

Forefront

New Ideas on Economic Policy from the FEDERAL RESERVE BANK
of CLEVELAND

The Inflation Issue

INSIDE:

Price Stability:
Essay by
Sandra Pianalto

Frequently
Asked Questions
about Inflation

PLUS:

Interview with
Mark Bills





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PRESIDENT'S MESSAGE

Sandra Pianalto

President and Chief Executive Officer
Federal Reserve Bank of Cleveland



I participated in my first FOMC meeting in January 2003, as an incoming Reserve Bank president. The session opened with a lengthy,

detailed discussion about policy rules. Specifically, we reviewed the evidence on whether the Federal Reserve's targeting of the federal funds rate had been following a systematic decision-making process.

It was a technical discussion, to say the least. But near the end of the afternoon, the late Federal Reserve Board Governor Edward (Ned) Gramlich put the whole conversation into context: "What is important," he said, "is to clarify to markets what we care about. We care about stable prices and maximum employment."

Stable prices and maximum employment—that is the Federal Reserve's dual mandate from Congress. More directly, Governor Gramlich was highlighting the importance of having a clear, consistent objective that everybody follows. When the public understands that the Federal Reserve is committed to both parts of its objective, monetary policy is much easier to conduct.

Over the years, the Federal Reserve has taken many steps to enhance how we communicate our policy intentions to the public. I believe now is an opportune time to take another important step along that path—to publicly announce an explicit numerical inflation objective.

In this issue of *Forefront*, I lay out my case for such an objective, arguing that a 2 percent goal over the medium term would not only convey our policy aim better, but would also affirm our resolve to achieve price stability. That essay, along with supporting articles by our Bank's economists, also appears in the Federal Reserve Bank of Cleveland's 2010 annual report. With this double emphasis, we hope you will better understand why an explicit inflation objective is consistent with the Federal Reserve's dual mandate and, in fact, would improve our ability to *fulfill* that mandate.

This issue is rounded out by interviews with the University of Rochester's Mark Bils on price measurement and with Carnegie Mellon University's Marvin Goodfriend on the recent history of inflation objectives. These economists' views illustrate the importance of price stability in our everyday lives.

As we move into summer, I think the U.S. economy has gained a firmer footing. Even with the recent oil and other commodity price shocks, the recovery continues. Employers are creating new jobs, and there are signs that job growth will accelerate as the year progresses. I am also keeping a close eye on signs of inflation. Without price stability, it is highly unlikely that our economy can achieve and sustain maximum employment.

I believe an explicit inflation objective will help us produce both price stability and maximum employment. As Governor Gramlich wisely observed, when the public understands what the Federal Reserve seeks to achieve, and has confidence in our ability to achieve it, then we can be even more effective in reaching those goals. ■

Readers' Comments



Slowing Speculation: A Proposal to Lessen Undesirable Housing Transactions

Forefront Winter 2011

The policy remedy proposed here—prohibiting county recorders of deeds from certifying any new ownership of property that has outstanding delinquent taxes or code violations—is elegant in its simplicity.

As the authors themselves note, however, this simplicity itself presents a danger. The prohibition could be overly broad, unintentionally harming the well-meaning buyer who has fallen behind on taxes or preventing the acquisition of vacant or tax-delinquent properties by purchasers intending to rehabilitate or productively use them.

I would urge the inclusion of a clause that would allow for two key exceptions to this policy. First, the owner of the property should have the ability to transfer ownership to a responsible public entity, such as a land bank. This action gives tax delinquent or code-violating owners an honorable way out of their situation and allows redevelopment activity to proceed without being hampered by the unclear title situation that could arise when an owner wants to dispose of a property but is unable to clear outstanding liens or fines.

The Cuyahoga County Land Bank, for example, has an excellent track record of making responsible decisions about how to use vacant properties effectively by assembling some parcels for public works projects and redeveloping others for use by the private and nonprofit sectors.

Second, there should be a legal mechanism that would enable a kind of “sweat equity” repayment plan, wherein a buyer could earn forgiveness of outstanding liens or fines associated with code violations, over time, with some combination of monetary payments and adherence to a documented and agreed-upon renovation or repair plan that brings the property back up to code and into productive use. Once the buyer has met the obligations laid out in the plan, the title could be transferred and the deed recorded.

With these amendments, the proposed law would be an effective way to stem the tide of irresponsible, speculative real estate purchases in Ohio, while still promoting responsible redevelopment and use of land and property resources.

Amy Hovey
Senior Vice President, Capacity Building
Chief Operating Officer
Center for Community Progress
Flint, Michigan

This is a very interesting proposal. Requiring all municipal liens to be extinguished before the county recorder declares the transaction official seems to have many redeeming qualities.

I do have one concern about this idea. Would enacting this policy actually create a new field of “flipper walk-aways”? A flipper acquires a property and then sells it at a small markup to an unsuspecting buyer for cash. Money changes hands, but the deed is not recorded.

The prospective new owner does not officially own the property. The flipper has the cash, so he can let the property fall into tax lien foreclosure without suffering a loss. Additionally, what if the new “owner” started spending some money on the property, only to see it foreclosed or find out he never really owned it?

If there were a way to avoid this potential pitfall, such as requiring the use of a title agency even for cash sale transactions, I think it definitely would help. It would also protect unsuspecting purchasers from ending up with the short end of the stick.

George Mattei
Vacant Property Forum Administrator
ReBuild Ohio
Columbus, Ohio

Response from the co-author, Thomas J. Fitzpatrick IV:

That’s a good question. I’ll start by saying no law could prevent all fraud—for example, an unscrupulous seller could use a quitclaim deed to “sell” a property that the seller does not actually own. Similarly, even if using a title agency were a requirement for transfer, properties could still be “sold” without actually using the title agency. In other words, no law ensures 100 percent compliance.

What our proposal addresses more directly are the large investor sales to large/small investors that enable the business model where a person or entity buys with no intent to maintain the property. As word gets out, some actors might try to keep the business model running by defrauding borrowers in the way you suggest. Others would likely exit the market because their business models would no longer work.

I would also encourage you to think about this proposal from more of a “recovery” angle. Our proposal would allow for easier acquisition through tax foreclosure or the demolition of condemned properties because it would become harder to transfer those on the eve of demolition/foreclosure, thereby interrupting the process (even where someone incorrectly thinks he has purchased a property).





Marvin Goodfriend
Professor of Economics
Carnegie Mellon University

A Short History of Inflation Targeting at the Federal Reserve: Q&A with Marvin Goodfriend

The debate on whether the Federal Reserve should adopt an explicit inflation objective is not new. In the 1990s, as the transcripts attest, members of the Federal Open Market Committee (FOMC) discussed the idea at some length. The issue has picked up momentum over the past year, with several Federal Reserve officials calling for a numerical objective, including the Federal Reserve Bank of Cleveland's Sandra Pianalto and Philadelphia's Charles Plosser.

Marvin Goodfriend has been in the thick of the talks on both the inside and the outside. He attended FOMC meetings in the 1990s as the research director at the Federal Reserve Bank of Richmond. In the early 2000s, he engaged in a widely cited exchange with Federal Reserve Governor Donald Kohn about the merits of an explicit inflation goal. Goodfriend was—and is—in favor of it.

Now an economics professor and chairman of the Gailliot Center for Public Policy at Carnegie Mellon University in Pittsburgh, Goodfriend thinks there is a decent chance the Federal Reserve will soon take the long-awaited step of establishing a numerical objective. We contacted him at his office to ask for his thoughts as the debate develops.

Q: *With so many other central banks around the world already having an explicit inflation goal, why do you think the Federal Reserve hasn't adopted one?*

Goodfriend: It's natural for any leader of an organization to worry about restricting his freedom of action in the future. In the language of finance, unrestricted actions in the future have option value; they somehow seem useful. It seems better not to tie your hands.

Another natural concern is that it could be counterproductive not to follow through on a promise, so it seems better not to promise anything in the first place. Also, there are lingering doubts in some quarters about the Federal Reserve's capacity to sustain low inflation without higher unemployment.

That was a concern even in the early [former Federal Reserve Chairman] Greenspan years, although experience has shown that once credibility for low inflation is achieved, the economy can actually sustain a lower unemployment rate on average.

Q: *Why do you think the issue has been re-emerging of late?*

Goodfriend: Historically, when the economy comes out of a recession, inflation tends to rise. The Federal Reserve lowers interest rates to fight recessions and has been reluctant to raise interest rates to sustain non-inflationary recoveries. Now we are at the point in the business cycle where rising inflation is a concern again.

Ever since [former Federal Reserve Chairman] Paul Volcker stabilized inflation in the early 1980s, academic theory and practical experience have persuaded many central banks around the world that it's a good idea to have an explicit low inflation objective. The Federal Reserve is behind the curve in this thinking.

Q: *Is an explicit inflation goal consistent with the Federal Reserve's dual mandate of price stability and maximum employment?*

Goodfriend: Yes. Consider the alternative. A central bank that makes the economy safe for higher inflation by not committing to a low inflation objective exposes itself to inflation scares. The central bank gives up control over beliefs about inflation to the markets, and we know what that's done.

