate today increases the probability that at some time in the future the inflation rate will be such that the authorities actively seek to reduce it by a large increase in the

More generally, the theory of economic adjustment suggests that when firms and households are given time to adjust, they can do so at far lower costs. If they are put on notice that there will be a gradual slowing of economic growth, then the magnitude of the economic fluctuations induced by excess inventory build-ups can be reduced.

The second premise is that low unemployment increases inflation much more than high unemployment lowers it, and that the costs of lowering inflation increase more than proportionately with the magnitude of the inflation reduction – in other words, that the Phillips curve is convex. Prices and wages, according to this view, are downwardly rigid. As a result, decreases in aggregate demand translate more into falling output and employment than into lower inflation. Increases in aggregate demand, however, have just the opposite effect, raising inflation with relatively little gain for output.

The logic behind this belief is not terribly compelling. We often see falling nominal prices and nominal wages. And furthermore, in a world with positive inflation the issue is not whether there is downward price and wage rigidity but whether there is resistance to downward adjustments in the *rate of increase* of prices or wages. Casual observation provides very little reason to believe this is the case.

Other theories suggest the possibility that the Phillips curve might be concave. One intuition comes from strategic price setting in oligopolistic competition. Suppose two competitors, say Coke and Pepsi, both faced with kinked demand curves. If Pepsi raised its prices, Coke might stand pat in order to gain market share. But if Pepsi lowered its prices, Coke would have to match them in order to avoid losing market share. The consequence is that prices adjust downward together more easily than they adjust upward. This reverses the logic I just described: expansions in aggregate demand will go more into output than inflation, and vice versa for contractions.

I see no reason for an a priori belief in one shape of the Phillips curve over another when different theories are consistent with such different shapes. Instead, the question is empirical. Unfortunately, it is much easier to assess the sign or even the average magnitude of the relationships between variables than it is to assess the shape of the function relating them. One study conducted by the Council of Economic Advisers found that if you allow a kink in the Phillips curve, the data ‘chooses’ a concave shape.<sup>16</sup> When I went to the World Bank I thought it would be interesting to run the exact same regression for other countries. Amaz-

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interest rate, with the concomitant risk of recession. It is worth, in this view, undertaking the risks today of a small increase in interest rates to forestall this risk. Two further assumptions, however, are hidden in this analysis. First, that even high inflation cannot be wrung out slowly (a hypothesis which is not consistent with standard models), and second, that there are increasing costs associated with larger reductions in inflation, a hypothesis which I discuss at greater length below.

<sup>16</sup> Braun and Chen (1996).



ingly, in all but one country we found that the Phillips curve was statistically significantly concave.<sup>17</sup>

These statistical findings corroborate the experiences of case studies. Some of the most dramatic episodes of inflation reduction – most recently, the experiences of Brazil and Israel – show that very large reductions in inflation and inflationary expectations can be achieved at very low costs.

I would caution against drawing overly strong conclusions from the evidence I just discussed. The power of the tests I described is very uncertain. The premises that inflation is not costly or that inflation does not accelerate, for instance, are typically treated as null hypotheses. Failing to reject them may have as much to do with the difficulty of drawing sharp inferences from the data as it does with their substantive merits. And, the concavity result, like all nonlinear regressions, may be sensitive to the choice of functional form. The evidence does, however, decisively refute the extreme versions of all three premises. And in doing so, the arguments underlying the policies of aggressive, pre-emptive strikes against inflation, a stance that is the basis of the rhetoric if not the practice of so many central banks, are undermined. These policies are based on articles of faith, not on scientific evidence.

If monetary policy were conducted under perfect certainty both about the state of the economy and the consequences of policy, the three propositions I just discussed would not matter very much. But because monetary policy is a process of sequential decision-making under uncertainty, all of these questions are very relevant. Consider the problem facing US monetary authorities throughout the 1990s. There is uncertainty about the NAIRU. There is a chance that not engaging in a pre-emptive strike might lead to an unemployment rate below the NAIRU. But if it is true that keeping the unemployment rate below the NAIRU only raises inflation by a small amount, if the costs of this added inflation itself are negligible, and if this mistake is easy to correct by raising the unemployment rate slightly above the NAIRU, then this is a risk worth taking: the economy enjoys a lower unemployment rate and higher output, marginalized groups are brought into the labor force, and through the reverse hysteresis effect, the level of the NAIRU itself may be lowered. We should not follow a policy of pre-emptive strikes, but rather one of cautious expansionism.

