



The Levy Economics Institute of Bard College

Public Policy Brief

No. 80, 2004

THE FED AND THE NEW MONETARY CONSENSUS

The Case for Rate Hikes, Part Two

L. RANDALL WRAY

Public Policy Brief

**THE FED AND THE NEW
MONETARY CONSENSUS**
The Case for Rate Hikes, Part Two

L. RANDALL WRAY

The Levy Economics Institute of Bard College, founded in 1986, is an autonomous research organization. It is nonpartisan, open to the examination of diverse points of view, and dedicated to public service.

The Institute is publishing this research with the conviction that it is a constructive and positive contribution to discussions and debates on relevant policy issues. Neither the Institute's Board of Governors nor its advisers necessarily endorse any proposal made by the authors.

The Institute believes in the potential for the study of economics to improve the human condition. Through scholarship and research it generates viable, effective public policy responses to important economic problems that profoundly affect the quality of life in the United States and abroad.

The present research agenda includes such issues as financial instability, poverty, employment, problems associated with the distribution of income and wealth, and international trade and competitiveness. In all its endeavors, the Institute places heavy emphasis on the values of personal freedom and justice.

Editor: Greg Hannsgen

Text Editor: Ellen Liebowitz

The Public Policy Brief Series is a publication of The Levy Economics Institute of Bard College, Blithewood, PO Box 5000, Annandale-on-Hudson, NY 12504-5000. For information about the Levy Institute and to order Public Policy Briefs, call 845-758-7700 or 202-887-8464 (in Washington, D.C.), e-mail info@levy.org, or visit the Levy Institute website at www.levy.org.

The Public Policy Brief Series is produced by the Bard Publications Office.

Copyright © 2004 by The Levy Economics Institute. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information-retrieval system, without permission in writing from the publisher.

ISSN 1063-5297

ISBN 1-931493-40-5

Contents

Preface	5
Dimitri B. Papadimitriou	
The Fed and the New Monetary Consensus	7
L. Randall Wray	
About the Author	29

Preface

In Public Policy Brief No. 79, L. Randall Wray wrote about the Federal Reserve's recent interest rate hikes that "the most charitable interpretation of the Fed's policy change is that it appears to be premature." Wray marshaled a convincing array of data on payrolls, employment-to-population ratios, and other labor market indicators to show "that the current recovery has not yet attained the degree of labor market tightness that was common in previous recoveries," and therefore that the threat of inflation was minimal. Hence, the Fed, in raising rates, was unnecessarily jeopardizing the economy's weak recovery.

In this new brief, we learn about the flaws in the Fed's thinking that have led to its frequent policy mistakes. Wray traces several strands of current central bank thinking back to their roots in the Fed's internal discussions in the mid-1990s. Transcripts of these discussions have recently been released, a development that has yielded some disturbing and telling insights about the way in which monetary policy is formed.

The situation of 1994 closely parallels that of current times. Unemployment was clearly above its lowest sustainable level, and inflation was low. Still, the Federal Open Market Committee (FOMC) and its chairman, Alan Greenspan, believed that interest rates had to be raised to keep prices in check. As it turned out, inflation stayed low, even as unemployment sank to levels previously believed to be inflationary. The Fed's interest rate hikes proved to be unnecessary at best and counterproductive at worst.

Not only is the current economic environment reminiscent of 1994, but so are contemporary justifications for recessionary policies. Wray lists six tenets of policy making common to both periods: *transparency*, *gradualism*, *activism*, *low inflation as the only official goal*, *surreptitious targeting of distributional variables*, and *the neutral rate as the policy instrument to achieve these goals*. The Fed would not be eager to espouse some of these

principles publicly, but they were all discussed in committee meetings, as the recently released transcripts make clear—and there is no reason to think the Fed has changed its philosophy.

Wray shows that this philosophy is convoluted. Fed officials claim that they are attempting to reach a neutral interest rate that neither provokes inflation nor causes recession. But they also say that they will not know the level of the neutral rate until they reach it. Little can be gained by pursuing such a chimerical goal. Moreover, even when the interest rate was far below its supposedly neutral level, the economy seemed to be free of inflation. Finally, the Fed seems to have painted itself into a corner by promising in advance a gradual series of interest rate increases. It is small wonder that the press finds the Fed's public statements to be somewhat confusing and cryptic.

The Fed transcripts shed light on the events of 1994 and those of the present day. I think that it is time for a new approach to monetary policy; this brief shows why.

As always, I welcome your comments.

Dimitri B. Papadimitriou, *President*

December 2004

The Fed and the New Monetary Consensus

Introduction

The Federal Reserve has embarked on a series of rate hikes designed to raise the federal funds rate (FFR) to what it terms “neutrality”—a hypothetical level that neither stimulates nor impedes growth. As I have argued previously (Wray 2004), the Fed believed that prior to its first rate hike in June, monetary policy was too accommodative, which threatened to set off a round of wage and price increases. While almost all data indicate that labor markets are still exceedingly “loose”—probably short some five million jobs—and that there is no real danger of inflation, we should not doubt that the Fed will continue to raise rates in its quest for the elusive “neutral rate.”

This brief is an extension of Levy Institute Public Policy Brief No. 79 (Wray 2004), which argued that the rate hikes that began in June are premature. Here, we examine the thinking that currently guides monetary policy making in the United States. While the brief will not explicitly examine policy in other nations, it will be fairly obvious that other central bankers seem to be following similar guidelines. Indeed, it has become common to refer to a “new monetary consensus,” supposedly agreed upon by “movers and shakers” in the policy arena. There is a fairly large body of literature on the theoretical justifications for this consensus. However, I intend to focus on the Fed’s actual policy making, which can be thought of as the practical application of prevailing wisdom, as revealed through its public pronouncements, minutes of recent meetings, and transcripts of secret discussions at Federal Open Market Committee (FOMC) meetings. Such transcripts are available only from meetings that occurred at least five years ago, as the Fed maintains a lag on its releases. However, this brief will argue that transcripts from the 1993–94 period shed light on current policy making, because the Fed’s actions and public statements in that period look eerily similar to those of today.