My research has emphasized the costs of failing to make low inflation an explicit objective for the Federal Reserve. Exhibit A, in theory and in practice, is that not committing to a low inflation objective exposes central banks and governments to market demands for inflation premia in bond rates; that is, charging extra interest to compensate for high expected inflation. That raises the government's borrowing costs and presents the central bank with a nasty dilemma.

What convinced Volcker to move against inflation in the early 1980s was his recognition that failing to act would be like the movie *Groundhog Day*. The Fed would continue to be subject to the inflation scare problem over and over: The Federal Reserve would have to continue to run the economy below potential time and again, as it had in the 1970s,

to maintain some degree of inflation stability. Volcker wanted to put an end to that. Good monetary policy had to start by making low inflation a priority. Making low inflation a priority, as Volcker did, was a first step toward moving to a numerical goal for low inflation.

Q: *Do you realistically expect the Federal Reserve to adopt a numerical inflation target in the near future?*

Goodfriend: I think there is a good chance of that. Inflation targeting has been debated at the FOMC since the mid-1990s. The committee had two extended debates on inflation targeting in 1995 and 1996. Having discussed inflation targeting thoroughly for 15 years, I think there is a good chance the current committee will move ahead. The FOMC has already come as close as possible to announcing an explicit inflation target outright by extending in 2007 its forecast horizon for inflation. Extending its inflation forecast horizon is not the same as announcing an explicit objective, but it's very close.

I think the FOMC would very much like to put an explicit inflation objective in place before it has to move against inflation as the economy recovers. Adopting an inflation objective would be one small step for the Federal Reserve and one giant leap for macroeconomic policy. ■

Interviewed by Doug Campbell.



Recommended readings

Marvin Goodfriend. 2005. "The Monetary Policy Debate Since October 1979: Lessons for Theory and Practice." *Federal Reserve Bank of St. Louis, Review* 87(2, Part 2): 243–62.



Price Stability

Why We Seek It and How Best to Achieve It



This essay and the accompanying Frequently Asked Questions also appear in the Federal Reserve Bank of Cleveland's 2010 annual report.



Sandra Pianalto
President and
Chief Executive Officer

In 2010, the unemployment rate fell, the pace of foreclosures declined, and the stock market rallied.

Still, as a Federal Reserve policymaker, I am far from satisfied. Too many Americans are still hurting—many are out of work, many have seen the values of their homes plummet, and many see little hope of restoring their nest eggs for retirement.

If these conditions are not challenging enough, we now have another issue to contend with: Inflation concerns are mounting. On this developing front, I want to be crystal clear: In 2011 and in the coming years, the Federal Reserve will always strive to fulfill its dual mandate of price stability and maximum employment.

This issue of *Forefront* is focused on the topic of inflation in the context of our dual mandate. We offer a collection of frequently asked questions that we hear today about inflation and the inflation outlook, together with answers from our Research Department economists. These short articles review recent movements in inflation, describe how we measure inflation expectations, and explain why price stability is crucial for job creation, among other topics.

In the next several pages, however, I want to give you my own views on controlling inflation in the context of the Federal Reserve's dual mandate. In doing so, I want to make two key points.

First, it is important to understand that the Federal Reserve's commitment to price stability is entirely consistent with promoting maximum employment. In fact, it is a necessary part of creating the economic conditions that permit jobs to flourish over time.

Second, now may be an opportune time for the Federal Reserve to adopt an explicit numerical inflation objective. The events of the past year—including a new round of monetary stimulus and the recent spike in commodity prices—have underscored the potential benefits of a numerical inflation objective. Most Americans probably are not even aware that the Federal Open Market Committee (FOMC) has no such explicit objective—or what having one would entail.

As I will explain, putting a number on our inflation objective could enhance our communication capabilities with the public, make the monetary policy formulation process more transparent, and increase the Federal Reserve's accountability. As a result, monetary policy will be better able to achieve both price stability and maximum employment.

The Dual Mandate: Why Price Stability Is Consistent with Maximum Employment

Conceptually, price stability can be thought of as an inflation rate low enough and predictable enough that inflation does not prominently enter into decisions by firms and consumers. For example, to maximize economic efficiency, firms must be confident enough about the general level of prices in the future to be willing to make long-term agreements with their suppliers and customers (although relative prices do, of course, need to change over time). Individuals need the same confidence to plan for retirement.

To many Americans, the costs of excessive inflation are familiar from the 1970s, a decade in which consumer price inflation averaged 8 percent per year. (By comparison, consumer price inflation since then has averaged close to 3 percent.)¹

In 2011 and in the coming years, the Federal Reserve will always strive to fulfill its dual mandate of price stability and maximum employment.



Let's break down the negative impacts of high inflation into four areas:

- First, sustained high inflation erodes the purchasing power of people on fixed incomes. Over the years, retirement savings can decrease in value if inflation unexpectedly rises.
- Second, high inflation can lead consumers and firms to spend time and money managing its consequences. For example, consumers will devote more time tending to cash balances, and firms will change their posted prices more frequently.
- Third, high inflation muddies the information on supply and demand reflected in prices, leading to inefficient spending decisions. For instance, with substantial inflation, a business will find it more difficult to determine if an increase in the price of a new machine for its production line reflects inflation in the overall price level or an increase in the price of the machine relative to some other production input, such as steel. As a result, the firm could misjudge the price change and make a poor decision.
- Finally, because many components of federal and state tax codes are not indexed to the cost of living, high inflation creates adverse tax effects that can lead consumers and firms to take actions they would otherwise not take.

1. Data cited in this article and the following FAQs reflect updates through April 30, 2011.

The experiences of Japan in the last two decades point to the real danger of low inflation—deflation, which occurs when the overall price level falls as inflation rates turn negative for extended periods.

Very low inflation creates different challenges. When inflation is very low, as it has been recently, the Federal Reserve's ability to ease monetary policy is constrained if the federal funds rate cannot be reduced further. That is why, after cutting the target for the federal funds rate to essentially zero in December 2008, the FOMC had to take the unusual step of making large-scale asset purchases of longer-term Treasury securities, agency debt, and agency mortgage-backed securities. Although the strategy was unusual, its purpose was the same as more traditional policy easing: to activate the conventional channels of monetary stimulus to the economy. It would be preferable, though, to be able to employ more traditional policy tools, with which we have more experience and with which the public is more familiar.

In an environment of very low inflation and interest rates, monetary policy can become hamstrung in its ability to promote stronger economic activity. The experiences of Japan in the last two decades point to the real danger of low inflation—deflation, which occurs when the overall price level falls as inflation rates turn negative for extended periods. Deflation is more likely when an already-weak economy deteriorates further.

Declining price levels might sound like a good thing—allowing consumers to buy more of some goods. But sustained deflation can have profoundly negative effects on the real economy. When prices are expected to continue to fall, many consumers and firms will delay purchases while waiting for lower prices. Deflation also lowers wages as well as prices, and debts don't decrease in nominal terms, so actual debt burdens are higher. Deflation can also create or worsen problems in the financial system.



It reduces the value of collateral, which makes borrowing more difficult. This dynamic is especially relevant in a period following a severe financial crisis, when asset values have fallen and credit channels have already been impaired. For these reasons, Japan's deflation is widely thought to have hampered that nation's monetary policy and economy since the early 1990s.

Inflation that is high or too low is bad enough—but uncertain and variable inflation introduces additional problems. One consequence of variability is that unexpected changes in inflation redistribute wealth between borrowers and lenders. For example, if inflation proves higher than expected, a borrower can pay a lender back with dollars that buy less than they would have otherwise. If inflation proves to be lower than expected, the lender benefits at the expense of the borrower. As a result of these uncertainties, lenders incorporate an inflation risk premium in interest rates, essentially making borrowing more expensive on average than it normally would be. This risk premium reduces borrowing for productive purposes, such as capital spending by firms. Finally, uncertainty about future inflation can reduce the willingness of firms to enter into long-term contracts that contribute to an efficient economic system.

Seen this way, the Federal Reserve's objective of price stability is fully complementary with its objective of maximum employment. The maintenance of price stability avoids problems that can arise with either very low or excessively high inflation. As a result, price stability helps to maximize economic efficiency through a multitude of channels, from interest rates to the provision of credit. Monetary policy promotes the fastest sustainable rate of economic growth by minimizing the many economic distortions that inevitably arise because of deviations from price stability.

How a Numerical Objective for Price Stability Could Help Monetary Policy

Over the course of the business cycle, monetary policy affects inflation, employment, and long-term interest rates. Over longer periods, monetary policy is the sole determinant of the average rate of inflation—but is only one of many factors affecting employment and long-term interest rates. Put another way, in the long run, inflation is a monetary phenomenon (to paraphrase the late Milton Friedman), while trends in employment and long-term interest rates depend on other forces, including demographics and the productivity of the nation's stock of factories and machinery. As a corollary, central banks such as the Federal Reserve can reasonably be expected to achieve a pre-specified numerical inflation objective over time, but not so for unemployment.

