

FIRST QUARTER 2014

ECON FOCUS

FEDERAL RESERVE BANK OF RICHMOND

Cybersecuring PAYMENTS

Are we losing the fight against
next-gen bank robbers?

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Maturity Mismatch and Financial Stability

When banks use short-term deposits to fund longer-term loans, it's known as "maturity transformation." In recent decades, a significant amount of maturity transformation has occurred outside traditional banking in the shadow banking sector, via financial products such as asset-backed commercial paper and repurchase agreements, or repos. Economic models generally assume that maturity transformation is socially valuable, a way to bring together savers and borrowers in order to fund useful economic activity. But maturity transformation can be risky: During the 2007-2008 financial crisis, the firms that were most stressed were those that relied on short-term, wholesale funding to finance portfolios of longer-term assets such as mortgage-backed securities. When lenders got nervous about the value of those securities they pulled their funding, and the shadow bankers struggled to repay their investors.

The distress of the firms engaged in shadow banking highlighted the tension regulators face between the systemic consequences of allowing a firm to fail and the moral hazard of providing government support. For that reason, regulators have been working to strengthen the process for resolving failing financial firms, with the goal of reducing — or better yet, eliminating — the need for government bailouts.

But resolving a large, complex financial firm is no easy task, and the more maturity transformation a firm is engaged in — that is, the more it relies on short-term funding — the more likely it is to need sources of funding during bankruptcy to continue operations and pay off creditors. That created major challenges during the crisis, when the stresses in short-term markets caused funding to evaporate. The Dodd-Frank Act's most prominent approach to reforming resolution, the Orderly Liquidation Authority (OLA), thus provides access to public sector lending in order to avoid the disruptions of a retreat of private short-term funding.

The logic behind this reliance on government credit seems to assume that the amount of maturity mismatch and short-term funding we see in the markets is optimal, not to mention fixed and independent of policy choices. But another explanation — the more compelling explanation, in my view — is that the current funding structure of financial firms is the *result* of government policies that have induced a socially excessive amount of maturity transformation.

One such policy is the exemption some financial products receive from the "automatic stay" in bankruptcy. Typically, creditors are prohibited from rushing in to seize a failing firm's assets, in an effort to ensure that those assets are sold in a way that generates the most value for all the creditors. But many short-term financial contracts, such as those common in shadow banking, are exempt from this stay, under the rationale that short-term creditors need access to their funds

in order to pay off their own creditors and prevent a failure from spreading to other firms. It's possible that the preferential treatment given to these contracts, although intended to reduce systemic risk, has instead encouraged a greater reliance on less-stable sources of funding.

Numerous instances of government support over the past several decades also have led the creditors of some financial institutions to feel protected by an implicit government safety net should those institutions become troubled. This expectation of protection dampens incentives to contain risk-taking, encouraging greater leverage and more reliance on highly liquid short-term funding.

I believe there are better options for resolving financial firms than those that rely on taxpayer-funded support. One option, for example, is to look for ways to better adapt the bankruptcy code to the business of large financial firms, such as limiting the automatic-stay exemption for certain financial instruments. Another option is to vigorously implement the provision in the Dodd-Frank Act that requires large, complex firms to create resolution plans, or "living wills." These are detailed plans that explain how a troubled financial institution could be wound down under U.S. bankruptcy laws without threatening the rest of the financial system or requiring a public bailout. If these plans indicate that bankruptcy would pose a risk to the system as a whole, regulators can order changes in the structure and operations of a firm in order to make it resolvable in bankruptcy without government assistance. That might mean a change in the firm's funding structure — and a reduction in maturity transformation to a level that is compatible with an unassisted failure.

The intent is not for regulators to decide how much maturity transformation is too much — that is ultimately a question for markets to decide. Instead, our goal should be to make credible changes in policy that properly align the incentives of financial market participants to monitor and control risk. That, I believe, is the best approach to achieving financial stability.