Further, the U.S. economy in 1993–94 bore a striking resemblance to that of 2003–04—an emerging “jobless recovery” from a Bush (senior then, junior now) recession. Fearing future inflation, the Fed quickly began raising rates in February 1994, even though the economic data did not indicate much inflationary pressure. Similarly, the Fed raised rates in June 2004 with little evidence of incipient inflation. Thus, in both cases it could be argued that the Fed acted prematurely—a case already made in Wray (2004) for the recent hikes, and in Papadimitriou and Wray (1994) for the earlier rate hikes. Here, I will compare the secret discussions surrounding the 1994 rate hikes with the public proclamations in 2004 to identify the Fed’s justifications for tightening policy at the first sign of recovery. I will argue that the 1994 policy change marked a nascent approach to policy formation that came to full fruition in 2004. Only time will tell whether economic performance will recover in coming months, as it eventually did from the policy mistakes of 1994.

A Practical Application of the New Monetary Consensus?

This brief will argue that the Fed’s policy can be viewed as a practical application of the new monetary consensus. In the hands of the Fed, policy formation is based on six key principles:

1. *Transparency*
2. *Gradualism*
3. *Activism*
4. *Low inflation as the only official goal*
5. *Surreptitious targeting of distributional variables*
6. *Neutral rate as the policy instrument to achieve these goals*

Surprisingly, all of these principles can be found in an embryonic form in the Fed’s secret discussions surrounding the 1994 rate hikes.

In 1994, the Fed experimented with greater openness by clearly signaling its intention to raise rates. Over the subsequent decade, the Fed continued to increase *transparency*, both by telegraphing its planned moves well in advance of policy changes and by explicitly announcing interest rate targets. In 1994, it implemented its tightening through a series of very small rate hikes. This new approach, which came to be known as *gradualism*, was most clearly articulated by Governor Ben S. Bernanke last May. Gradualism

usually takes the form of very small adjustments of interest rates (usually 25 to 50 basis points, or hundredths of a percentage point) spread out over periods as long as two or even three years. Ironically, the combination of openness and gradualism can force the central bank to make policy moves at the wrong time in order to fulfill market expectations that it has created—a problem that the Fed seemed to anticipate back in 1994.

These developments have evolved against the backdrop of a long-term trend toward increased monetary policy *activism*, which contrasts markedly with Milton Friedman’s famous call for rules rather than discretion. Indeed, as I’ll show, the Fed believes that a hyperactive policy increases credibility and that policy ought to be changed before any need for change becomes apparent. The policy indicator used by the Fed, both in 1994 and now, is something called a *neutral rate*, which varies across countries and through time. Combined with gradualism and activism, this means the central bank must begin moving the FFR toward the neutral rate many quarters before it desires to achieve “neutrality,” since only small rate adjustments will normally be used. However, the neutral rate cannot be recognized until it is achieved, so it cannot be announced in advance—a paradox that is somewhat in conflict with the Fed’s adoption of increased transparency. Further, because the neutral rate is uncertain, the Fed must actively but blindly adjust the FFR, hoping to hit its unseen target. But, as Friedman long ago warned, an activist policy is just as likely to destabilize the economy as to stabilize it. Matters are made even worse when policy making is guided by invisible and shifting neutral rates and fickle market expectations about policy that are largely fueled by the Fed’s own public musings.

In recent years, it has become virtually a universal given that central banks ought to pursue only one goal—*low inflation*. This brief challenges the Fed’s frequent claim that its only concern is inflation. Actually, the Fed also targets asset prices and income shares, and it shows a strong bias against labor and wage-led inflation, even as it tacitly accepts profits-driven inflation. Both the Fed’s secret discussions and its actions demonstrate that it is not above the fray, making policy decisions without picking winners and losers. The truth is the Fed knows its policies have distributional effects; indeed, its policies operate largely through distributional impacts—and it considers these in its policy deliberations.

Groping for Targets: Real and Neutral Rates

A previous brief (Wray 2004) examined the current case for rate hikes. It showed that the only plausible justification for the recent monetary tightening was that an FFR of 1 percent was widely viewed as an accommodative stance, accepted as a temporary target appropriate to a depressed economic environment. Inside and outside the Fed, a rate hike was long viewed as inevitable. As soon as the patient recovered sufficiently to bear it, the FOMC would begin the bleeding thought to be necessary to fight inflationary fever. In their public pronouncements, Fed officials have claimed that the FFR is still far below the neutral rate that will mark the stopping point of their tightening campaign, so there is little doubt that the FOMC will continue to raise rates over the coming months and even years. Where did this notion of a neutral rate originate?

Friedman's famous call for monetary growth rate rules appeared to provide an easy guide for policy making: keep money growth at some low constant rate. In the late 1970s and early 1980s, several countries, most notably the United States and the United Kingdom, experimented with such rules, implementing what was called "practical monetarism." The goal was to bring inflation down painlessly, that is, without causing lower growth and higher unemployment. In actuality, economic growth collapsed, unemployment skyrocketed, and interest rates reached record levels even as inflation and money growth rose. In the aftermath of that experiment, most economists eventually concluded that (perhaps for unknown reasons) money growth was not closely linked to inflation and that the central bank could not hit money targets. (See Papadimitriou and Wray 1994 for an examination of the experiment.) The Fed ultimately abandoned any attempt to hit—or even to announce—reserve or money targets, thus initiating a search for an alternative target. For a time the Fed toyed with a variety of indicators and targets for monetary policy formation, including price indices, "P-star," surveys of expected inflation, gold prices, and Taylor rules. In July 1993, Chairman Alan Greenspan announced a new monetary policy target, the equilibrium "real" interest rate, a rate that he claimed "would keep the economy at its production potential over time" (Papadimitriou and Wray 1994, p. 21).

As the real rate is calculated by subtracting expected inflation from the nominal interest rate, it is not directly observable but instead must be

approximated by hunches or surveys of expected inflation, or by extrapolating current inflation data into the future as a proxy for expectations. Greenspan admitted in 1993 that the equilibrium real rate cannot be estimated “with a great deal of confidence,” but he claimed that estimates can be accurate enough for monetary policy (Papadimitriou and Wray 1994, p. 21). In his view, the real rate would forecast economic performance, with a low real rate predicting imminent growth; thus, the real rate would provide an early warning signal of incipient inflation. The chairman’s announcement was met with surprise, and economists from a broad cross section of theoretical approaches rejected the policy as unworkable. Wray and Papadimitriou (1994) showed that if the Fed had used such a policy in the past, it would have implemented the wrong policy over half the time, because the real rate did not correctly predict subsequent economic performance. In the face of such opposition, the Fed quickly abandoned the real rate target and has not said much about it since. As we’ll see, however, the Fed’s newest neutral rate target bears a familial resemblance to the old real rate.