#### 4 THE INDEPENDENCE OF THE CENTRAL BANK

So far, I have argued that monetary policy matters, and that it has improved the economy's economic performance, even though it is fallible. I have focused on the United States – showing that the theoretical framework that seems to underlie

17 The countries were chosen based on the availability of data and comprised Australia, the United States, Canada, France, Germany, Italy, Japan, Mexico, and Brazil. Only in Mexico did the Phillips curve appear to be convex.

its rhetoric is not based on empirical evidence, and that its understanding of economic events over the past decade has been, at crucial points, flawed, sometimes to the detriment of the economy. I could have provided similar stories for other central banks or other times. But why should that surprise us. As Shakespeare has said, 'To err is human.' Why should we expect anything less or more of central bankers than of other mortals.

Our economic institutions should be designed to cope with human fallibility.<sup>18</sup> The United States Constitution created a system of checks and balances, partly because the Founding Fathers were worried about the fallibility of any single individual, especially one who is in a position that wields enormous power.

There is an increasing tendency around the world to devolve responsibility for managing monetary policy on an independent central bank. In many, if not most, countries the deliberations of the central bank are secret, and many, if not most, decision-making power is highly concentrated in the Governor. I find this deeply troubling on several accounts.

The most fundamental is a matter of democratic philosophy. Monetary policy is a key determinant of the economy's macroeconomic performance. The elected government is inevitably held accountable for that performance, as I noted in my introduction; yet, especially as fiscal policy becomes constrained by budget stringency (and it will be even more constrained in Europe with the agreements underlying the monetary unification, and would have become more constrained in the United States had the balanced budget amendment passed), monetary policy is the main instrument for affecting macroeconomic performance. That this key determinant of what happens to society – this key collective action – should be so removed from control of the democratically elected officials should at least raise questions.

Moreover, transparency – openness – is now recognized as a central aspect of democratic processes. There cannot be effective democratic governance without information. Yet central banks continue to operate in secrecy.

The concentration of power in the hands of a single individual raises concerns about fallibility. To be sure, some central bankers may be prescient – though I can think of none today that fall within that category. Some may even have values that are broadly reflective of society as a whole. But the same might be said about dictatorships. A fundamental principle of democratic philosophy is that there should not be a concentration of power in the hands of any single individual; and this is also a fundamental implication of the fact of human fallibility.

The ostensible reason for delegating responsibility to a group of experts is that the decisions are viewed to involve largely technical matters in which politics should not intrude. But the decisions made by the central bank are not just technical decisions; they involve trade-offs, judgments about whether the risks of in-

18 This is a line of research which I pursued with Raaj Sah, focusing on the implications of human fallibility for centralization and decentralization. See Sah and Stiglitz (1986, 1988).

flation are worth the benefits of lower unemployment. These trade-offs involve values. I recall a recent meeting with a former central banker in which he expressed his view on the matter: He emphasized the asymmetries of the risk. If inflation increases, there are real costs that have to be borne; if unemployment increases, and it turns out that the economy is operating at an unemployment rate above the NAIRU, then the costs are minimal and the ‘mistake’ can be reversed. Given the evidence on the macroeconomic costs of inflation in the low-inflation environment of the United States, let me translate what he was saying: If inflation increases, real people – bond holders – are hurt, as nominal interest rates increase and prices of bonds fall; unemployment, on the other hand, mainly hurts workers, particularly marginalized workers, since these are the first to lose their jobs as unemployment increases.

Typically, those who make the decisions are not representative of society as a whole, and in some countries, they are chosen in ways which are hard to reconcile with democratic values.<sup>19</sup> In many countries, bankers are disproportionately represented; and even if they do not come from a banking background, they quickly get captured by the banking community in which they are immersed. Few countries ensure that workers and their interests are represented, even though the actions of the central bank have a vital impact on them.

To be sure, we want expertise in running the central bank, and it is natural that we turn to bankers for that expertise. This is the kind of conflict that arises in many aspects of economic regulation: Expertise is concentrated in those who are in the business, and plays an important role in the capture of the regulatory bodies by the industries that they are intended to regulate.<sup>20</sup> But at least in this particular case there are bodies of expertise outside the industry itself, most notably in academia (though this remark may seem self-serving). This is especially true for questions like monetary policy that do not rely on privileged information or detailed hands-on knowledge. Some countries, motivated by these concerns, have taken the bold step of forbidding bankers to serve on the governing board of the central bank. Expertise can be hired. In many other areas, we separate out expertise from governance.