EF



JEFFREY M. LACKER
PRESIDENT
FEDERAL RESERVE BANK OF RICHMOND

Capital Heights DC Buildings May Be Getting a Little Taller

If you've driven through Washington, D.C., you might have noticed how easy it is to spot landmarks like the Washington Monument and the Capitol along the skyline. That's thanks to the lack of something else you might expect to find in a booming metropolis: skyscrapers. With few exceptions, no building in the city stands taller than 130 feet, or 10 stories. The source of the limit is a 120-year-old apartment building. At the time of its construction, locals feared that the 164-foot Cairo building would spark a trend of ever-higher structures that would blot out Washington's airy feel and iconic vistas. In response, Congress passed the 1910 Height of Buildings Act, still in place today.

Some buildings could be shifting up soon — though not by much. In May, President Obama signed an amendment to the Height Act that allows occupancy of penthouses up to one story above the current top floor of buildings in Washington — space previously reserved for mechanical equipment. The road to that modest change involved nearly two years of debate and study that began in July 2012 with hearings by the House Committee on Oversight and Government Reform, which has jurisdiction over the city.

Economists and local politicians have long argued

that the Act may inhibit the city's capacity for growth. Between 2010 and 2013, Washington, D.C., added nearly 50,000 people, an increase of 7.4 percent, compared with an average of 2.4 percent for the nation as a whole during the same period. If trends continue, Washington's Office of Planning estimates that by 2040, the city could need between 157 million and 317 million square feet of new building space. Increasing demand and constrained supply have already pushed residential prices to more than double the national average.

Harvard University urban economist Edward Glaeser has championed "building up" as a solution to rising costs of living in crowded cities. He noted in a 2011 *Atlantic* article, "Simply put, the places that are expensive don't build a lot, and the places that build a lot aren't expensive."

The National Capital Planning Commission (NCPC) and the Office of Planning released a study in September 2013 estimating the effect of raising the height limit by as much as 120 feet. The study concluded that high-rise construction could lower rents around the city and increase the tax base. But public response to changing the Height Act is overwhelmingly negative. A *Washington Post* poll found that 61 percent of D.C. residents opposed changing the height restrictions — a sentiment that cut across income and demographic lines. In hearings held by the Office of Planning and the NCPC, many residents said that raising the height limit would harm the city's unique character.

In its final recommendations, the Office of Planning proposed increasing the building height limit at the core of the city to 200 feet and granting city lawmakers more autonomy to modify the restrictions in the future without going through Congress. But in a resolution passed 12 to 1, the D.C. Council voiced opposition to making any changes.

In response, Congress passed the amendment allowing occupancy of penthouses, a measure supported by both the Office of Planning and the NCPC. House Committee on Oversight and Government Reform Chairman Darrell Issa has said he is not finished exploring the issue, but D.C. residents seem largely set against moving the city's century-old ceiling.

—TIM SABLİK

PHOTOGRAPHY: IMAGE © DC OFFICE OF PLANNING



The DC Office of Planning conducted a modeling study in 2013 to help visualize the impact of easing building height restrictions in Washington, D.C.

ished exploring the issue, but D.C. residents seem largely set against moving the city's century-old ceiling.

Time is Money

Making Clocks More Accurate Has an Economic Payoff

A second atomic clock officially started ticking at the National Institute of Standards and Technology (NIST) in April, helping to set a more precise standard for U.S. civilian time. Initial tests by the Gaithersburg, Md.-based agency indicate that the device is the world's most accurate timepiece.

Timekeeping devices have long used a swinging pendulum or an oscillating crystal to mark off increments of time. Inside of NIST's two atomic clocks, the back and forth motion of a pendulum is replaced by the vibrations of atoms within a chamber of cesium gas. Every time the atoms reach a certain frequency — 9,192,631,770 cycles per second, to be exact — the clocks generate an electronic tick.

This oscillation is quite stable over time. NIST-F1, built in 1999, keeps time to within one second every 100 million years. The new NIST-F2 is even better, gaining or losing a second in 300 million years.

Timekeeping has steadily improved over the centuries, driven by an interconnected world's need to stay synchronized over long distances. In the 19th century, the expansion of railroads across the

United States created the need for a uniform time standard for all trains to follow. In response, astronomical stations distributed time observations via telegraph. In the 21st century, global positioning satellites with atomic clocks send time signals that calibrate navigational equipment on boats, airplanes, and automobiles.

NIST broadcasts time signals via shortwave radio 24 hours a day, seven days a week. These signals keep cellphone and computer networks running smoothly, synchronizing pulses of information as they are transmitted and received between two points. They are also used by power companies to ensure that electricity is transmitted at the proper frequency.