By the mid-1990s, various Fed officials agreed with Governor Lawrence Lindsey when he said, “We look at a whole raft of variables—we ignore nothing and we focus on nothing,” or with Governor John LaWare, who said simply, “I get a feel for what I think is going on” (Papadimitriou and Wray 1994, p. 49). President Jerry Jordan mused that the Fed couldn’t even know with certainty what its policy stance was: “In a world where we do not have monetary aggregates to guide us as to the thrust of monetary policy actions, we are kind of groping around just trying to characterize where the stance is” (FOMC 1994, March 22, p. 52). The general tone of policy formation was likened to reading tea leaves, or as Keith Bradsher aptly characterized it in the *New York Times*, “policy formation has become more intuitive” (Papadimitriou and Wray 1994, p. 49).

As it happened, this kind of intuitive policy making seemed to serve the Fed well over the next decade. Inside-the-beltway accolades reached a crescendo with Bob Woodward’s *Maestro: Greenspan’s Fed and the American Boom* (2000). Led by the chairman’s “intuition,” the Fed accommodated the Clinton expansion, approving of rapid jobs growth and falling unemployment rates on the conviction that productivity growth would hold wage-push inflation at bay. It only began to tighten in 1999, raising its target in a half dozen steps, then quickly reversing course in

January 2001, when the economy sank into recession. Few commentators have questioned the wisdom of the Fed's tightening in the face of the tremendous headwinds created by Clinton's budget surpluses, but all have heaped praise on the subsequent rate reductions. The Fed then maintained low rates until this past June.

Since the latest rate hike, the Fed has been trumpeting the neutral rate as an indicator for policy formation. When questioned about the neutral rate, Chairman Greenspan responded: "You can tell whether you're below or above, but until you're there, you're not quite sure you are there. And we know at this stage, at one and a quarter percent federal funds rate, that we are below neutral. When we arrive at neutral, we will know it" (Andrews 2004). Federal Reserve Bank of Kansas City President Thomas Hoenig echoed the chairman, arguing "We are still a long way from a neutral rate as we proceed through the course of the rest of this year," leaving little doubt that additional rate hikes are forthcoming (Crosson 2004). While economists outside the Fed are willing to put a number on the neutral rate—rates of 3.5 to 5.0 have been quoted in the press (Andrews 2004; Crosson 2004)—the Fed prefers to remain circumspect, just as it did with its ill-fated real rate target, simply defining it as the interest rate that neither provokes inflation nor slows down the economy (Andrews 2004).

Indeed, the notion of a neutral rate is not new, as the Fed also mentioned a neutral rate in discussions surrounding its tightening of 1994. (For a critique, see James K. Galbraith 1994.) In truth, the neutral rate concept is a variation on the old real rate notion. The real rate is associated with the view that there is some unique "natural" interest rate consistent with economic growth at the "natural" full-employment rate, which can be associated with the Nonaccelerating-Inflation Rate of Unemployment (NAIRU). While internal discussions at the Fed sometimes distinguish between real (inflation-adjusted) and nominal interest rates, the term "neutral rate" can be used in either sense. It is the FFR that is supposed to be consistent with NAIRU, whether the FFR is stated in nominal or inflation-adjusted terms. When Greenspan first proposed the real rate target, he wanted to use the existing real rate (admittedly, something that could only be estimated to an approximation) as a signal of future inflation; the Fed would then adjust policy to try to get the real rate to a noninflationary neutral level. Now the Fed supposes there is some neutral interest rate and

proposes to gradually move the FFR to the targeted neutral rate. The difference may appear to be nothing but a technicality, but the old real rate target really involved adjusting both the FFR and the market's expectations of inflation in order to move the real rate (the nominal FFR less expected inflation) toward the purported neutral real rate. By contrast, the "new" neutral rate could be identified as a nominal FFR of, say, 4 percent, which the Fed can hit with perfect accuracy. Thus, while there may be uncertainty regarding the value of the neutral rate, it can be hit with certainty once identified. The old real rate target could not be hit with accuracy because it depended on uncontrollable expectations of inflation. Hence, the neutral rate target appears to rest on firmer foundations than the old, abandoned real rate target.

However, in practice, a neutral rate cannot be temporally or spatially fixed—and that means it cannot be identified. Japan has maintained zero overnight rates for much of the past decade, without managing to generate even a hint of inflation, and only recently has it begun to recover. This means that Japan's neutral rate must have been below zero, a rate that cannot be hit by policymakers. For four years the United States held the FFR at 1 percent, without sustaining robust growth or setting off significant inflation. Indeed, economic growth began to falter before the recent rate hike, and any price blips have been dismissed by the Fed as temporary and due to factors unrelated to U.S. growth; hence, neutrality must have been below 1 percent for most of the previous four years. Leaving aside quibbles over the current state of the economy, the question is whether the notion of a neutral rate provides a firm basis for policy formation. If the neutral rate is unknown and if it varies through time and across nations, presumably with the state of the economy, it cannot provide useful guidance. Rather, the Fed must focus on current and projected economic growth and inflation data. When growth and inflation reach the range desired by the Fed, then the Fed can stop adjusting the FFR. In other words, the notion of a neutral rate does not provide any additional useful guidance.

The Fed and conventional wisdom alike view a 1 percent FFR target as necessarily "accommodative," and rate hikes, therefore, as "inevitable," without any clear explanation as to why an undoubtedly "low" rate is an "accommodative" rate. An accommodative rate ought to be one that stimulates robust spending, as the Fed "accommodates" an expansion. But the United

States has not yet begun a robust recovery. When compared with other recent recoveries, it would appear that we have several years to go before a policy shift would be deemed appropriate. There has been no wage-push cost spiral, and other than some limited “shocks,” price inflation—by the Fed’s own admission—is not poised to get out of hand (Wray 2004). By the same token, given the huge increase in the debt load carried by the private sector, maintenance of low interest rates would seem to be prudent in the face of a weak, nearly jobless recovery. The downside risks to raising debt service ratios at this point in the recovery could easily outweigh the benefits of enhancing the credibility of the Fed’s inflation-fighting machismo.

Thus, it appears the Fed raised rates in the presence of evidence contrary to its belief that the FFR was overly accommodative. The Fed offers as justification an unknown neutral rate that is supposedly above the FFR, along with the promise that once the FFR gets to the neutral rate, the Fed will be able to recognize this achievement. Can policy making become more convoluted than that?