In fact, many other central banks around the world do have explicit numerical objectives for inflation to anchor their definitions of price stability. The Federal Reserve does not. At present, the closest the Federal Reserve comes to stating an explicit inflation objective is in the quarterly economic projections of the FOMC, in which its participants indicate their current estimate of the rate to which inflation would converge under “appropriate monetary policy” and in the absence of additional shocks.

FOMC members have raised the idea of establishing a numerical objective several times over the years. Ben Bernanke, for example, spoke about the potential utility of an explicit inflation objective in improving economic outcomes back in 2003, when he was a member of the Board of Governors but not yet its chairman.

I think it is an opportune time for the FOMC to establish an explicit inflation objective. The potential benefits are large and, in my mind, likely to help foster the Federal Reserve's objectives of price stability and maximum employment. Specifically, I favor establishing a 2 percent inflation objective. In the interest of economic stability, and to provide some flexibility to respond to shocks, our intention would be to move as close as possible to this target annually. In the event of shocks to the economy

In the long run, inflation is a monetary phenomenon, while trends in employment and long-term interest rates depend on other forces, including demographics and the productivity of the nation's stock of factories and machinery.



that push inflation away from this target, the goal would be to set policy so that inflation converges back to 2 percent over the medium term, a period of perhaps two to four years, depending on the size of the shocks.

The potential merits of a stated inflation objective seem particularly large at the moment, given the array of challenges bearing down on the economy so far in 2011. Consider, for example, that even though underlying inflation today is still at a low level, people disagree about where it is heading. Even professional forecasters differ more with one another about the longer-run inflation outlook now than they did before the recession.²

Why the uncertainty? On the one hand, with unemployment very high and wages increasing very slowly, underlying inflation could remain subdued. Working in the other direction, recent increases in energy and other commodity prices are putting upward pressure on inflation. Although these pressures have not spilled over into consumer prices more generally, it is possible that they could.

2. Underlying inflation was only 1.2 percent in the 12 months ended in March 2011, as measured by the Cleveland Federal Reserve's median Consumer Price Index.

Although I trust that the FOMC will act as needed to preserve price stability, the perceived threat of inflation is very real in many people's minds. They see the expansion of the Federal Reserve's balance sheet, the federal government's immense borrowing needs, and rising global commodity prices as all potentially contributing to rapidly rising inflation. If those concerns intensified so strongly that broad measures of longer-term inflation expectations escalated, actual inflation could rise in the absence of an appropriate response from the Federal Reserve.

I see three main gains from a numerical target, and they are intertwined. First, better-anchored inflation expectations could increase the Federal Reserve's ability to adjust monetary policy to stabilize the economy. For example, when the economy is weak, the FOMC could have more scope to ease monetary policy without triggering an increase in longer-term inflation expectations that would put upward pressure on inflation. The explicit objective for price stability would help to assure the public that a more expansive monetary policy was a temporary move to stabilize the economy, without any implications for the longer-run inflation objective. Thus, an explicit numerical inflation objective could boost the stability of employment as well as inflation.

An explicit numerical objective for inflation could also enhance the accountability and transparency of monetary policy. With a numerical objective, the public would know exactly what inflation outcome the FOMC was trying to achieve. The public would then be better able to evaluate the FOMC's performance. The Federal Reserve chairman's semiannual reports to Congress would likely include a discussion of inflation outcomes relative to the objective. Less routinely, one can imagine Congress asking the chairman to testify regarding the reasons why inflation had drifted from the target for an unusual length of time.

Finally, putting a number on the FOMC's inflation objective would help the FOMC explain its actions to the public. Suppose, for example, that the members agreed on an inflation objective of 2 percent. Last November, having had such an objective might have allowed the FOMC to better explain the expansion of its purchases of longer-term Treasury securities. I supported the action in part because I saw inflation as simply too low. The underlying rate of inflation was below 1 percent and falling, pulling inflation yet further from the FOMC's implicit objective of 2 percent or a bit less (as suggested by the FOMC's economic projections). I think the FOMC could have been clearer about its motivation to engage in large-scale asset purchases if it had been able to reference its 2 percent inflation objective.

A Sampling of Central Banks with Inflation Targets

Country	Targeting adoption date	Target (percent)
New Zealand	March 1990	1.0–3.0
Canada	February 1991	2.0
United Kingdom	October 1992	2.0
Czech Republic	January 1998	2.0
Euro Area	January 1999	<2.0
Brazil	June 1999	4.5
Mexico	January 2001	3.0
Norway	March 2001	2.5
Peru	January 2002	2.0
Romania	August 2005	3.0
Japan	March 2006	0–2.0
Ghana	May 2007	8.5

Note: Some banks use different measures.

Sources: Federal Reserve Bank of Boston; Federal Reserve Bank of Cleveland.

Economic theory tells us that rising long-term inflation expectations (one of the key determinants of the actual inflation trend) could push inflation higher. For example, expectations of a pickup in inflation could lead firms to boost their prices to reflect those expectations, contributing to a rise in inflation this year.

In these circumstances, the FOMC's adoption of a concrete, explicit numerical objective for inflation could be advantageous. Numerical targets are proven to be highly effective in anchoring inflation expectations. Studies comparing the United States to some other countries with formal inflation targets have found that these explicit objectives help to pin down long-term inflation expectations at the rate the central bank has established as its target. For example, in countries with explicit inflation targets, private-sector forecasters are in greater agreement about the inflation outlook.



Similarly, looking ahead, I believe that having an explicit numerical objective for inflation would help the FOMC explain its eventual decision to tighten monetary policy. For instance, once the economic recovery is sufficiently far along that the FOMC expects inflation to begin gathering some momentum, I think the timing and magnitude of our actions to tighten policy would be more clearly understood by the public if we could reference a numerical inflation objective. This would be especially useful in the context of the FOMC's already-established practice of publishing its economic projections. Likewise, an explicit objective might put to rest the media trope about inflation "hawks" and "doves," as it would be evident that all members shared the identical objective.

Finally, it is important to clarify that setting an explicit inflation objective is merely a means to an end. It will enhance the Federal Reserve's ability to achieve its dual mandate of price stability and maximum employment. Being explicit about the inflation objective does not change the dual mandate at all. The Federal Reserve has had to put the dual mandate into practice ever since Congress set forth the broad goals in 1977. I do not see an explicit numerical inflation objective as anything other than another step in that direction—a step based on good economics, our own experience, and the experience of other central banks.

A Timely Step Forward

In 1979, Federal Reserve Chairman Paul Volcker led what became one of our signature monetary policy achievements—the "Great Disinflation." By taming runaway inflation, the Federal Reserve regained the credibility it had lost in the 1970s as the nation's steward of price stability.

Studies comparing the United States to some other countries with formal inflation targets have found that these explicit objectives help to pin down long-term inflation expectations at the rate the central bank has established as its target.

It is time to build on that hard-won credibility. Setting an explicit inflation objective is in keeping with the times, enhancing the Federal Reserve's openness and accountability at a time when the public is ever-more demanding of—and deserving of—such openness and accountability. It will be good for monetary policy. Most important, it will be good for the economy. ■

President's speeches



Cleveland Fed President Sandra Pianalto discusses the concept of an explicit inflation target in two recent speeches:

"The Economic Outlook, Oil Prices, and Monetary Policy," March 31, 2011.

www.clevelandfed.org/for_the_public/news_and_media/speeches/2011/pianalto_20110331.cfm

"Current Issues in Monetary Policy," April 7, 2011.

www.clevelandfed.org/for_the_public/news_and_media/speeches/2011/pianalto_20110407.cfm

Inflation research



Research economists at the Federal Reserve Bank of Cleveland have produced a wealth of resources and information about inflation.

Find links at www.clevelandfed.org/forefront

Recommended readings



Meredith J. Beechey, Benjamin K. Johannsen, and Andrew T. Levin. 2011. "Are Long-Run Inflation Expectations Anchored More Firmly in the Euro Area than in the United States?" *American Economic Journal: Macroeconomics* 3: 104–29.

Refet S. Gürkaynak, Andrew T. Levin, and Eric T. Swanson. 2010. "Does Inflation Targeting Anchor Long-Run Inflation Expectations? Evidence from Long-Term Bond Yields in the U.S., U.K., and Sweden." *Journal of the European Economic Association* 8: 1208–42.

Eric T. Swanson. 2006. "Would an Inflation Target Help Anchor U.S. Inflation Expectations?" *FRBSF Economic Letter* 20.



How can inflation be considered low when food and gas prices are so high?

Because there is a difference between inflation and relative price changes. Inflation is a general rise in prices usually measured by tracking the prices of a broad basket of goods and services, such as the Consumer Price Index (CPI). The CPI is a weighted index of a typical consumer's market basket, which includes food and gas prices. Recently, there have been growing price pressures for these items, which highlight the importance of distinguishing between the two concepts.