Moreover, the separation between expertise and values is not as clear as it is sometimes depicted. For instance, I was repeatedly struck by how those who, on the basis of their values, worried more about inflation and less about unemployment, also more frequently saw inflation lurking around the corner. As I noted earlier, we shared data with the Fed. We even shared models. We had the same data describing what was happening to wages and prices. But we frequently made different inferences about what was *likely* to happen in the future. We all knew

19 For instance, in the United States, the open market committee includes presidents of the regional central banks. They are chosen by the boards of the central bank. No elected official – neither Congress nor the President – has a direct say in their appointment.

20 See Stigler (1971).

that we had at best a cloudy crystal ball – but policymakers have to do with what they have, and when we each looked into the clouds, we saw different things. But what was interesting was that the inflation hawks focused on the most pessimistic interpretations of the data; while the inflation doves focused on the most optimistic. As is turned out, in the last several years the latter were far closer to the truth than the former, but the point is not to crow about superior insight, but to remind ourselves both about human fallibility and the *bias* values imparts to what is ostensibly technical analysis.<sup>21</sup>

Value judgments often assert themselves even in what should be purely ‘positive’ discussions of the trade-off between inflation and unemployment. As I noted earlier, the Fed acted as if there was a high cost of inflation – when there was little evidence to support that belief in the low-inflation environment currently in the United States. While we explicitly recognized that there was considerable uncertainty surrounding the value of the NAIRU, I was always struck by how often at least their rhetoric, and sometimes their models, they suggested it was at the high end of that range. Again, while there was no evidence of a precipice, and there was evidence that the costs of reversing inflation were not high, their rhetoric suggested otherwise. While in commenting on fiscal policy, on the revision of the cost of living index used for social security or taxes, they were willing to provide high estimates of the likely bias in the cost of living index, I never once heard them note the implications for US macropolicy – that the current rate of inflation was not 2.2 percent, but closer to 0.7 percent (using the midpoint of the bias estimate the Chairman of the Fed has frequently mentioned in public) – hardly a threat to the stability of the economy.

The fact that monetary policy involves trade-offs, that values affect not only the choices one makes, but even one’s perceptions of magnitude of those trade-offs, has one clear implication in a democratic society. The way those decisions are made should be representative of the values of those that comprise society. At the very least, they should see as their objective the application of their expertise to reflect broader societal values. The central bank should not be seen as a mechanism for the imposition of the values of a subset of the population on the whole.

While values systematically skewed what was supposed to be expert judgment, there was scope for doing so because of the extraordinary difficulties encountered in the wise conduct of monetary policy. Because of the lack of up-to-date data, there is uncertainty about the state of the economy today, let alone about where the economy will be six months from now; and because of the lags in monetary policy – the fact that it takes six months or longer for the full effects of monetary policy to be felt – what one needs to know precisely is just that.

21 To a Bayesian, all of this makes perfect sense: We each formed our best estimate, based on our different loss functions. But Bayesian analysis reinforces the point made earlier about the inability to separate expertise from values.

The economy is always changing, and so historical data experiences may be of only limited relevance. Fortunately, financial crises like the meltdown of the savings and loan industry in the United States are relatively rare; the last banking crisis was more than a half century earlier. Not only had none of the members of the Board of Governors lived through that experience, but there had been so many changes in the economy in the intervening years that there were questions about its relevance. And economists are a contentious lot: even the experts cannot agree on the appropriate model of the economy, with fads and fashions changing with a frequency comparable to that of the business cycle. Just as monetarism, whose theoretical foundations had always been less than sound, became the flavor of the day, the constancy, and even predictability, of the velocity of money, the empirical regularity upon which it was based, disappeared. Worse still, the advice of two leading American schools of macroeconomics was hardly helpful to the conduct of monetary policy – real business cycle theory and the new classicals said that central banks should essentially just be shut down.