The Deliberations of 1994: A Trial Run with the New Monetary Consensus

A detailed examination of the deliberations of 1994 demonstrates that all of the key ingredients of what this brief has called the practical application of the new monetary consensus were already present in embryonic form: transparency, gradualism, activism, neutral rates, and low inflation as the official goal, although there was considerable concern with asset prices and distributional variables. We will explore the first four components in this section, and look at the final two components in a later section.

A. Representative González Applies Pressure, Forcing the Fed to Increase Transparency

To put matters in context, it is useful to remember that FOMC deliberations before 1994 were highly secretive and that rate hikes were disguised in coded releases as decisions to “increase slightly the degree of pressure on reserve positions.” It was left to markets to figure out what FFR target the FOMC had in mind. Further, by the end of 1993, the Fed’s relations with Congress were rather strained for two reasons. First, there was fear that Fed officials

were leaking decisions to market favorites, perhaps through government officials outside the Fed. Second, some in Congress worried that the Fed had a bias against employment and growth. Critics of the Fed, led by Representative Henry González, chairman of the House Banking Committee, called for greater transparency (FOMC 1993, conference call of October 5).

This conflict came to a head when Chairman Greenspan apparently made less than forthright statements about the existence of detailed transcripts of FOMC meetings, initially implying that no records were kept. As it happened, written records of all FOMC deliberations since 1976 did exist, and pressure was applied on the FOMC for their release. The Fed debated the political and economic consequences of greater transparency, and eventually agreed to release transcripts and other materials associated with FOMC meetings. The material is now available on the Fed's website with a five-year lag. (See FOMC 1993, 1994, specifically the period from October 1993 to May 1994, for discussions surrounding the wisdom of operating with greater openness—and for fascinating internal discussions about how to deal with González and Congress.) Now, of course, the Fed not only warns that rates “must rise at some point” long in advance of its decisions to reverse policy, but it also announces precisely what its target FFR is. Hence, *transparency* has increased greatly over the past decade. Still, because of the five-year lag on releasing transcripts, we cannot know exactly what deliberations led to the most recent rate hikes. Thus, we cannot know for sure that history is repeating itself, but it certainly does rhyme, as a comparison of the transcripts of 1994 with the Fed's public statements in 2004 shows.

B. The Decision to Raise Rates

When the FOMC met in early February 1994, committee member Thomas Melzer expressed concern that “the stance of monetary policy has been very expansionary for about the last three years” (FOMC 1994, p. 26). During that period, policymakers had held rates relatively low; since October 1992, the FFR had hovered around 3 percent, and there had not been a rate hike in five years. Several of the governors mentioned strong growth, tight labor markets, accelerating growth of consumer debt, “a rather euphoric stock market,” unemployment rates reaching their NAIRU estimates, and a disappearing gap between actual and potential GDP as justification for the belief that inflation was likely to pick up.

Still, many FOMC members mentioned mitigating factors. The most recent data available to them showed some slowing of growth and of inflation. According to data provided by FOMC staff for that meeting, GDP had grown at 3.9 percent in 1992, but at only 2.8 percent in 1993; Consumer Price Index (CPI) inflation had declined from 3.1 percent in 1992 to 2.7 percent in 1993. Further, the unemployment rate stood at 6.5 percent in 1993—at the high end of most estimates of the NAIRU. A survey of FOMC members taken for the meeting put their 1994 projections for real GDP growth in the range of 2.75 to 3.5, for the CPI at 2.5 to 3.0, and for the unemployment rate at 6.5 to 6.75, with little change in any of these variables for 1995. In other words, the FOMC was not projecting significantly tighter labor markets or higher inflation in spite of its obvious belief that the time had come for rate hikes (FOMC 1994, Material for Staff Presentation to the Federal Open Market Committee, Feb. 3).

At the FOMC's previous meeting in December, Secretary and Economist Donald Kohn (later elevated to Fed governor) had argued that "at some point in the current expansion the federal funds rate would have to be raised to contain inflation," and that "tightening would need to begin before there were clear signs in broad-based indexes that the trend of inflation has changed." He warned that if "a stronger growth path" took hold, "a tightening fairly soon would seem to be called for" (FOMC 1993, "Policy Options," Appendix to Transcripts, Dec. 21). While several other FOMC members also cited "stronger growth" as a justification for rate hikes, Governor Jordan objected, saying that the Fed should not be seen as opposing economic growth. "It puts us into a way of being perceived, and maybe we perceive ourselves, that says if we're anti-inflation, we're anti-growth . . . I would suggest being careful about saying that we want to maintain a degree of unemployment or idle capacity or subpotential growth" (FOMC 1993, Dec. 21, p. 33). At the February 3–4 meeting, Jordan expressed hope that if the FOMC decided to raise rates, the "rationale for it as a growth-sustaining move" would be made clear, "not an anti-growth move but one that is designed to enhance the longevity of this expansion." Indeed, a good deal of that February meeting was devoted to the public relations spin that should be put on the decision to raise rates. While FOMC staff and several governors mentioned that a case could be made to hold off on rate increases, they all seemed to believe that the time

had come. The only significant questions were how many basis points the target would be increased, and exactly how the policy change would be announced.

C. Greenspan Pushes for Consensus

At the February meeting, Chairman Greenspan worried about maintaining “flexibility,” fearing that by making its intentions to raise rates clear, the Fed would set a precedent. However, because this would be the first rate change in a long time, he warned, “we are going to have to make our action very visible” with “no ambiguity about our move.” Breaking with tradition, he didn’t want to leave it up to markets to guess the Fed’s intended target. He went on, “I would very much like to have the permission of the Committee to announce that we’re doing it and to state that the announcement is an extraordinary event” (FOMC 1994, Feb. 3–4, p. 29). Further, he insisted that the vote to raise rates would have to be unanimous. “I also would be concerned if this Committee were not in concert because at this stage we as a Committee are going to have to do things which the rest of the world is not going to like. We have to do them because that’s our job” (p. 55). While some members wanted a 50-basis-point hike, Greenspan argued for a 25-basis-point increase, on the justification that financial markets could not bear a larger increase (more below). Finally, he pleaded, “I rarely ask this, as you know. This is one of the times when we really are together and I’d hate to have our vote somehow imply something other than the agreement for a tightening move that in fact exists in this Committee.” When the FOMC unanimously voted for a 25-basis-point hike, he gushed, “I thank you for that. I think it’s the right move. I think in retrospect when we’re looking back at what we’re doing over the next year we’ll find that it was the right decision” (p. 58).