Steven Jefferts, lead designer of NIST's new clock, reflected upon this technological progress when his agency announced the start of the clock's operation in Boulder, Colo. "If we've learned anything in the last 60 years of building atomic clocks, we've learned that every time we build a better clock, somebody comes up with a use for it that you couldn't have foreseen."

— CHARLES GERENA

Babies and Dollars

MD Considers a Birth Injury Fund

In light of rising medical malpractice insurance costs for obstetricians in Maryland, legislators in the state are considering a bill to create a "no-fault birth injury fund." The bill, designed to curb pressure on providers of obstetric services, was discussed at a General Assembly hearing in March.

Proponents of the bill assert that the root of the rising insurance costs is increasingly staggering sums awarded in recent years to parents of children who have suffered catastrophic neurological injuries during birth. For example, two 2012 verdicts awarded \$55 million and \$21 million, respectively, to families whose children had suffered severe brain injuries during birth. Some fear that the threat posed by these verdicts will continue to lead insurance companies to raise rates. By removing the most costly cases from the tort system, some legislators hope to lower the overall cost of obstetric malpractice insurance.

The Maryland bill is modeled in large part after a similar program enacted in Virginia, the first of its kind. In the mid-1980s, Virginia saw a comparable rise in malpractice insurance premiums for obstetricians,

prompting legislators in the state to implement the Virginia Birth-Related Neurological Injury Compensation Program. A 2002 report from the state's Joint Legislative Audit and Review Commission found that the program caused an almost immediate increase in the availability of affordable malpractice insurance for obstetricians. The "no-fault" feature of the program allows all children who meet the program's qualifications to receive benefits, regardless of whether the doctor was at fault; the report found that the program was able to serve more children than the tort system, while providing more generous benefits per child, on average.

Critics of the proposed Maryland legislation argue that a fund would inadequately discipline negligent doctors. Whether or not this shift of incentives has had any actual effect on the health outcomes of infants is unclear, but a 2008 paper published in the *American Journal of Law and Medicine* noted that deterrence and doctor incentives were simply not a "founding objective" of the Virginia program.

— WENDY MORRISON

FEDERAL RESERVE Taking Charge

BY TIM SABLİK

How much does the Fed's success depend on who's at the helm?

On Feb. 3, Janet Yellen became the 15th chair of the Federal Reserve Board, a position that has been called the second most powerful in the country. Her immediate predecessors — Ben Bernanke, Alan Greenspan, and Paul Volcker — have become household names. Financial reporters scrutinize the chair's every word for indications of future monetary policy; in Greenspan's day, they even went so far as to analyze the thickness of his briefcase as he headed to meetings of the Federal Open Market Committee (FOMC). "Every time I expressed a view, I added or subtracted 10 basis points from the credit market," he said in a 2012 interview.

In the eyes of the public, the Fed chair may have the first and last word when it comes to monetary policy. But the chair is just one member of a 12-person monetary committee that, for much of its history, has determined monetary policy using various rules and guidelines. (See "Playing by the Rules,"



Former Fed Chairman Paul Volcker speaks to a group of people gathered to protest high interest rates outside the Board in Washington, D.C., on April 14, 1980. Volcker's inflation-fighting policies caused hardship for many workers, but he argued that the long-run benefits were worth the short-term costs.

Econ Focus, Second Quarter 2013.) In this setting, how much does one person really matter?

Sometimes, at least, the answer is clearly "a lot." For example, many economists predicted that surging economic growth and falling unemployment in the late 1990s would spark inflation. Several members of the FOMC advocated raising interest rates to prevent this, but Greenspan was convinced that the economic growth and increased employment were due to productivity gains that would counteract normal inflationary pressures. Under his leadership, the Fed may have avoided increasing interest rates unnecessarily, and the economy continued to grow without the inflation others had feared.

This episode illustrates the outsized influence the Fed chair can exert over policy decisions, an influence that has been documented by University of California, Berkeley economists Christina and David Romer. In a 2004 *Journal of Economic Perspectives* article, they found that the Fed's response to inflation tends to reflect the views expressed by Fed chairs both before and after they take office. In particular, the Fed's responses to crises and outside pressure have often depended foremost on its leaders.