The Federal Reserve does seek advice from a wide set of sources; and even those from whom it does not seek advice offer up their opinions through a variety of media, from scholarly journals to the popular press. There was a group of economists who did recognize the special nature of the 1991 downturn, whose research had focused on the role of financial markets in economic fluctuations, a group with a long ancestry, going back at least to Fisher's theory of debt deflation.<sup>22</sup> This group saw a need for far stronger, and earlier, actions than those who continued to subscribe to other traditions. The theoretical foundations had just recently been bolstered by research on the economics of information, which had provided insights into the rationale and nature of the resulting capital market imperfections and their consequences for macroeconomic stability. The empirical foundations for their positions had been bolstered by evidence showing the role of credit and equity rationing in investment and consumption behavior. It was ironic that one of the leading contributors to the empirical literature actually served during this period as vice-chair of the Federal Reserve Board, though his voice was not reflected in the policies pursued.

Let me be clear: I think the Fed has done a good job managing monetary policy over the last decade – perhaps not as good as it could have done, and perhaps worse than it is often given credit for, but still a reasonably good job. In evaluating some of the exaggerated accounts which attempt to endow a single institution with omnipotence and omniscience, we should remember several qualifications I have discussed. Once account is taken of the increased ability of the economy to operate at lower levels of unemployment without igniting rising in-

22 In the Great Depression, falling prices combined with fixed interest payments reduced firms' net cash flows, eroding net worth, and decreasing their investment and further weakening the economy. As a result, these models are sometimes called debt-deflation models. Modern versions can be found in Greenwald and Stiglitz (1990, 1993).

flation, the 1990–1991 recession was not the shallow downturn that is often portrayed, but rather, the lost output was comparable to that of the average of the postwar recessions. Also, the strong recovery beginning in 1992 could have been said to have been in spite of the Fed, not because of the Fed. Furthermore, neither the Administration nor the Fed should be given much of the credit for the changing structure of the economy that allowed it to operate at such a low level of unemployment without a pickup of inflation. But these are minor qualifications and pale in comparison to the monetarist policies of the early 1980s which led to high real interest rates, contributing to the Latin American debt crisis, the lost decade of development, and the financial debacles that plagued economies throughout the globe. The cumulative loss of world output relative to its potential – and the cumulative human suffering – was enormous.

As I said earlier, human fallibility is a fact of life, and even the best designed institutions will make mistakes. The point of these remarks is not to say, ‘I told you so,’ or to engage in what Americans call Monday morning quarterbacking. The point is that all too often the governance structure of central banks makes these mistakes more likely, and more costly, than they need be. The most important function of the central bank is to make judgments about macroeconomic policy, questions which deserve a nation’s greatest talents; yet the Board typically does not have on its membership anyone who would rank in the top tier of macroeconomists. There is a vicious cycle: The concentration of power in one hand, in the chairman, makes appointments to the Fed less attractive to first-rate economists – those that have come, have come out of real devotion to public service – and the absence of first-rate economists provides the basis of enhanced concentration of power in the Chair. (To be fair, the current Chairman deserves high marks for his political skills in steering the Committee, some of whose members are quite hawkish, to policies which were as reasonable as they were.)

*The benefits of central bank independence*

Having said all of this, let me say there are good reasons for central bank independence. The conventional argument in favor of central bank independence is that independent central banks will not be tempted to try to enjoy the transitory benefits of lower unemployment at the expense of the permanent cost of higher inflation. There is the worry – and some evidence – that without an independent central bank, politicians may try to stimulate the economy before a recession, knowing that the price – higher inflation – will not be apparent until after the election.<sup>23</sup> Empirically, both the rate and the variance of inflation are lower in countries with independent central banks.<sup>24</sup>

23 See Nordhaus (1975) for one of the original political business cycle studies. Alesina and Rosenthal (1995) is a good recent treatment.

24 Alesina and Summers (1993).

To some degree, institutional changes may not be enough to buy low and stable inflation. Germany does not only have a highly independent central bank, but it also has a culture that is highly averse to inflation. This culture itself, and not the institutional arrangements, may in fact be sufficient to keep inflation down. The Indian Central Bank, for instance, has relatively little legal independence from the government but has consistently delivered low inflation in response to political pressure. In contrast, one transition economy has witnessed the spectacle of a highly independent central banker pushing inflation higher and higher while the government was, initially, unable to remove him.

Interestingly enough, however, the variance of output and employment is no lower in countries with independent central banks.<sup>25</sup> And, as we have seen, among countries with low or moderate rates of inflation, the level and rate of growth of productivity is no higher.