Brent Meyer
Senior Economic Analyst



Mehmet Pasaogullari
Research Economist

Over the past year, the overall—or headline—inflation rate has been gradually rising but remains modest by historical standards (the CPI has risen just 2.7 percent). This may come as a surprise to shoppers who have absorbed the swifter increases in some relative prices such as food, gas, and other commodities. It's well understood that rising food and energy prices can put pressure on household budgets, possibly causing painful tradeoffs, especially since it is hard to substitute these items. Households may decide to either cut back on food and gas or curb their spending on other goods and services, which could cause price changes elsewhere in the market basket. Although these tough choices between food, gas, and other goods and services tell us much about the welfare of individuals, they may not reveal much about the path of inflation.

Increasing food and gas prices will affect the headline CPI inflation directly to the extent of their share (roughly 20 percent) in the consumer market basket. These relative price changes may not be driven by inflation but, more likely, by fundamental factors affecting supply and demand for each particular good. Looking at the price change for one item or group, say gasoline (which is up 27 percent over the past year), doesn't tell you much about how high inflation is—just as infant and toddler apparel prices, which

have declined 3.8 percent in the past 12 months, are not an indicator of deflation. Inflation itself affects all prices and wages, not just one or two particular items or markets.

The headline CPI, like all headline inflation measures, is subject to short-term volatility that can arise from several sources: mismeasurement, treatment of seasonal factors, and relative price changes, which have little or nothing to do with inflation. These transitory price fluctuations may cause the CPI to give a misleading monthly signal of the inflation trend.

For example, in mid-2008, oil prices spiked, peaking at an average of \$134 a barrel that June. Measured at annualized rates, energy prices in general jumped 102.4 percent that month, which caused the CPI to spike up 11.7 percent, pushing its 12-month change up to 5.0 percent. Five short months later, the bottom fell out on oil and energy prices, causing the year-over-year percent change in the CPI to dip well below zero. This is exactly the kind of volatility that makes it difficult to monitor the headline CPI for changes in the inflation trend. What we need are measures of inflation that extract a signal about future prices.

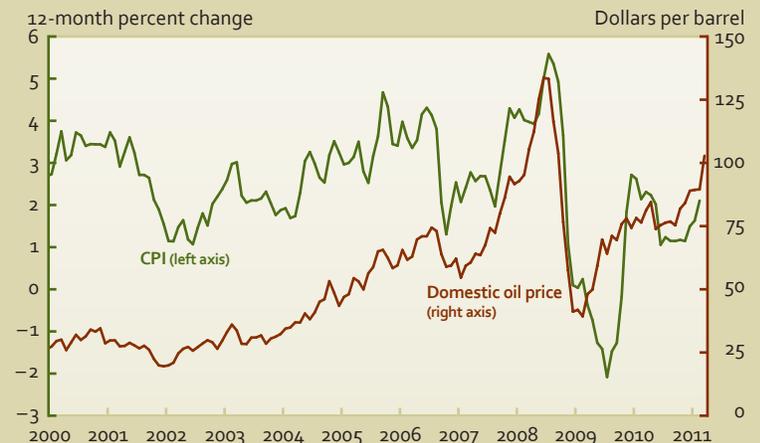
Price statistics that attempt to distinguish the inflation signal from noise are often called underlying measures of inflation. One well-known underlying inflation statistic excludes food and energy prices from the CPI; this is what most economists refer to as the “core CPI.” Food and energy prices tend to be the most volatile components and regularly cause fluctuations in the CPI that are not characteristic of the inflation trend.

However, the “ex-food and energy” approach does not address transitory price fluctuations in other components of the retail market basket used to construct the CPI, such as mismeasurement and idiosyncratic shocks (excise taxes, inclement weather, and government incentives to reduce the supply of used autos, for example). Further, such an approach may mismeasure inflation if there are long-term movements in food and energy prices relative to other goods and services.

An alternative underlying approach is to eliminate monthly volatile price movements from the CPI through the use of trimmed-mean estimators, which eliminate the most volatile monthly price swings (both increases and decreases). By eliminating high-frequency noise, these measures provide a clearer signal of the inflation trend than either the headline CPI or the core CPI.

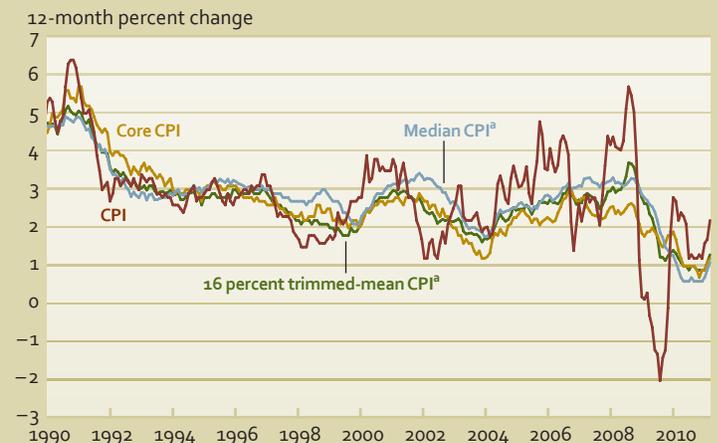
The Federal Reserve Bank of Cleveland reports two such trimmed-mean measures—the 16 percent trimmed-mean CPI and the median CPI—on a monthly basis. These measures are much less volatile than either the CPI or the core CPI, making them more useful in determining the current inflation trend and in forecasting future inflation, as research here in our Bank and elsewhere shows.

Inflation and Oil Prices



Sources: U.S. Department of Labor, Bureau of Labor Statistics; Federal Reserve Bank of Cleveland.

Consumer Price Index



a. Calculated by the Federal Reserve Bank of Cleveland.

Sources: *The Wall Street Journal*; Bureau of Labor Statistics/Haver Analytics.

As you can see from the second figure, these measures of underlying inflation are currently quite low. In fact, they are all hovering near post-World War II lows. The median CPI and the core CPI are up just 1.2 percent over the past year. ■



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Recommended reading

Michael F. Bryan, Stephen G. Cecchetti, and Rodney L. Wiggins II. 1997. “Efficient Inflation Estimation.” Working Paper No. 9707. Federal Reserve Bank of Cleveland (August). www.clevelandfed.org/research/workpaper/1997/wp9707.pdf



Isn't pursuing a low and stable inflation rate going to cost the economy jobs?

On the contrary: Low and stable inflation is an essential ingredient for growing jobs. It can help promote maximum employment by eliminating uncertainty about the evolution of monetary policy and by allowing relative prices to act as clear signals to consumers.



John Carlson
Vice President and Economist



Owen Humpage
Senior Economic Advisor

It's true that monetary policy has been highly stimulative for the past couple of years, which could risk creating higher inflation while creating higher employment. At first glance, it might appear that efforts to place more policy focus on low and stable inflation could cost jobs. In fact, many believe that we must have higher inflation to have lower unemployment—this is the premise of the Phillips curve, which shaped economic debate for much of the last part of the 20th century.

When monetary policy attempts to raise employment above a level consistent with stable inflation, however, consumers, businesses, and wage earners eventually catch on and begin to anticipate the inflationary effects of the policy on all prices and wages. Producers of goods discover that they can increase their profit margins by raising prices at the cost of lower levels of output and therefore demand fewer employees. So any tradeoff between inflation and unemployment eventually breaks down, resulting in permanently higher inflation but no lasting gains in employment.

Attempts to maintain a level of unemployment below the economy's full employment rate also create uncertainty about the implications of such a policy for the relative prices of goods and services. Thus, such policies interfere with efficient spending choices by adding noise to price-setting decisions, and hence to the signals consumers need to make their best choices.

The overall correlation between inflation and the unemployment rate since 1950 is weak, but it is nonetheless significant and positive—not negative as a permanent tradeoff would indicate. In other words, the lower the inflation rate, the lower the unemployment rate—contrary to what many economists had once thought to be the case. But the data also suggest that, over short periods, monetary policy can be used to bring employment in line with full employment levels, provided inflation expectations remain stable.

Consider the 1970s: Excessively stimulative monetary policy during this decade persistently failed to account for accelerating inflation and its ultimate effect on inflation expectations. As illustrated in the figure, both inflation and unemployment rose throughout the decade. After this dismal experience, many central banks set numerical objectives for inflation in the neighborhood of 2 percent per year. This objective is broadly accepted as being most consistent with maximum levels of employment; 2 percent is a low enough target level to be credible with the objective of price stability. Such credibility in turn creates an environment in which monetary policymakers can aggressively ease to offset the negative consequences of shocks that threaten economic stability. And, as the figure also shows, since the 1980s, both U.S. inflation and unemployment have trended lower until the 2007–09 recession.

To the extent that the recent policy measures to produce low and stable inflation help speed economic activity and employment to their potential levels, such policies would, if anything, add—not cost—jobs. ■

U.S. Inflation and Unemployment Rates



Note: Inflation rate given as an annualized percent.