Intellectual Leadership

During the height of the financial crisis of 2007-2008, many people feared that another Great Depression was on the horizon. Some were comforted, then, with the knowledge that the chair of the Fed at the time was a scholar of the Depression. Bernanke had foreshadowed his resolve to avoid the central bank's mistakes during the Depression in a 2002 speech he made as a Fed governor. Speaking at a conference to honor Milton Friedman, who along with Anna Schwartz first argued that the Fed's failure to act aggressively had exacerbated the Depression, Bernanke said, "Regarding

PHOTOGRAPHY: AP PHOTO

the Great Depression. You're right, we did it. We're very sorry. But thanks to you, we won't do it again."

Bernanke's study of history may have convinced him that drastic times call for drastic measures. During the 2007-2008 financial crisis, he led implementation of some of the most dramatic policies that central banks have ever seen. The Fed provided large doses of liquidity to the market by invoking emergency provisions of the Federal Reserve Act not touched since the Great Depression. Bernanke also drew upon his knowledge of Japan's experience with deflation in the 1990s, its so-called "lost decade," when interest rates fell to zero. The Fed communicated a commitment to keeping rates low for an extended period and conducted quantitative easing, buying assets such as mortgage-backed securities in order to stimulate the economy. It is still too early to evaluate how successful these measures were, whether they continued past their effectiveness, or whether the decision to involve the Fed in the allocation of credit will ultimately prove problematic, but the United States did avoid a second Great Depression.

While Bernanke helped guide the Fed's extraordinary response to the financial crisis, the Fed's response to the Great Depression itself was less focused. Leadership in the early Fed was much more decentralized, with each district bank viewed as largely autonomous. Reserve Bank leaders were actually in charge of implementing monetary policy, and the Board and its chair played more of advisory role. The New York Fed took an early leadership role in the System, thanks both to the disproportionate size of the financial sector within its jurisdiction and to the experience of its first leader, Benjamin Strong.

In the eyes of his contemporaries, Strong was born to lead the central bank. A successful and respected banker prior to joining the Fed, he first rose to prominence at the Bankers Trust, a private "banker's bank" that filled a role similar to that of the future Fed. During the Panic of 1907, Strong was instrumental in extending credit to troubled firms. His experience quickly elevated him to a position of leadership at the Fed.

"Strong had high intellectual ability and a knowledge of central banking far superior to that of his colleagues," wrote Lester Chandler, an economist at Princeton University and author of Strong's biography. "As some of his former associates put it, 'We followed him because he knew so much more than any of us.'"

In the 1920s, Strong recognized the potential to use open-market operations — the purchase and sale of Treasury bonds — to provide liquidity in times of crisis. The Fed used such operations in 1924 and 1927 to alleviate recessionary pressures. Strong argued that the Fed's role should be to ensure that "there is sufficient money and credit available to conduct the business of the nation," while at the same time making sure there was not excessive credit to fuel

The task of defending the Fed's independence during this time fell predominantly to the Fed chair.

inflation. While many bank leaders deferred to Strong's experience, the Board bristled at what they viewed as a usurpation of power by New York.

When Strong died in 1928, members of the Board saw their opportunity to reclaim the leadership role they felt rightly belonged in

Washington. According to Friedman and Schwartz, his death was poorly timed. They wrote: "If Strong had been alive and head of the New York Bank in the fall of 1930, he would very likely have recognized the oncoming liquidity crisis for what it was, would have been prepared by experience and conviction to take strenuous and appropriate measures to head it off, and would have had the standing to carry the System with him."

While other economists such as David Wheelock of the St. Louis Fed and Allan Meltzer of Carnegie Mellon University have disputed this claim, there is little doubt that the Fed's response to the Depression lacked coordination. In a 2006 working paper, Gary Richardson, the Federal Reserve System historian and an economist at the University of California, Irvine, and William Troost, also at Irvine, studied the outcomes of different policies taken by the Atlanta and St. Louis Feds. They looked at bank failures in Mississippi, the lower half of which is in Atlanta's district and the upper half of which is under St. Louis' jurisdiction. During the first 18 months of the Depression, the Atlanta Fed followed a policy of lending freely to financial institutions during crises, while the St. Louis Fed ascribed to the view that the central bank should allow the supply of credit to contract during recessions. Richardson and Troost found that Mississippi banks in Atlanta's district failed at a much lower rate than those in St. Louis' district, suggesting that coordinated lending by all 12 banks, something Strong would have likely favored, could have mitigated bank failures in the Depression.