The degree of independence of the central bank also has important impacts on the relationship between key economic variables. An independent central bank, it is claimed, has more credibility; markets are convinced that it will be more committed to fighting inflation. According to new classical theories, this credibility should allow an independent central bank to deflate the economy relatively painlessly. Unfortunately, the evidence suggests just the opposite: economies with independent central banks have substantially higher sacrifice ratios than other countries, even after controlling for a variety of factors.<sup>26</sup> According to Laurence Ball's (1994) estimates of sacrifice ratios, Germany and the United States both need to sacrifice 2 or 3 percentage points of output for each percentage point reduction in inflation. In contrast, France and Japan both have sacrifice ratios on the order of 1 percent. One explanation is that the existence of a highly independent central bank changes the structure of the economy, including the degree of nominal rigidities, as participants come to have more confidence in the stability of prices. Monetary policy in Germany and the United States is more predictable than it is in France or Japan. Consequently, Germans and Americans are less prepared for the abrupt shift in policy that takes place during a disinflation. The higher sacrifice ratios have basically offset the advantages of lower variability in inflation, leading to little change in output variability.

Thus, the gains in economic performance in the dimensions where it really counts – the ability of the economy to live up to, and expand, its productive potential, is little affected by central bank independence. Indeed, the results that the variance of inflation has been reduced, but growth not enhanced, suggest that it is output variability, not price variability, which should be the focus of concern of macroeconomic policy.

25 Ibid.

26 Furman (1997).

*Implications for the design of central banks*

What implications do these results have for the design of central banks in a democratic society? How independent should they be? What should be their governance structure?

We need to put this question in context. In a democratic society, we often have a desire to depoliticize important decisions, especially in the sphere of economics, and to draw upon expertise. An alcoholic may recognize his weaknesses, and turn over the key to the liquor cabinet to a friend, a form of pre-commitment. So too, we often make collective choices to bind ourselves away from temptation. In the United States, we have created independent regulatory agencies for securities regulation (the Securities and Exchange Commission), for banking regulation (the Controller of the Currency), for energy regulation (the Federal Energy Regulatory Commission), and for telecommunications (the Federal Communications Commission).

This binding cannot, however, fully bind. One of the important, and inherent, limitations on the government's power is that, while it can use its power to enforce private contracts, it cannot enforce its own commitments. It can, however, raise the transactions costs to changes in policies. The PAYGO rules adopted in the 1990 Budget Enforcement Act, for instance, increase the cost of proposing a tax cut by requiring it to be offset by equal or greater spending cuts. Changing the rule itself only requires a majority vote, but there appears to be great political cost associated with changing these rules which reflect a collective commitment to sound budgetary policy; and the rule itself makes it more costly to propose deficit-increasing legislative changes.

No central bank is fully independent. The legislation governing the Fed can be changed or its governors dismissed (a process that itself is very difficult and costly). Although these actions are undertaken rarely if ever, the existence of the threat forces the Fed to anticipate and to some degree act according to the views of elected officials. The Chairman of the Fed must report to the Banking Committees in both the Senate and the House. At various times, the powerful chairmen of these committees have exercised important influence on the Fed. The Fed, as a creation of government, is a political institution. Its most successful governors have recognized this and struck a balance, anticipating the political response to their actions and, to some degree, accommodating it. Paul Volcker, then Chairman of the Fed, testified before a Congressional committee that 'the Congress created us and the Congress can uncreate us.'<sup>27</sup> Arthur Burns, who served as Chairman of the Fed somewhat earlier, is quoted as saying that the Fed was perpetually 'probing the limits of its freedom to undernourish...inflation.'<sup>28</sup>

The nature of this delicate balance is manifested in numerous examples. The Fed, whose revenues essentially derive from the zero interest rate it pays on re-

27 Quoted in Orszag (1991) p. 1, citing Greider (1987).

28 Quoted in Cukierman (1992), p. 162.



serves, does not depend on Congress for its annual appropriations. It remits to the government the excess of revenues over what it spends. This might appear to give the Fed enormous discretion, yet the Fed realizes that its expenditures are very much in the public eye – a dollar wasted is a dollar less for the public treasury – and its rules are close to those of a purely public agency. Moreover, the salaries of Fed governors are linked to those of cabinet officers, creating the anomaly where some staff are paid more than the governors themselves.