Source: U.S. Department of Labor, Bureau of Labor Statistics.



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How do we know when people are worried about inflation?

One way to gauge opinions on future inflation is to ask people directly, and several well-respected surveys do just that. The Reuters/University of Michigan Surveys of Consumers ask the proverbial “man on the street” how much he thinks prices will change in general terms, not relative to any statistic. Others, such as the Survey of Professional Forecasters or Blue Chip Economic Indicators, ask market professionals about specific measures, including their predictions for the CPI.



Joseph Haubrich
Vice President and Economist

Another way to quantify inflation expectations is to see if people put their money where their mouth is. Several financial contracts linked to inflation provide a sense of what “the market” expects on the inflation front.

The most commonly used measure of inflation expectations of this type is the “break-even inflation rate” derived from the interest rates on two different types of Treasury securities. One type of Treasury bond, Treasury Inflation Protected Securities (TIPS), pays back more money if prices rise, and in that way protects against inflation. Traditional, or nominal, Treasury bonds do not—if the bond has a face value of \$10,000, it will deliver \$10,000 at maturity. A TIPS of equal face value, by contrast, will pay \$11,000 if inflation runs at 10 percent over the life of the bond. Because one bond is protected against inflation and the other is not, the difference in their interest rates gives the measure of expected inflation at which an investor would “break even,” no matter which option was chosen.

Another way to gauge expectations is with something called an inflation swap. Here, two investors (or counterparties) agree to a trade: One side pays a fixed, certain interest rate, and the other agrees to pay whatever the inflation rate ends up being. So the fixed payment should indicate the investor's expected inflation. In that sense, it is directly comparable to the break-even rate from TIPS.

Plotted on graphs in the first two figures, TIPS and inflation swaps show remarkably similar patterns, though liquidity and other differences between the instruments mean that they do not match exactly. After a large drop to abnormally low levels in the summer of 2010, expectations steadily increased back to levels somewhat above where they were in early 2010.

The problem with these indicators is that both the TIPS- and swaps-based measures overstate inflation expectations. Both include a risk premium for inflation along with a measure of expected inflation. That's because investors demand a bit of insurance to account for the fact that inflation might differ from what they expect.

A measure developed at the Federal Reserve Bank of Cleveland uses a hybrid model that includes both financial data and survey measures of inflation to remove this bias. It delivers a purer measure of inflation expectations and can also extract inflation expectations at a variety of horizons. Shown in the bottom figure, this measure shows a fairly contained level of inflation at many horizons, with expectations generally staying below 2 percent for many years. ■

Five-Year Break-Even Inflation Rate, TIPS



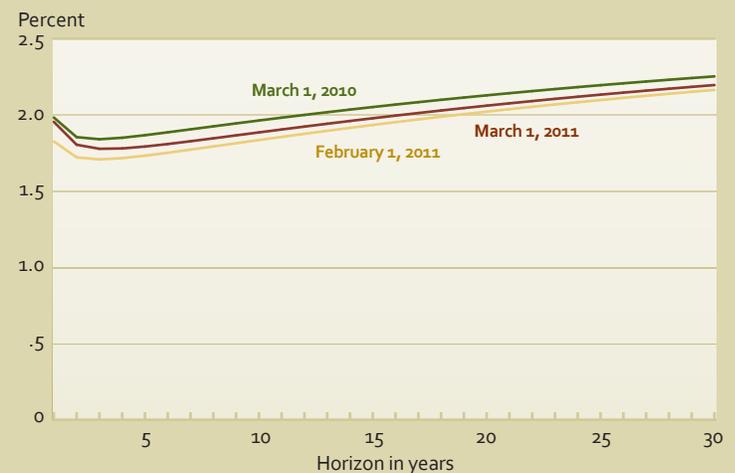
Note: Calculated using TIPS break-even inflation rates.
Source: Federal Reserve Board.

Five-Year Break-Even Inflation Rate, Swaps



Note: Calculated using inflation swaps.
Source: Bloomberg.

Expected Inflation Yield Curve



Source: Federal Reserve Bank of Cleveland.



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Is an explicit inflation objective consistent with a dual mandate?

It can be. An inflation objective can be implemented even when a central bank has more than one mandate, which the Federal Reserve does—to provide “maximum sustainable employment” in “an environment of stable prices.” In fact, in countries like the United States, where weight is given to variables other than inflation, monetary policy performance may be even more effective than if the central bank had only a single mandate.



Mark Schweitzer
Senior Vice President
and Director of Research



Brent Meyer
Senior Economic Analyst

In addition, the experiences of other countries that have worked with an explicit numerical objective for many years suggest that a flexible inflation targeting regime may actually be more effective than a strict rule, even if price stability is the primary concern. By “flexible,” we mean that the central bank identifies factors that could cause it not to raise interest rates in response to high inflation. Often the factors may indicate that the headline, or overall, inflation increase is expected to be temporary.

New Zealand and Norway are two countries whose experiences in implementing inflation targets illustrate that a flexible inflation targeting regime works well, especially when central banks have additional goals. Both countries have small, open economies: New Zealand trades substantially with Asian markets and, as an exporter of agricultural goods, is very sensitive to exchange-rate movements. Norway—a major oil exporter—is heavily exposed to fluctuations in oil prices, which cause economic variability above and beyond exchange-rate volatility. These sources of added volatility make setting appropriate monetary policy even more challenging than in the United States, and thus make these two countries interesting case studies.

New Zealand

The Reserve Bank of New Zealand (RBNZ) started pursuing a strict inflation target in 1990 with the sole purpose of price stability. It established a “hard” annual percent target range in its CPI of 0 to 2 percent. At the time, the RBNZ reacted so aggressively to inflation rates above its target range that it was rumored its governor would lose his job should the RBNZ fail to deliver on its promise. (An effective credibility mechanism!) Unfortunately, such hawkish policy, instead of leading to greater stability, was associated with a volatile period for interest rates, exchange rates, and output.

In response, the RBNZ and the government of New Zealand slowly edged away from a strict regime, becoming more flexible in the approach toward inflation targeting over time. In fact, the RBNZ’s mandate now reads, “In pursuing its price stability objective, the Bank ... shall seek to avoid unnecessary instability in output, interest rates, and the exchange rate.” In a way, this change made the RBNZ’s objective closer to the Federal Reserve’s dual mandate.

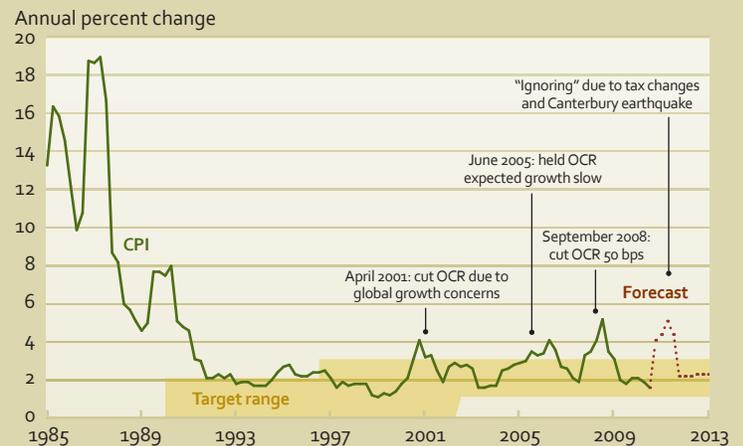
The figure illustrates New Zealand’s flexibility, as the RBNZ has at times either held or cut its main policy tool—the official cash rate (OCR)—even when the annual trend in inflation was above its stated target range. Greater flexibility has likely contributed to reduced macroeconomic volatility, but the RBNZ has still been successful at lowering inflation back into its target range following significant economic shocks. While increasing flexibility does come with the risk of losing credibility, survey measures of inflation expectations have remained within the RBNZ’s target range, evidence that expectations remain anchored.



GETTY IMAGES

The Reserve Bank of New Zealand started pursuing a strict inflation target in 1990 with the sole purpose of price stability.

New Zealand’s CPI



Sources: Statistics New Zealand; Reserve Bank of New Zealand.



NORGES BANK

Since the Norges Bank adopted an explicit inflation target in 2001, the longer-term (three-year) trend in inflation has been relatively well anchored near 2.5 percent.

Norway's CPI



Source: Statistics Norway/Haver Analytics.

Norway

The Norges Bank (the central bank of Norway) has operated a “flexible inflation targeting regime” for the past 10 years. Under this set of rules, weight is given to stability in inflation, employment, and output (similar to the Federal Reserve’s current dual mandate). The Norges Bank’s operational target for inflation is an annual CPI inflation rate of 2.5 percent over the medium term. Should inflation deviate from its target as a result of a shock to the economy, the specific length of time it will take for inflation to return to its target will depend on the type of shock that buffeted the economy.