Standing Up to Pressure

Economists now widely recognize that a central bank can most effectively pursue goals of price stability and sustainable employment if it is independent. But for much of its early history, the Fed faced pressure from Congress and the White House to use monetary policy to foster politically attractive short-term goals. Despite having its independence recognized with the Treasury-Fed Accord of 1951, the Fed continued to face such pressure for decades after. The task of defending the Fed's independence during this time fell predominantly to the Fed chair.

As the first post-Accord chair, William McChesney Martin appeared to have been chosen to limit the central bank's new independence. He had served under President Harry Truman as the chief negotiator for the Treasury during the Accord debates. Some Fed officials feared that Truman had appointed Martin to keep the Fed sympathetic to his interests. Martin proved otherwise, however. He believed that the Fed's primary mission was to "lean against"

the forces of inflation and deflation, which required the ability to independently determine monetary policy. He recognized that the Fed was a political creation, and as such was accountable to Congress, but he believed monetary policy would be most effective if it were independent from the executive branch.

During his nearly 20 years in office, he would face no shortage of attempts by presidents to change his mind. Under President Dwight Eisenhower, Martin faced pressure to ease rates ahead of the 1956 election. Martin refused to do so, and Ike backed down and publicly supported the Fed's independence. In the 1960s, President Lyndon Johnson pressured Martin to keep rates low as spending on the Vietnam War and Great Society ramped up. But to Johnson's dismay, Martin proved largely immune to such tactics. When the chairman announced a rate increase in December 1965, Johnson was furious that he had ignored his request to wait until after the new budget was released in January. While such actions earned him the ire of presidents, Martin's collegial style and defense of monetary independence helped garner the support of his colleagues.

"Martin was an iconic figure throughout the Fed — an extremely popular leader," says Al Broaddus, who served as the Richmond Fed president from 1993 to 2004. He first joined the Richmond Fed as a research economist in 1970, Martin's last year as chair.

Despite Martin's efforts, the central bank faced increasing political pressure in the late 1960s and 1970s as growing deficits and inflation limited the effectiveness of fiscal policy. "As it became really hard to tamp down on spending, fiscal policy became less and less reliable as a tool, and monetary policy became the only game in town," says Donald Kettl, dean of the University of Maryland's School of Public Policy and author of *Leadership at the Fed*.

Much of the increased pressure fell on Martin's successor, Arthur Burns. Burns had served as the head of the Council of Economic Advisers under Eisenhower and as an adviser to President Richard Nixon. When Nixon appointed Burns to the chair, he made no great secret of his assumption that Burns would guide monetary policy with the administration's best interests in mind. On the day Burns took office, Nixon joked: "I respect his independence. However, I hope that independently he will conclude that my views are the ones that should be followed."

"He was an intensely political person," Broaddus says of Burns, "and he served as chairman during a period in which the Fed was probably as fully politicized as any time in its history."

While Burns proved more recalcitrant than Nixon had hoped, his decisions were largely in line with the administration's wishes. Burns later argued that his hands were tied by the circumstances of the time. He feared that the Fed's monetary authority would be stripped by Congress and given to the Treasury if he resisted political demands too much. In a speech after leaving office, he lamented that "philosophic and political currents" had created a bias for inflation that made it infeasible for the Fed to pursue tighter policy.

Burns is not alone among Fed chairs in having been influenced, on some level, by the president or by shared party affiliation with the president. In a 2006 paper, Burton Abrams of the University of Delaware and Plamen Iossifov of the International Monetary Fund found that the political affiliation of the chair does influence Fed policy. Their research shows that when the Fed chair shares the same partisan affiliation as the incumbent president, monetary policy becomes significantly more expansionary in the seven quarters leading up to election, though this effect has greatly moderated over time. The evidence also suggests that monetary policy during Burns' chairmanship, in particular, followed this pattern.

The public perception of Burns' political connections damaged the Fed's credibility as an independent bulwark against inflation. It would fall to his successors to rebuild it.