A more important example is the result I discussed earlier – the probability of a recession ending is increasing in the duration of the recession. Under standard assumptions about rational expectations and serially independent stochastic processes, recessions should not die of old age. As the recession goes on, the pressure on the Fed builds and their objective function changes to emphasize unemployment more and inflation less.

Power, however, works both ways. The Fed has an enormous influence over short-term economic activity, and the threat of its exercise can provide an extra incentive for politicians – especially the President – to implement policies that are favored by the Fed. To be sure, the Fed would not use this threat in an extortionist manner. But the Administration could come to believe, for instance, that deficit reduction or capital gains tax cuts would allow the economy to have lower interest rates.

I think the United States has probably struck a good balance in the institutional arrangements governing the Fed. We have got relatively predictable monetary policy, relatively low inflation, and in the recent expansion the Fed has been flexible enough to tolerate the unemployment rate falling below what others might have allowed. More broadly, the success of this balance is manifested in the two results I showed earlier: expansions do not die of old age but recessions do.

But while in practice we seem to have struck a balance regarding the appropriate degree of independence, there are other aspects of governance in which questions may be raised.

Is the concentration of power in the hands of one person compatible with democratic values? Are there compelling arguments for the secret manner in which it operates that offset the presumption in favor of openness and transparency in a democratic society? The Fed itself has moved towards more openness in recent years. Should it go further?

Public accountability is achieved in part not by having decisions made directly by publicly elected officials, but by having them made by those appointed by elected officials. But in the case of monetary policy, many of the decisionmakers are neither appointed nor even confirmed by elected officials. Is this consistent with democratic values? Is this degree of removal from public accountability necessary for achieving the degree of independence that would be warranted by improved economic performance?

Have we marshaled the quality of expertise that the country could, and should, obtain? Recall, the results given earlier on the efficacy of monetary policy only

say that there is no systematic component of fluctuations, for instance, no time dependence in economic downturns. It does not say that we have reduced the variability in output to as low a level as we might.

And most importantly, have we achieved the best balance between stabilization and fighting inflation? Again, our earlier results say nothing about where the balance was struck, which depends on the composition and beliefs of the Fed. Our earlier discussions suggest strongly that, as presently constituted, there are important voices not being heard – voices I dare say that may represent a majority of Americans. These voices ought to have some say on how the intertemporal trade-offs that are central to monetary policy should be made. These voices could be represented, without compromising on the independence of the monetary authority, and indeed, these voices could be represented at the same time that the quality of expertise in the conduct of monetary policy is improved.

There is an old saying that ‘if it’s not broken, don’t fix it.’ Many people believe that our monetary institutions, if not perfect, have been doing a remarkably good job. There is a collective amnesia at work. We forget the criticism our monetary institutions are repeatedly subjected to when the economy goes into a downturn, or when it does not live up to its potential over protracted periods of time. On the contrary, one might argue that the time to improve our institutions is when they are not in crisis, when we can engage in thoughtful deliberations about what kind of society we are striving to create.

But many other societies do not have the leisure of these thoughtful deliberations. As political and economic arrangements change, as monetary unions get formed and dissolved, as economic and political crises necessitate the design of new institutional arrangements, countries will have to face these questions head on. They will have to ask, how much and what form of independence should the central bank have? The answers will depend on the situation and history. Those who have had recent bouts with high inflation are likely to be enticed into having central banks with a greater degree of independence, structured in ways that signal a greater commitment to fight inflation. Those with a more favorable recent history will have harder choices to make. They should not be misled by any myths of magical improvements in economic performance that this latest nostrum of those looking for simple solutions to the complex economic problems have provided. They should be concerned with the role democratic values should play in the making of macroeconomic decisions, which are, after all, among the most important of the collective decisions made by any society.

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### *Summary*

#### CENTRAL BANKING IN A DEMOCRATIC SOCIETY

This Tinbergen lecture addresses two issues. The first concerns the principles of monetary policy in a low-inflation environment. The second, more fundamental, issue concerns the institutional arrangements by which monetary policy is set in a democratic society. Three conclusions are drawn: (1) Monetary policy matters. Despite some major mistakes, American postwar economic policy has led to far greater stability of the economy. (2) Strategies of opportunistic disinflation or pre-emptive strikes are based on hypotheses for which there is little empirical support. An alternative strategy, called cautious expansionism, would be preferable. (3) A central bank must be accountable and sensitive to democratic processes; there must be more democracy in the choice of decision makers and more representativeness in the governance structure.



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