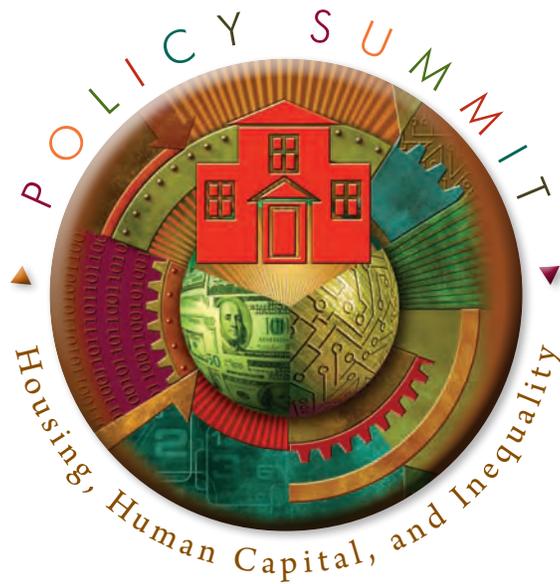
With such flexibility, a central bank needs to communicate its policy in a transparent and credible manner, lest the public lose faith in the bank’s ability to deliver on its promises. The Norges Bank does this by publicly announcing policy objectives, providing its assessment of current economic conditions, and releasing its forecasts for macroeconomic variables such as GDP and inflation.

Norway has experienced significant shocks to its economy. For example, in January 2003, its headline CPI—which has been and continues to be more volatile than many other developed countries—jumped to above 5 percent, largely due to a spike in the relative price of household electricity stemming from supply issues, only to fall below zero a year later. But despite these episodes, the Norges Bank has succeeded at returning inflation to its targeted level. Relative price swings do make it hard to get an accurate reading on inflation, and even harder to communicate to the public. However, since the Norges Bank adopted an explicit inflation target in 2001, the longer-term (three-year) trend in inflation has been relatively well anchored near 2.5 percent.

Judging from the experiences of these two countries, moving to an explicit numerical inflation objective can be consistent with the Federal Reserve’s dual mandate. Indeed, these two countries show that when inflation expectations are well anchored, the central bank can be freer to take short-term stabilization actions if the public does not fear inflation. ■



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Janet Yellen



Paul Tough

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Interview with Mark Bills

Measuring prices sure sounds like tedious business, and indeed it is. But it is an important business. Mark Bills, a macroeconomist at the University of Rochester, has delved deeper into the intricacies of price measurement than most. He is not as interested in the mechanics of price measurement, *per se*, as he is in how mistakes in price measurement can skew other measurements. If you overestimate inflation, for example, you are probably underestimating economic growth and standards of living. The way we feel about our own economic well-being depends heavily on accurately measuring prices.

Bills is a professor and chair of the Economics Department at the University of Rochester. He also serves as a research associate with the National Bureau of Economic Research, as associate editor of the *Review of Economics and Statistics*, and as a board member of the *Journal of Human Capital*.

We invited Bills to the Federal Reserve Bank of Cleveland to talk about his research. Brent Meyer, a senior economic analyst with the Bank, interviewed Bills on March 30, 2011. An edited transcript follows.

Meyer: *Why did price measurement become one of your areas of focus?*

Bils: My interest in price measurement really came out of discussions I had with [Stanford economist] Pete Klenow. Our interest was always less in thinking about inflation and prices. It was rather on the fact that whatever you mismeasure on prices affects how you measure real incomes and economic growth. We were working on growth-related issues at the time.

This is a roundabout explanation, but this is literally how we got involved in this: We found a huge explosion in the economics literature trying to explain growth. The things that people focused on were research and education. And these things exploded—huge increases in schooling worldwide and research—and yet economic growth rates came down! So, we had done some work where we argued that this impact of schooling couldn't be so great because it had gone up worldwide and yet growth rates hadn't gone up.

The hole in this issue, of course, is that maybe we have underestimated growth. Pete and I got interested in price measurement in the first place to think about what real growth has actually been. Because if you overestimate inflation by 1 percent, then instead of being, say, 1 percent per year real growth, it is really 2 percent per year. Well, that means the growth rate is doubled! Real income doubles in 40 to 50 years instead of 90 to 100 years. So if you overestimate inflation by 2 percent in one generation, real incomes double in one generation rather than in 100 years.

Meyer: *What type of prices do you think might have been overestimated?*

Bils: Services and healthcare. When you look at healthcare expenditures, you see that inflation is extremely rapid, much more rapid than other inflation rates. But we have no idea what the inflation rates for health expenditures really are. We don't know! You can't measure quality of healthcare very well.

If I compare healthcare costs today versus in the year 1800, well, I could go out and buy a bunch of leeches today for almost nothing. And I could have the healthcare I had in 1800. If you had a certain condition and you had \$10,000 to get treated at today's health prices, or \$10,000 to get treated at 1960s prices with 1960s technology, I don't think it's so obvious that people would want to go back in time to get their important health conditions dealt with. In that sense, you say, I don't know if there's inflation. It's pretty hard to say that there's been a lot of inflation over the long haul in healthcare.

The thing that struck us was that you would see much faster inflation for healthcare expenditures, but also much faster real increases in people buying more and more [healthcare services]. We still haven't been able to explain this.

Meyer: *So you do believe that health-care prices have been overestimated?*

Bils: Yes, the inflation rate for health-care prices has been overestimated. It relates to the work I did later on durable goods, like cars. When we get a new model car, the 2011 Camry versus the earlier model, the prices jump. Now, is that inflation, or is it a better model?

The same issue comes up with surgical procedures. If I have a new procedure for treating heart problems, how much better is it? If I look just at the expenditure, the cost of providing that, it goes up a lot. But if the treatments are better, if the bounce-back time to get back to work is faster, how to measure these things is hard to say.

And in practice a lot of that is being fed into inflation. This is a concern for almost all goods.

Education suffers from the same thing. You see all this increased spending, spending, spending on college. A lot of that is probably inflation—the government keeps subsidizing college, and so the colleges keep raising the price of the standard textbook. There could also be increases in quality, but how would you know?

We have no idea what the inflation rates for health expenditures really are. We don't know! You can't measure quality of healthcare very well.

Meyer: *This often seems a very difficult subject to broach with an average consumer, this hedonics or this quality-measurement thing. If I were speaking to a group of consumers, how would I explain hedonics to them?*

Bils: Probably the best thing to do in terms of explaining hedonics is to not explain it! First of all, it's not used for very many goods. It's used for computers, consumer electronics. It's really not used for prices in general.

Hedonics is where you look at the features of the models, and you say, this model has this feature, this one doesn't—how much more does it fetch at the market? There's a classic example for vehicles. If you look at gas efficiency, miles per gallon, everything else equal, people would rather get better gas mileage. There's not much question about that.

But if you're using a hedonic equation, and you say everything else that I observe, how much more are people willing to pay for better fuel efficiency? You actually get a negative number. If I take two vehicles, the characteristics I enter for them, plus miles per gallon/fuel efficiency, I'll see the one that gets better miles per gallon tends to go for a lower price.



Meyer: *Why is that?*

Bils: Well, there are very limited characteristics that we're entering about the vehicle. So all these unmeasured characteristics that people like in their cars tend to be in a luxury car, and we're not recording all those. They may not care so much about the fuel efficiency; they want performance of the engine.

So when I, as a price measurer, look just at this, I'll price fuel efficiency negatively. That means that if all the cars in the country got more fuel efficient, and we employed the hedonics literally, we would say inflation went up. Even with computers there are problems like this. These hedonic coefficients jump around a lot.

People in general are interested in real incomes and what's happening to their situation.

Meyer: *How does all this figure in for people who are skeptical of measured inflation rates?*

Bils: There are two features of inflation. There's the one that I've focused on, which is what's happened to real incomes over long stretches of time. Do we have better products now? Do we have cell phones now? People wouldn't want to give up their cell phones.

And then there's the issue of stable products—a newspaper, milk, gasoline—what's happened to the prices of those. I think in terms of the Federal Reserve System—if it wants price stability, which is the price it should keep stable?

If I look at the price of a vehicle, the price of a car over the year, I'd see it dropped 4 percent. You could say the Federal Reserve has had deflation; it should be printing more money, so that I know that whether I go this week or wait a few weeks to buy my car, I'll need to have the same amount of money ready. Or if I look at computers, there was deflation of 20 percent. Should I have 20 percent more nominal price growth so that when I go to buy a computer I know I need a certain amount of money? I would say no; that would be crazy.

So there is an issue of what the Fed should target in terms of price stability. And then there's an issue of real income growth. The idea that there are new products and life gets better over time—the typical consumer is not going to project that on the Federal Reserve or the government. The consumer doesn't think that's something the Fed did or something the Fed should be worried about. They want to know what's happening to the price of this stable set of goods.

Meyer: *Consumers are very concerned about recent increases in food and energy prices. When they look to see what the Federal Reserve is paying attention to, one of the main measures excludes food and energy—core, or underlying, inflation. Is there some way to square the two perspectives, consumers and the Federal Reserve?*

Bils: This comes back to the Federal Reserve's focus on inflation. Are we creating an inflation rate that is going to stay high, is going to create ongoing, permanently increasing prices? People in general are interested in real incomes and what's happening to their situation.