Setting Expectations

President Jimmy Carter chose G. William Miller to replace Burns in 1978. A corporate CEO whose only central banking involvement was as a director of the Boston Fed, Miller was largely unknown both within the Fed and in the broader financial community. It soon became clear that he was out of his element as a central bank leader, and Carter shifted him to secretary of the Treasury after little more than a year.

In contrast, Paul Volcker, Carter's choice to succeed Miller, was well-known before he became Fed chair. Volcker moved between the public and private financial sectors in the 1950s and 1960s, starting as an economist at the New York Fed and later joining the Treasury, where he eventually became undersecretary for monetary affairs. He returned to the New York Fed as president in 1975. As a public figure, he was difficult to miss, thanks to his towering height, bald head, big glasses, and penchant for smoking cigars. Volcker's wealth of experience in both public and private finance gave markets cause for optimism when his appointment was announced. Still, inflation would not be fixed instantly.

"I think the perception is that Volcker came in, took over, and fixed everything overnight," says Broaddus. "That's not exactly what happened."

Volcker recognized that inflation depended in part on expectations of future price increases. During the 1970s, the public had come to doubt the Fed's commitment to tame inflation in the face of political pressure to ease, and that factored into expectations. Volcker wanted to signal the Fed's commitment to controlling inflation, but in the days before 24-hour news coverage and post-FOMC press conferences — the latter began only in 2011 — relaying that message would be tricky. He decided that a dramatic shift in policy would show that the Fed was taking inflation seriously. That shift came on Oct. 6, 1979, when the Fed announced that it would begin aggressively controlling the money supply, allowing interest rates to move freely until inflation came under control.

While the public wanted to reduce inflation, Volcker needed to convince them that eliminating it would be worth

the pain of severe recessions in the short term. As unemployment mounted in 1980, protesters marched on the Board in Washington. Volcker, meeting the crowd, sympathized with their hardship, but he stressed that inflation had to be dealt with for their long-term benefit and the Fed would not back down from that mission.

“There were death threats and homebuilders were coming into his office carrying symbolic two-by-fours,” recalls Broaddus. “But once Volcker made up his mind that inflation had to be brought under control once and for all, he pursued it with courage. He knew he wasn’t going to be popular.”

His tenacity paid off. As the public watched Volcker weather biting criticism from legislators during congressional testimony without giving an inch, they came to believe that the Fed under his leadership would resist political pressure to control monetary policy. By 1983, inflation was beginning to subside and Volcker’s policies seemed to be paying off. At his reappointment hearings, he was receiving letters of support from the public rather than death threats.

“Volcker personified the Fed in a way that few chairmen ever have before or since,” says Kettl. “He exuded a sense of determination and created an expectation that the Fed’s policies were going to continue and that inflation wasn’t going to reignite.”

When Volcker stepped down in 1987, many wondered if anyone would be able to fill his shoes. His successor, Alan Greenspan, certainly had experience monitoring the financial markets, having headed up an economic consulting firm for three decades. It was his public service record that gave some observers cause for concern. Greenspan had long been active in Republican politics and chaired the Council of Economic Advisers under President Gerald Ford, invoking memories of Burns’ political ties. In fact, Greenspan had been Burns’ student at Columbia University. Many speculated Greenspan would be more politically accommodating than Volcker.

But he was quick to signal to the public that he would maintain the fight against inflation begun by his predecessor. Shortly after becoming chair, Greenspan earned the

market’s confidence with his deft response to the stock market crash of October 1987, and he demonstrated his political independence by not lowering interest rates ahead of the 1992 election. President George H.W. Bush later blamed Greenspan for his loss to Bill Clinton. Public confidence in Greenspan’s stewardship of the economy grew throughout the 1990s, leading to his moniker “the Maestro.” Although he developed a reputation for being inscrutable, Greenspan actually presided over major expansions in Fed transparency, such as announcing federal funds rate changes for the first time in 1994.

“Greenspan wasn’t a transparency activist, but I give him a lot of credit for allowing and permitting progress toward greater transparency,” says Broaddus.

Ben Bernanke would take up the transparency cause when he succeeded Greenspan in 2006. He oversaw the evolution of FOMC press releases to include an explicit inflation target, and he held the first post-FOMC press conference to further explain the committee’s actions to the public. Upon leaving office, Bernanke cited transparency as a key part of his legacy. Janet Yellen, who played a key role in transparency initiatives as vice chair, has publicly stated her intention to continue that legacy.