D. An Active Fed Is a Credible Fed!

The question remains: Why was it so critical to take action in early February 1994? We now know, of course, that a robust expansion really would not get under way for another two years, and that growth continued for another six years after 1994 with no pickup of inflation and with unemployment rates eventually dropping far below conventional NAIRU estimates. Indeed, at a May 1994 meeting following several rate hikes,

Governor Jordan argued that “where we are is not that we are entering the fourth year of the expansion, but rather that we are someplace in the first year of a classic expansion” (FOMC 1994, May 17, p. 23)—a view that, in retrospect, seems quite correct!

Why, then, did the FOMC begin to raise rates in February, and continue to raise them over the next year by a total of 300 basis points—at the very beginning of expansion? The answer was articulated by a number of FOMC participants: to enhance the Fed’s credibility as an inflation fighter. As Governor J. Alfred Broaddus said, “I really think the System’s anti-inflationary stance has done a great deal to increase our credibility in recent years” (FOMC 1994, Feb. 3–4, p. 23). Added Vice Chairman William J. McDonough, “A 25 basis point move . . . would send the right signal in the sense that the Federal Reserve, the central bank, is being watchful, as it should be. And we would be moving earlier in the economic cycle than the Fed has done historically and, therefore, we are doing our job even better than in the past” (p. 46). And Governor Robert Forrester said, “I think we will gain credibility by moving now even though there might be some marginal risk that we might have to reverse course” (p. 49). In other words, the earlier the Fed moves to “preempt” inflation, the greater its inflation-fighting credibility! An *active* Fed is a credible Fed, and the sooner it acts, the better.

E. Gradualism and the Neutral Rate

After the February rate increase, financial markets stumbled—as Chairman Greenspan had feared. At the March 22, 1994 meeting, the FOMC discussed these developments, with many arguing that while there was no evidence of rising inflation, short-term interest rates were still overly accommodative and well below a “neutral” rate. Governor Jordan admitted that “I don’t know where neutral is” but “I feel very strongly that we are nowhere near a neutral stance and that we ought to be aggressive in moving toward it” (FOMC 1994, March 22, p. 52). Chairman Greenspan noted that the committee had held “expectations that we would prick the bubble in the equity markets” with the February hike, and while he favored getting “policy to neutrality as fast as we can,” he didn’t believe “the financial system can take a very large increase without a break in its tensile strength—which we strained significantly the last time but did not break”

(p. 43). Hence, he favored a gradual series of small rate hikes to get the FFR to the 4 to 4.5 percent range. If the market came to expect 25-basis-point hikes at each subsequent FOMC meeting until “neutrality” was achieved, this would “break the bubble” in equity markets while still “restoring confidence in the System” (p. 44). We see the justification for *gradualism* in the fear that the impact of large rate hikes on financial markets would be too big. A gradual movement toward neutrality would avoid unnecessary impacts, especially on financial markets, even as expectations of continued small hikes would “prick” bubbles and allow for soft landings.

Lessons from the 1994 Experiment

The FOMC transcripts offer valuable insights into the discussions that surrounded the Fed’s decision to raise interest rates sharply in the early years of the Clinton expansion. While we will not know for five years (when current transcripts are released), it is likely that similar deliberations are taking place today, as the Fed embarks on a new series of rate hikes. Once the 1994 round of rate hikes was complete, the Fed held rates constant for a very long time (until the beginning of the last recession). During the Clinton boom, growth rates as well as unemployment rates reached levels that the Fed had considered unsustainable during those 1993–94 deliberations. We now know that Chairman Greenspan gradually developed the view that better economic performance with low inflation was possible in the 1990s because of favorable productivity growth. (The transcripts make clear that even as early as February and March of 1994, he wondered whether higher productivity growth might be changing the relationship between economic growth and inflation.) Still, in February 1994 and again in June 2004, Greenspan and the rest of the Fed moved to raise rates in the earliest stage of recovery.

The other interesting thing about these transcripts is the labored deliberations about increasing the transparency of Fed actions. Committee members felt pressure from Congress and elsewhere to better communicate their actions. They also came to believe that greater transparency would reduce uncertainty in markets and might actually make it easier to achieve desired policy objectives. This belief led to the current practice of clearly announcing rate targets. It also evolved into the practice of

telegraphing policy changes long before they occur—apparently to prepare financial markets and avoid crashes like the stock market decline of 1987 and the bond market collapse of 1994. However, it is notable that neither the “irrational exuberance” of the post-1996 stock market bubble nor its 2000 crash appear to have been moderated by increased Fed transparency. The Fed’s attempt to “prick the bubble” in 1994 caused only a temporary setback for the euphoria that would develop over the next six years (and Greenspan’s belief that equities markets had already experienced euphoria by 1993 casts some doubt on his ability to read financial markets). Hence, the assumption that a long series of small and expected rate increases would prick financial bubbles appears to be incorrect—as does Greenspan’s later ill-fated attempt to scare markets with talk of “irrational exuberance.”

Finally, the Fed appears to be aware that its adoption of transparency and gradualism means that it surrenders a degree of discretion to market expectations. Policymakers must continually take the pulse of the market to ensure that these expectations are not disappointed. As the minutes of the June 30, 2004 meeting make clear, the FOMC’s recent decision to reverse policy was based in large measure on the market’s expectation that rates would be raised. The minutes suggest that the May decision to leave rates unchanged was “fully anticipated” by markets, but that after May, markets expected a rate hike—an expectation the Fed felt compelled to oblige. In his September 8, 2004 testimony before the House Committee on the Budget, Greenspan admitted that “inflation and inflation expectations have eased in recent months” as the economy “hit a soft patch” and “employment gains moderated notably.” Still, the chairman and the Fed raised rates a third time on September 21 (and a fourth time on November 10), ostensibly to keep pace with the expectations of rate hikes generated by the FOMC through its public pronouncements about the “inevitability” of rate hikes. Like a cat chasing its tail, the Fed will perversely continue to follow expectations upward, pushing rates to the 4 to 4.5 percent range the market has come to expect as “inevitable” based on public statements by Fed officials.

The Fed's Secrets?