So if I take the food and energy prices (the energy ones are the most striking), you can look at these and say, well, the inflation rate for food and energy is not very persistent. When there's this big run-up in food and energy prices, that doesn't mean there's going to be an ongoing increase; we know this statistically. It goes up, and then it's going to level off.

From the perspective of creating this ongoing inflation, it's natural that the Fed is going to focus on something more like the core inflation rate. But when energy prices go up, while it doesn't mean that inflation is going to continue at this incredibly high rate, it doesn't mean that the price of gas and so forth comes back down quickly.

So the consumers are right! In terms of their purchasing power, that is a big issue. The prices of these goods have gone up and are likely to stay up, so from their perspective in terms of their purchasing power, that's a real problem.

Meyer: *If the consumer is right, is the Federal Reserve wrong?*

Bils: In terms of whether we are creating this ongoing inflation, the Fed is right. There's been this big real shock of oil prices going up worldwide. It's a relative price change, and that's going to reduce purchasing power and it's going to stay high. That's just the matter of when you purchase more of something, the price goes up. I think the Fed has to be careful to keep in mind that they can't undo relative price changes.

How people view these relative price changes is very different. The price of oil or gas goes up, a lot, we view that as a big negative. Whereas when house prices drop a lot, we don't view that as a big positive. There are good reasons for that.

For one, we import the oil so in terms of real income, that's a big negative. Whereas for the housing, we're not importing the houses; when the drop in house prices occurs here, it's a benefit for the people buying houses and it's a loss for the people selling the houses. So that's an issue with the Consumer Price Index also.

A consumer price index isn't an ideal measure of what's happening to real income. That's partly why I think that gasoline is a problem—because it's so much an imported good. When its price goes up, that's really a big loss in



real income. Whereas when it's a good that's produced here, the loss in real income is that it takes more resources to produce it. If our efficiency drops in producing food, and then the food prices go up, that's a real loss in income. If there's an upward shock in prices, then the farmers—the people selling the food—do at least get some benefit from the price increases.

Meyer: *Are the cost of living and what the Federal Reserve would call inflation two separate things?*

Bils: They're related to the same thing. But there's a disconnect in the sense that inflation is the growth rate in the prices, and the cost of living is really the levels.

To go back to the gas station example, gas prices go way up, but then they're going to level off. That hasn't created an inflationary situation. But it has been an increase; it's a jump in the cost of living. The fact that you tell somebody gas prices are \$4 a gallon, but we don't expect them to go up more—well, that's a little bit of a positive to them, but they're not going to lose focus on the fact that now it's \$4 a gallon. But in that scenario, it's not ongoing inflation.

Meyer: *So if it is a relative price increase, would it be fair to assume that if individuals can't or don't substitute out of driving to work, they have to make adjustments elsewhere in their consumption bundle?*

Bils: Yes, then it's a real income drop. They have to either find a way to increase their incomes—work more or take a job that they don't like as well to earn more—or they'd have to cut their consumption, if it's going to persist. If the prices were to come back down, then it's a drop in real income but at least it's a transitory one.

The reason I think it hits home to consumers is because it doesn't tend to be very transitory. These run-ups in food prices, energy prices, aren't that transitory. They *are* in terms of the inflation rate—the inflation rate goes up and then it comes back down. But the prices for these goods will be predictably higher for a long, foreseeable period. We're not going to see \$1.50 gas in the near future.

Meyer: *In some sense, it's important for the Federal Reserve to deliver on price stability to minimize the volatility that would happen if you get some sort of nasty shock, right?*

Bils: Well, if you have a nasty shock, you want some price responses so that people feel the cost of that shock. I think in terms of relative price shocks, they're going to happen no matter what the Fed does; that would be the bottom line. The Fed is not going to create a change in relative prices.

Now, if they want to create a smoothness in overall inflation, they would have to lean against the wind pretty heavily. And they have been doing that. There has not been much persistence in inflation rates over the last 20 years or so, so there is a sense in which the Fed has been doing more of this leaning against the wind.

Gas prices go way up, but then they're going to level off. That hasn't created an inflationary situation. But it has been an increase; it's a jump in the cost of living.

Meyer: *Let's back up to prices. How do we actually measure prices?*

Bils: The idea is to get a broad-based measure of what people are consuming and where they consume it. That's actually done with three separate surveys. The Consumer Expenditure Survey asks people what they buy. That gives an idea of broad-based commodities—you're buying this much of men's clothing, women's clothing, jewelry, etc.

Then there's a second survey called the Point-of-Purchase Survey, where they call up households and ask where they purchase goods. Then there's a third survey where they actually go out to the retailers and collect the prices. Some people say I buy my books from Amazon, so some of those prices today are just collected online.

Mark Bilis

Position

Professor of Economics, University of Rochester
Economics Department Chair

Current Professional Associations

NBER Research Associate, Economic Fluctuations and Growth
Associate Editor, *Review of Economics and Statistics*
Editorial Board, *Journal of Human Capital*
Advisory Board, Carnegie–Rochester Conference on Public Policy

Selected Papers

"Do Higher Prices for New Goods Reflect Quality Growth or Inflation?" 2009, *Quarterly Journal of Economics*.
"Some Evidence on the Importance of Price Stickiness," with Peter Klenow, 2004, *Journal of Political Economy*.

Education

The Ohio State University, BA, 1981
Massachusetts Institute of Technology, PhD, 1985



The Bureau of Labor Statistics (BLS) is very good about trying to deal with statistical measurement. They don't actually collect these prices everywhere; they collect them in about 45 cities. They collect in any given month on the order of 90,000 prices across all commodities. In a typical metropolitan area they'll be collecting about 2,000 prices; not a huge number. They'll collect the prices in Cleveland; in Rochester where I'm from they don't do it. They do it in Buffalo and Syracuse.

Measuring prices, and therefore real income growth, is difficult. But I do think most of the biases, the biggest ones that tend to be left out, are in the direction of *underestimating* the growth in standards of living.

Meyer: *Have you seen a price collector in action?*

Bils: I went out in the field with a woman one morning years ago in Syracuse where she was collecting these prices. Very much in this notion is that price movements one place might not reflect well in the other place. So there's a very big focus on collecting the prices where people buy them. When they find that people tend to buy their goods more at a certain store, then they're more likely to sample that store than another store.

For instance, we went to a grocery store where it turned out we collected a lot of prices because a lot of purchases occur there. We also went inside an engineering firm to collect the price on one muffin from the vending machine because that happened to be on the survey where someone had said they made purchases. We had to go through security to go collect one muffin price, whereas in the same time we could have collected about 100 other prices at that grocery store.

If I was starting from scratch now, I think I would go a wholly different route. That's partly because technology has changed. I think it might make more sense to just make the consumers the sampling unit. I would contract with 1,000 consumers to keep track of all their purchases, give them some inducement. Have a debit card, with some small subsidy, which would record all the transactions and prices, at least for a lot of goods. And for the ones that doesn't work for, I might try to supplement.

For stable goods, like bananas, the process works very well. When the products are turning over, then it's problematic because you have to define the good. I can look at the new model year vehicle versus the old model year, but I have to decide, is this the same good or not?

Where things are really difficult is when there are wholly new products—the cell phone, the DVD players, before that VCR players, the microwave—as far back as you want to go. That's actually the hardest problem. And the surveys aren't well served for that.

The BLS recognizes this. It shortens the cycle of getting products through the system and introduced and spread, particularly for consumer electronics. They have always tried to get computers through quicker. I think they do the best they can. They take all these issues seriously.

The other issue for the BLS is that they can't be just switching their methods every year based on arguments or research that people are doing, because we need to have as consistent a series as possible for how they measure prices. They don't want to be reversing what they do.

I think it's just important to recognize that measuring prices, and therefore real income growth, is difficult. But I do think most of the biases, the biggest ones that tend to be left out, are in the direction of *underestimating* the growth in standards of living. We have these things like the cell phone that used to be infinitely priced that now are at a price where almost everybody who wants it can have it, and presumably gets a lot of consumer surplus out of it.

The bias is that we overestimate inflation in terms of the standard of living, but trying to say how much is difficult. You can see why the BLS wants to be a little conservative. You can see how the public reacts if you try to say that inflation is negative because we have all these new products—they have grown to expect that there will be these new products. These things are going to be there.

Meyer: *How much does it really matter whether the government properly measures the cost-of-living index?*

Bils: I'll pick on the vehicles again because it makes such a huge difference in how you treat these products. If I look just at what people are paying, the unit price on a car over time, it grows. For the period I looked at, from the late '80s to around 2008 or so, the dollar amount spent on cars increased by something like 3 percent per year. But if I looked at holding it literally constant, comparing apples to apples, once a product is out there, it's clearly dropping in price by 4 percent per year.