Given the chair’s visibility in communicating monetary policy to the public, testifying before elected officials, and responding to crises, it is easy to think of the Fed as a single-headed entity. But the chair serves as part of a committee that determines monetary policy, and that committee is not obliged to share the chair’s views. The Board outvoted Volcker on an interest rate cut in 1986, nearly prompting his resignation. Even so, such overrulings are extremely rare, and the chair’s importance as a leader for the Fed is undeniable.

“When push comes to shove and there’s a late night crisis meeting, it’s the Fed chair who takes part in those discussions,” says Kettl. “When it comes time to make public pronouncements, it’s the Fed chair who makes them. The Fed has changed, but I think the role of the chair as a leader is as important now as it has ever been.” **EF**

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JARGON ALERT

Equilibrium

BY RENEE HALTOM

At the most basic level, a market is in equilibrium when supply and demand are balanced. In that state, the going price is one in which the amount that buyers want to buy exactly matches the amount that sellers want to sell. Otherwise, buyers would bid up the price to resolve a shortage, or sellers would cut prices to rid themselves of a surplus.

Another way of putting it is that equilibrium is a state in which there is no impetus for change: The producer's profits are maximized, the consumer is as satisfied as possible given his budget, or profit opportunities have been exhausted such that no new firms want to enter a market. Economic theory includes countless types of equilibria.

Of course, markets can be knocked out of balance when something comes along to disrupt them. A temporary shift, like a hurricane that wipes out a season's crop of oranges, will result in short-lived changes in the market price and quantity sold. After such shifts, competitive markets tend to gravitate back toward their original equilibrium, although a more fundamental shift — like a permanent tax on oranges — can produce a new equilibrium altogether.

The concept of equilibrium helps policymakers understand the likely effects of a given policy. Suppose you're a policymaker who wants to know how raising your state's minimum wage will affect your constituents. Economic theory is fairly conclusive: Making low-wage workers more expensive will cause employers to demand fewer of them. Some lucky workers will receive the new, higher minimum wage, but others will lose their jobs entirely. In equilibrium, employment following a minimum-wage hike is unambiguously lower.

In theory this must be true, but the evidence for the effect has been weak. One reason is that labor markets for low-wage workers don't function in isolation. Workers displaced by the higher minimum wage may move to uncovered industries or new geographic locations, pushing down wages but raising employment there. Consumers may switch from fast food, now made more expensive, to mid-scale cafes, increasing the demand for higher-paid waiters and waitresses. Some workers may be unable to find work and drop out of the labor market entirely, no longer being counted in employment statistics.

The single-market analysis — in the minimum wage example, the analysis that found unambiguous effects on employment — is called a *partial equilibrium* perspective. It takes into account only one market at a time — the market

for the state's low-wage workers — holding fixed the prices and quantities in all other markets, like neighboring states and industries. But this is often not the end of the story, since changes in the market for one good frequently affect the markets for others. General equilibrium analysis considers all of these interrelated markets at once.

A partial equilibrium perspective can be useful if the effects of a given policy on other markets are likely to be small. A tax on gasoline, for example, is not likely to affect the market for pencils, but it will probably affect the market for cars. When markets are tightly linked — as labor markets tend to be in countries like the United States where labor flows relatively freely — looking at related markets simultaneously is a truer measure of a policy's effect.

French economist Leon Walras created the first general equilibrium models in the late 1800s. Partial equilibrium models, though seemingly more simple, were actually developed later to describe isolated markets. In the 1950s, Kenneth Arrow and Gerard Debreu advanced two striking conclusions about general equilibrium in competitive markets: First, the equilibrium is optimal in the sense that no one can be made better off without taking something away from someone else. And second, virtually the only thing competitive markets need in order to reach equilibrium is a flexible price system to bring willing buyers and sellers together.

These powerful results explain why economists can be so quick to defend unfettered markets and to decry distortions, like taxes and subsidies, that move prices from their equilibrium values. That said, markets can occasionally have flaws, called "market failures," that cause the equilibrium to be less than optimal for society. In such cases, well-crafted taxes and subsidies may be able to shift prices and quantities to a new, more beneficial equilibrium.