This brings us to another important lesson that can be learned from the 1994 transcripts. The Fed would like to be perceived as “above the fray,” making policy decisions free from political influence in a dispassionate quest to wring inflation from the economy. To that end, the Fed would like to stay out of debates about employment, income distribution, and more specifically, differential impacts of rate changes on different groups. Chairman Greenspan and other Fed officials have argued that it is nearly impossible to determine whether a housing market bubble currently exists, and are therefore loathe to be seen as attempting to burst real estate markets through rate hikes (Bloomberg News 2004). Further, while the chairman famously mused about the “irrational exuberance” of equity prices during the New Economy boom, he later denied that the Fed targets asset prices.

However, we know from the transcripts that the Fed was, indeed, consciously trying to “prick” what it perceived to be an equity price bubble in 1994. Further, it is clear from the transcripts that a primary reason for choosing the path of “gradualism” back in 1994 was an attempt to engineer a “soft landing” for financial markets. Some FOMC members were convinced that the “real” part of the economy could handle a much quicker pace of rate hikes, but the chairman convinced them that a long series of small steps would be needed to avoid a financial market crash. His case was strengthened when the first 25-basis-point rate increase had a larger than desired impact on financial markets.

Further, Governor Lindsey presented detailed data at the February 1994 meeting demonstrating that there had been “a big change in the functional distribution of income away from wages” (FOMC 1994, p. 21). He estimated that most interest income receipts went to groups that were unlikely to borrow (the rich and the nonpoor elderly), while most borrowers had to rely on income from work. From this, he surmised that measured debt burdens were misleadingly low because the “middle-class, middle-aged people who are borrowing are really getting their income squeezed.” He concluded that unless employment and wages picked up, “the capacity of households to take on ever more debt is going to have to stop at some point, and perhaps sooner than we think” (p. 22). The transcripts make clear that the other FOMC members were impressed with the thoroughness of Lindsey’s analysis. Of course, increasing interest rates

would tend to boost interest income for those with financial wealth and little debt, while at the same time raising debt burdens and reducing the after-interest income of “middle-class, middle-aged” people. Lindsey and others recognized that just as rate hikes differentially affect real versus financial markets, they also differentially affect incomes. Still, the FOMC unanimously voted to raise rates, in spite of the recognition that this would “squeeze” debtors. If anything, the squeeze today is worse, as we have had a decade-long run-up of private sector indebtedness. In public pronouncements, Greenspan has recognized this, but argued that debtors can probably handle the rising burden.

Moreover, the Fed recognizes that price increases to date have far outstripped labor compensation increases, a fact reflected in record profits accruing to owners. In 1983, proprietor income as a percent of personal income was 4 percent; it rose to 8.6 percent in 2000 and to 9.3 percent in 2003. Corporate profits were 8.6 percent of national income in 1983, rose to 9.3 percent in 2000, and continued to rise to 11.5 percent in 2003. Capital’s share is considerably higher than it was in the aftermath of the Reagan recession, and it has also attained levels higher than at the peak of the Clinton expansion. By contrast, wages as a share of personal income fell from 57 percent in 1983 to 55 percent in 2003. Indeed, while unit labor costs (the wages paid to workers to produce one unit of output) actually fell between 2000 and 2003 (from 0.672 to 0.670 per unit of real gross value added), after-tax profits rose significantly (from 0.058 to 0.070, including inventory valuation and capital consumption adjustments; BEA 2004). In other words, any inflation recorded today represents “profits inflation,” or windfall gains to owners who have taken advantage of either rising labor productivity or supply bottlenecks, a point emphasized by Greenspan when he said that all inflation between the first quarter of 2003 and the first quarter of 2004 “can be attributed to a rise in profit margins rather than rising cost pressures” (Greenspan 2004).

Despite its commitment to price stability, the Fed patiently accepted this profits-led inflation for a variety of reasons. One of the most important facts recognized by the Fed was business slack. Chairman Greenspan noted that “caution among business executives” was finally being eroded by high profitability, and speculated that allowing windfall gains might eventually convince firms “that they have no choice but to increase their

workforces” (Greenspan 2004). Further, Greenspan was confident that the extraordinary profits would be temporary: “If history is any guide, competitive pressures, at some point, will shift in favor of real hourly compensation at the expense of corporate profits.” Still, even if real compensation to workers began to rise, profits might move in the opposite direction, holding prices down. Hence, the Fed has argued that inflation will remain low even if wages rise, but it has nonetheless raised rates in anticipation of the inflation that will “inevitably” arise if wage growth outstrips productivity and competitively induced reductions of profit margins.

Some commentators have noticed that while the Fed appears willing to accept profit-led inflation, it remains averse to wage-led inflation. It is probable that the Fed believes that profit-led inflation is self-limiting (windfall profits lead to increased production, which relieves pressures on prices), but that wage-led inflation can be self-reinforcing if a wage-price spiral is created. The Fed’s belief ought to be modified in the context of today’s open economy because it is no longer clear that domestic wages can rise in the presence of low-wage, offshore competition. With unionization rates falling, and at the current rate of job creation, it seems unlikely that labor costs will exert pressure on prices any time soon. It must be remembered that in the last half of the 1990s, relatively robust growth (and job creation consistently above two million per year) occurred without significant price pressure. Further, there is quite a contrast between the Fed’s willingness to accept profit-led inflation in order to bring forth entrepreneurial initiative and its lack of tolerance for rising wages to reward worker initiative. And while higher profits will bring forth more capital, the Fed discounts the ability of higher wages to bring workers into labor markets. It is hard to avoid the conclusion that the Fed is biased against labor.

The Fed cannot help but notice that interest rate changes do have distributional impacts—a fact driven home by Governor Lindsey’s calculations. Rate changes, and anticipations of rate changes, have large and potentially disruptive impacts on financial markets. As we’ve seen, part of the justification for gradualism and telegraphic statements of intentions is the necessity to “prepare” financial markets. In addition, rate hikes mostly work on the “real economy” through different interest rate sensitivities (“elasticities”) and spending propensities (proportions of extra income spent). There is little evidence that business investment is highly interest

sensitive, as rate changes are easily swamped by other effects, such as profitability considerations (Fazzari et al. 1988; Chirinko et al. 1999; Hannsgen forthcoming). In the consumer sector, households are net interest recipients. Therefore, if all households spent equal shares of their income, permanent rate hikes could stimulate consumption spending by raising net interest receipts. This stimulative, redistributive effect (from government and business to households) could offset other, negative effects. However, as Governor Lindsey emphasized, interest income is very unequally distributed, and spending propensities do vary. If interest recipients spend more of their income than those who do not receive net interest income, then rate hikes could stimulate spending. This could be the case, for example, if creditors are seniors living on interest income. Further, and this is important, the federal government is a very large net payer of interest to the private sector, so rate hikes increase budget deficits and hence stimulate private spending—to a degree that has not yet been reliably estimated.