How do I explain that? It must be the quality is actually growing like 7 percent per year, if I literally treated the right index as following that same model car over time. The BLS doesn't do that. They treat a lot of these new-model price changes as inflation. They wind up with a much more conservative measure of quality growth. But if I say real quality growth of cars is a couple percent per year, versus 6 or 7 percent per year, I am going to have a very different picture of, certainly, productivity growth in producing cars, but also the real income side of consuming cars. The same holds for any good.

For some goods, again, like bananas and milk, there is not this product turnover, so it's not going to be important. But for virtually all durables and many services, this phenomenon is there, with the nature of the products changing. So it can matter a great deal if you're thinking about what the standard of living is today versus the past.

We can make an argument for cars similar to the medical example. Maybe there's been no inflation in medical care, in the sense that if I gave you a certain amount of money, and a certain condition, a heart problem to deal with, I'm not sure you wouldn't rather have today's technology at today's prices rather than old technology and old prices.

My first car was a 1983 Accord, which cost \$9,600. It was a great car, but it didn't have any of the safety equipment that you have today. It didn't have power windows. It didn't have air conditioning. It didn't have many features. If you took that same car—it did get good gas mileage, actually—and you tried to sell it as a new car today, I don't think you would get \$9,600 for it, if you had to compete with what's out there.

What does that mean? That means that people can do better now than they could do then, which means there's actually been deflation. If I'm correct—it's a thought experiment,

but if I'm correct—then there's actually been deflation for vehicles rather than inflation as the official statistics would show. Over time, these things build up dramatically in how we interpret standards of living. How do you judge one economy versus another? What's growth been like over the last 30 years compared to the 30 years prior to that?

Meyer: *Why did you become an economist, and who has influenced you the most?*

Bils: I grew up on a farm, and I was pretty clearly not very good at it. And I didn't have a very clear idea of what I wanted to do at college. My second quarter at Ohio State, I took a course with Professor Howard Marvel, and he was terrific, dynamic, and very enthusiastic. He was very good at showing how basic economics lets you understand lots of things going on in the world. I always liked talking about policy-related things. When I took that first economics course, it was clear that first day that I'd had no idea what I'd been talking about, and that was very inspiring, actually.

I can remember the first assignment. Professor Marvel would do these Chicago tradition questions: Consider the following, true, false, uncertain, and justify your answer. Can you put a price on a human life? I thought at first, no, you can't. Of course, the reality is you do all the time. People take riskier jobs; they cross the street. And we got a lot of similar questions. The argument that oranges would be worse for consumers in Florida, for example.

The argument is that oranges that stay and are consumed in Florida will be worse than the ones that ship out because the shipping cost adds less relatively to a good orange than a bad orange. So there's all of these thought experiments that made me realize how little I knew and how relevant it was for things I like to talk about, and that there actually are logically, economically correct arguments, but not the ones I had been making. That was inspiring.

Another professor I had at Ohio State who had a big impact was Steve Sandell. At Ohio State they have a Center for Human Resource Research where they collect the micro-labor data. After my first year, I went to Professor Marvel—I had been working in the cafeteria—and I asked if there were any research assistant jobs. He got back to me and said Steve Sandell works at this center where they use survey data from households, individuals, on their labor experience, and he'd be interested in having me work with him.

People can do better now than they could do then, which means there's actually been deflation.

I met with Steve Sandell and he said he had work for me. At the beginning, he set me up very simply, just setting up tables. He was talking about cross-tabs—years of schooling in one dimension, wages in another. I thought he meant setting up real tables, setting up surveys on tables! I said, 'That's fine.' It paid \$0.10 more than I had been making in the cafeteria. That was my introduction to research. I got there and I had an office with three other research assistants, which was really a windfall! I could see then that the easy work was in economic research. You didn't have to set up real tables at all.

Meyer: *And that prompted you to become an economist?*

Bils: That was part of it! Also, he gave me good advice. I was still interested in policy and thinking of various things. Steve said that if I was to go on I should go into economics because if I did want to do something policy-oriented, I could move that direction with an economics degree; but if I went with a public policy program it would be hard to move back. ■



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Book Review



Fault Lines: How Hidden Fractures Still Threaten the World Economy

by Raghuram G. Rajan
Princeton University Press 2010



Reviewed by
Doug Campbell
Editor, *Forefront*

Recently in the *New York Times Book Review*, historian and journalism professor David Greenberg lamented a recurrent feature of the social criticism genre—the disappointing ending. That’s when authors lay out a fantastically intricate explanation of what went wrong, only to fall short in suggesting a fix.

Maybe Greenberg hadn’t come across *Fault Lines: How Hidden Fractures Still Threaten the World Economy*. Raghuram G. Rajan, a professor at the University of Chicago and former chief economist at the International Monetary Fund, proves the exception to Greenberg’s

rule of unsatisfactory endings. Where others have delved into the personalities and perverse systems that led to the financial crisis and then summed up with a half-baked list of policy ideas, Rajan puts a premium on policy. In fact, nearly half of *Fault Lines* is dedicated to policy choices that Rajan believes are not only realistically achievable but likely to be quite effective. He makes a good case.

Rajan writes with the authority of his credentials: He is both a top-flight economist and one of the few skeptics who raised frequent and grave concerns about the world’s overleveraged financial system in the years building up to the crisis. His recollection of the 2005 Jackson Hole Conference, where he delivered a stern warning about mounting financial risks to an audience of disbelievers, is both amusing and disturbing: “I exaggerate only a bit when I say I felt like an early Christian who had wandered into a convention of half-starved lions.”

For the most part, however, *Fault Lines* is not a behind-the-curtain look at the personalities behind the financial crisis. Rajan sees the financial crisis through an economist's prism: He follows the incentives. There are no villains, per se; just systems, and institutions, and us. "Somewhat frighteningly," he writes, "each one of us did what was sensible given the incentives we faced."

So the first half of *Fault Lines* proceeds with a sequence of head-slappers. Rajan notes that on-the-job happiness tends to be associated with the ability of people to see tangible results from their work. For a house builder, the satisfaction comes from the house. But what of the banker? His satisfaction comes chiefly from making money, and lots of it.

When subprime lending looked like a stream of unending profits, everybody jumped in. Meanwhile, widening income inequality brought pressure to boost middle-class consumption with easy access to credit. How else would Americans be able to afford their proverbial flat-screen TVs and SUVs? That the Federal Reserve kept interest rates low for so long leading up to the crisis was no coincidence, by Rajan's way of thinking. After all, it was just trying to fulfill its dual mandate of achieving price stability and maximum employment.

It should be noted that the Federal Reserve comes under quite an attack in *Fault Lines*, at one point likened to a gigantic hedge fund. In Rajan's story, the Federal Reserve joined with the private sector to drive subprime lending toward "its disastrous conclusion."

Scores of other financial crisis analysts have more or less stopped their stories right there. Rajan takes the trouble not only to explain what's wrong with the system, but to describe some fundamental ways to change it for the better. Chief among these are ways to ensure that market players fully appreciate the tail risks they are taking—that is, risks whose consequences don't manifest themselves immediately and aren't apparent to others in the short term. Tail risks may be quite unlikely, but if they come true can be devastating. Investors know that if everybody fails, nobody fails because the government will bail everybody out. As Rajan puts it, "failing in a herd rarely has adverse consequences."

What gives Rajan's recommendations force is their place in a coherent, overarching strategy. "Clawbacks" would force bankers to give up some of their earlier earnings—or have a lot of income deferred—until the tail risks had faded. Continuous sharing of financial information with supervisors would fit better with today's fast-moving financial markets. Beefed-up capital cushions would keep institutions safer.

Between these policy recommendations and detailed observations about the problems in our global economy, Rajan takes time to outline the biggest problems—the fault lines. These are indeed wide and dangerous. The fault lines include the housing crisis, widening income inequality, trade imbalances, and the way these imbalances are financed across national borders. Any story that identifies such gaping chasms must of course offer remedies, and that's where *Fault Lines* stands out.

Rajan is careful not to demonize the financial sector. After all, finance provides substantial benefits—think credit cards and money market accounts. Some innovations may not provide much value. The only safe financial system doesn't take risks, and then it ceases to be a financial system at all. The risks go away, but so do the benefits.

This is a wholly expected premise from a Chicago School economist, the kind that will have progressives complaining that Rajan's book is just more of the same. But how to account for Rajan's call for universal healthcare? Or early childhood education? It's clear that Rajan is interested in being intellectually consistent. If you identify income inequality as a fault line, you can't very well ignore it. An honest approach has to take into account the need for both advancing opportunities so that incomes are less widely dispersed, and then acknowledging that the financial system requires us to build a stronger safety net for those who find themselves victims.

Fault Lines was published almost a year ago. While it received its share of accolades, I don't recall much of a buzz around it at the time, though it did win a number of awards. Its critique and policy suggestions remain powerful today.

So to Rajan's list of recommendations toward a better world, I add another: Read *Fault Lines*. And make sure to stick around for the ending. ■

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