From this, we can conclude that interest rate changes certainly do “work” at least partially (if not mainly) through distributional effects, but these effects are complex and little studied. Almost all empirical work focuses on (small) interest rate sensitivities of private sector spending, and ignores potentially large distributional effects. It is conceivable that distributional effects all “wash out,” so that interest rate policy has the conventional direction—rate increases lower spending—but we really do not know. In any case, the Fed’s secret cannot be denied: there are distributional effects, and the Fed considers them in its meetings. Also, there seems to be something of an asymmetric bias toward profit income and against wage income, and toward net interest recipients and against net debtors. The evidence for this proposition is the Fed’s behavior: it raises interest rates at the first hint that labor markets are recovering and at a pace that financial markets can “handle,” so that net creditors will receive the interest that is squeezed out of debtors.

Conclusion: An Innocent Fraud?

“Keynesian” economists have always been skeptical of the Fed’s ability to “fine-tune” the economy, in spite of the long-running monetarist claims about the efficacy of monetary policy. The canonization of Chairman Greenspan over the past decade and a half has eliminated most orthodox (Friedmanite) squeamishness about a discretionary Fed, while currently fashionable theory based on the “new monetary consensus” has pushed monetary policy front and center. As John Kenneth Galbraith recently argued, lack of empirical support for such beliefs has not dampened enthusiasm. Like Galbraith, the followers of Keynes have always insisted that “business firms borrow when they can make money and not because interest rates are low” (Galbraith 2004, p. 45). Even orthodox estimates of the interest rate sensitivity of investment are so low that the typical rate adjustments used by the Fed cannot have much effect on overall spending. However, distributional effects of rate hikes, though little studied and poorly understood, are probably significant and pernicious.

In his new book, Galbraith takes on what he calls “innocent fraud,” or the conventional view that is both incorrect and also “serves, or is not adverse to, influential economic, political and social interest” (2004, p. xi).

To limit unemployment and recession in the United States and the risk of inflation, the remedial entity is the Federal Reserve System, the central bank. For many years (with more to come) this has been under the direction from Washington of a greatly respected chairman, Mr. Alan Greenspan. The institution and its leader are the ordained answer to both boom and inflation and recession or depression . . . Quiet measures enforced by the Federal Reserve are thought to be the best approved, best accepted of economic actions. They are also manifestly ineffective. They do not accomplish what they are presumed to accomplish. Recession and unemployment or boom and inflation continue. Here is our most cherished and, on examination, most evident form of fraud. (Galbraith 2004, pp. 43–44)

In a sense, the Fed has become entrapped within its own mythology, or “innocent fraud.” It is held accountable both for smoothing the business cycle—a task for which it disclaims responsibility even as it (quietly) accepts credit when things go well—and for fighting inflation that will not show up for years. The only tool at its disposal is the FFR, a variable that is not tightly linked to the economic phenomena of greatest interest, such as employment and unemployment, wage and price inflation, or investment and economic growth. Worse, to sustain credibility, it must act in accordance with market expectations—expectations that it plays no small role in generating. The Greenspan-led Fed prides itself on the increased transparency under which it operates, which in part takes the form of well-telegraphed intentions. When combined with the gradualism championed by Governor Bernanke (and piloted in 1994), changes of policy course are slowly played out over many quarters. This has the obvious advantage that surprises are avoided, but it also means that the Fed is a slave to market expectations that force it to stay the course.

It is ironic that greater transparency has reduced the Fed’s ability to engage in truly discretionary policy. By telegraphing its moves long in advance, it is then committed to raising rates to fulfill the expectations it creates. This means the Fed’s policy is hyperactive but with little discretion. The latest rate hike thus seems destined to follow the precedent set in 1994, when the Fed began to raise rates based on the argument that inflation would appear sooner or later. In retrospect, we know that the recovery from the recession of the early 1990s had not even begun with vigor by 1994, that labor markets would not become tight until many millions more jobs had been created, and that inflationary pressures would never become significant in spite of the strength of the Clinton boom.

We cannot know whether robust job creation would have begun sooner if the Fed had not raised rates in 1994. We cannot know whether the Fed’s rate hikes in 1999 brought on a deeper and longer recession than would have been created by Clinton’s surplus-induced fiscal headwinds alone. We do know that the increase of rates beginning in 1994 did not bring growth and unemployment into the ranges believed by the FOMC to be sustainable. In fact, growth picked up, employment boomed, and inflation fell.

Further, we do not know whether discretion could work better than Friedman’s rules, because our hyperactive Fed is not necessarily a discre-

tionary Fed. Prudent policymakers could preserve options if they did not create market expectations of “inevitable” rate hikes that they then felt compelled to make without regard to economic performance. Given the lack of credible evidence that the Fed can impact important economic variables in a desired manner, and given the Fed’s own doubts about the relations between these variables and inflation, a less preemptive Fed policy would seem to be in order. Finally, given all the uncertainty about the level of the “neutral” FFR, it makes little sense to change policy in an effort to find that elusive rate. Indeed, a very good case could be made that the neutral rate is a Japan-like zero—but exploration of that issue would take us too far afield.

References

- Andrews, Edmund L. 2004. “Greenspan Says Rates Could Rise Quickly.” *New York Times*, July 21.
- Bernanke, Ben S. 2004. “Remarks by Governor Ben S. Bernanke, at an economics luncheon cosponsored by the Federal Reserve Bank of San Francisco (Seattle Branch) and the University of Washington, Seattle, Washington.” May 20. www.federalreserve.gov/boarddocs/speeches/2004/200405202/default.htm
- Bloomberg News. 2004. “Home Price Rises Hard to Track, Fed Chief Says.” *New York Times*, August 25.
- Bradsher, Keith. 1994. “Bigger Role for Intuition Seen at Fed.” *New York Times*, February 28.
- Bureau of Economic Affairs (BEA). 2004. “GDP Second Quarter (Advance).” July 30.
- Chirinko, Robert S., Steven M. Fazzari, and Andrew P. Meyer. 1999. “How Responsive Is Business Capital Formation to Its User Cost? An Exploration with Micro Data.” *Journal of Public Economics* 74: 53–80.
- Crosson, Judith. 2004. “Fed Still Long Way from Neutral Rates, Hoenig Says.” *Reuters*, July 26.
- Fazzari, Steven M., R. Glenn Hubbard, and Bruce C. Peterson. 1988. “Financing Constraints and Corporate Investment.” *Brookings Papers on Economic Activity* 1988: 141–95.

- Federal Open Market Committee (FOMC). 1993. Transcripts of various meetings. www.federalreserve.gov/fomc/transcripts/
- . 1994. Transcripts of various meetings. www.federalreserve.gov/fomc/transcripts/
- . 2004. Minutes of various meetings during 2003 and 2004. www.federalreserve.gov/fomc/default.htm
- Galbraith, James K. 1994. “Self-Fulfilling Prophets: Inflated Zeal at the Federal Reserve.” *The American Prospect* 5: June 23. www.prospect.org/print/V5/18/galbraith-j-2.html.
- Galbraith, John Kenneth. 2004. *The Economics of Innocent Fraud: Truth for Our Time*. Boston: Houghton Mifflin.
- Greenspan, Alan. 2004. “Testimony of Chairman Alan Greenspan, The Economic Outlook.” Before the Joint Economic Committee, U.S. Senate, April 21.
- Hannsgen, Greg. Forthcoming. “The Transmission Mechanism of Monetary Policy.” In Philip Arestis and Malcolm Sawyer, eds., *Handbook of Alternative Monetary Economics*. Northampton, Massachusetts: Edward Elgar.
- Papadimitriou, Dimitri B., and L. Randall Wray. 1994. *Monetary Policy Uncovered: Flying Blind: The Federal Reserve’s Experiment with Unobservables*. Public Policy Brief No. 15. Annandale-on-Hudson, New York: The Levy Economics Institute.
- Woodward, Bob. 2000. *Maestro: Greenspan’s Fed and the American Boom*. New York: Simon and Schuster.
- Wray, L. Randall. 2004. *The Case for Rate Hikes: Did the Fed Prematurely Raise Rates?* Public Policy Brief No. 79. Annandale-on-Hudson, New York: The Levy Economics Institute.

About the Author

Senior Scholar L. Randall Wray is a professor of economics at the University of Missouri–Kansas City and director of research at the Center for Full Employment and Price Stability. He is working in the areas of monetary policy, employment, and social security. He has used the ideas of the late Hyman P. Minsky to analyze current U.S. economic problems. Wray has published widely in journals and is the author of *Understanding Modern Money: The Key to Full Employment and Price Stability* (Edward Elgar, 1998) and *Money and Credit in Capitalist Economies: The Endogenous Money Approach* (Edward Elgar, 1990). He is also the editor of *Credit and State Theories of Money: The Contributions of A. Mitchell Innes* (Edward Elgar, 2004). He received a B.A. from the University of the Pacific and an M.A. and a Ph.D. from Washington University in St. Louis.

Public Policy Brief Series

The full text of the Public Policy Brief and Public Policy Brief Highlights series can be downloaded from the Levy Institute website, www.levy.org. The site also includes a complete list and short summaries of all the titles in the Public Policy Brief series.

To order a copy, call 845-758-7700 or 202-887-8464 (in Washington, D.C.), fax 845-758-1149, e-mail info@levy.org, or write to The Levy Economics Institute of Bard College, Blithewood, PO Box 5000, Annandale-on-Hudson, NY 12504-5000.

The Fed and the New Monetary Consensus

The Case for Rate Hikes, Part Two

L. RANDALL WRAY

No. 80, 2004 (Highlights, No. 80A)

The Case for Rate Hikes

Did the Fed Prematurely Raise Rates?

L. RANDALL WRAY

No. 79, 2004 (Highlights, No. 79A)

The War on Poverty After 40 Years

A Minskyan Assessment

STEPHANIE A. BELL and L. RANDALL WRAY

No. 78, 2004 (Highlights, No. 78A)

The Sustainability of Economic Recovery in the United States

The Risks to Consumption and Investment

PHILIP ARESTIS and ELIAS KARAKITSOS

No. 77, 2004 (Highlights, No. 77A)

Asset Poverty in the United States

Its Persistence in an Expansionary Economy

ASENA CANER and EDWARD N. WOLFF

No. 76, 2004 (Highlights, No. 76A)

Is Financial Globalization Truly Global?

New Institutions for an Inclusive Capital Market

PHILIP ARESTIS and SANTONU BASU

No. 75, 2003 (Highlights, No. 75A)

Understanding Deflation

Treating the Disease, Not the Symptoms

L. RANDALL WRAY and DIMITRI B. PAPADIMITRIOU

No. 74, 2003 (Highlights, No. 74A)

Asset and Debt Deflation in the United States

How Far Can Equity Prices Fall?

PHILIP ARESTIS and ELIAS KARAKITSOS

No. 73, 2003 (Highlights, No. 73A)

What Is the American Model Really About?

Soft Budgets and the Keynesian Devolution

JAMES K. GALBRAITH

No. 72, 2003 (Highlights, No. 72A)

Can Monetary Policy Affect the Real Economy?

The Dubious Effectiveness of Interest Rate Policy

PHILIP ARESTIS and MALCOLM SAWYER

No. 71, 2002 (Highlights, No. 71A)

Physician Incentives in Managed Care Organizations

Medical Practice Norms and the Quality of Care

DAVID J. COOPER and JAMES B. REBITZER

No. 70, 2002 (Highlights, No. 70A)

Should Banks Be “Narrowed”?

An Evaluation of a Plan to Reduce Financial Instability

BIAGIO BOSSONE

No. 69, 2002 (Highlights, No. 69A)

Optimal CRA Reform

Balancing Government Regulation and Market Forces

KENNETH H. THOMAS

No. 68, 2002 (Highlights, No. 68A)

The Economic Consequences of German Unification

The Impact of Misguided Macroeconomic Policies

JÖRG BIBOW

No. 67, 2002 (Highlights, No. 67A)

The Levy Economics Institute of Bard College

Blithewood

PO Box 5000

Annandale-on-Hudson, NY 12504-5000

Address Service Requested

NONPROFIT ORGANIZATION

U.S. POSTAGE PAID

BARD COLLEGE