The general equilibrium approach is part of what distinguishes economics as a science. One reason economists may disagree with the general public and elected leaders is that the latter groups are sometimes asking a different question — how policies affect their own welfare and constituents — than economists, who are trained to look at the whole picture. Calculating general equilibrium is by no means straightforward, however. It requires assumptions about market linkages, which are fraught with a good deal of uncertainty. That's why, when economists are asked about a policy's likely effect, they often give the most frustrating answer of all: It depends.

EF



RESEARCH SPOTLIGHT

Different Cities, Different Ladders

BY JESSIE ROMERO

Although the United States is often called the “land of opportunity,” recent research has suggested that Americans enjoy less economic mobility across generations than historically assumed. But measuring economic mobility for the United States as a whole masks significant regional differences, as discussed in a recent working paper by Raj Chetty and Nathaniel Hendren of Harvard University and Patrick Kline and Emmanuel Saez of the University of California, Berkeley. They find that the United States is best described as a “collection of societies,” some of which display high levels of economic mobility and some of which do not.

A large body of research is devoted to measuring the intergenerational elasticity of earnings (IGE), which describes how differences in earnings persist from one generation to the next. The higher the IGE, the lower the mobility. Estimates of the IGE in the United States range from about 0.3 to nearly 0.6, well above many European countries.

But the IGE has several shortcomings, according to Chetty and his co-authors, such as being very sensitive to differences in how income at the bottom of the distribution is measured. The authors thus focus instead on a “rank-rank” measure of mobility, which compares children’s ranks in the national income distribution to their parents’ ranks. To create this measure, they link the tax records of about 10 million individuals born between 1980 and 1982 (the children) to the tax records of the people who first claimed them as dependents (the parents).

Chetty and his co-authors are primarily interested in within-country variation, which they study by analyzing mobility in 741 “commuting zones” across the United States. Commuting zones are aggregations of counties, similar to metropolitan areas, but they include both rural and urban areas.

The authors calculate both relative mobility, or how children fare compared to each other, and absolute mobility, or how children fare compared to their parents. Studying both is important because a high degree of relative mobility might indicate worse outcomes for the children of rich parents rather than better outcomes for the children of poor parents.

Of the 50 largest commuting zones by population, the highest relative mobility is in Los Angeles, Calif., where children from the poorest families end up only about 23 percentage points lower in the income distribution than children from the richest. The lowest relative mobility is in Cincinnati, where they end up almost 43 percentage points

further down the ladder. The highest absolute upward mobility, which the authors define as the average rank of children born to parents at the 25th percentile, is in Salt Lake City, where those children rise to the 46th percentile on average. The lowest is in Charlotte, N.C., where they rise to the 35th percentile. Overall, mobility tends to be lowest in the Southeast, somewhat higher on the West Coast and in the Northeast, and highest in the Great Plains.

What accounts for these regional differences? One clue is that the authors find a strong positive correlation between parent income and college attendance rates and a negative correlation with teen pregnancy rates. In their view, this suggests that the forces influencing a child’s mobility are at work long before the child actually enters the labor market. This view is supported by their finding that the structure of a local labor market — such as the number of manufacturing jobs, which traditionally have offered relatively high wages

to lower-skilled workers — has little bearing on mobility. School quality, however, as measured by test scores and dropout rates, does have a large effect.

Another factor that is highly predictive of both relative and absolute mobility is race; in general, there is less mobility for both black children and white children in areas with large black populations. The underlying

mechanism appears to be segregation: Areas with large black populations tend to be more segregated by both race and income, which means that low-income children of all races are likely to live in neighborhoods with less school funding and fewer successful role models.

Family structure, particularly the fraction of children living in single-parent households, also is strongly correlated with mobility. As with race, the effect is at the community rather than at the individual level; children from both single- and two-parent families in areas with a large proportion of single-parent families have relatively worse outcomes as adults. The authors propose that family structure indicates the stability of the social environment more broadly and might capture variation in other attributes correlated with mobility, such as income inequality or the level of community engagement.

Of course, correlation is not causation, and the authors are careful to note that their research cannot say what actually causes differences in economic mobility. But it may suggest avenues for both parents and policymakers to improve outcomes for children born to low-income families. **EF**

“Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States.” Raj Chetty, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. National Bureau of Economic Research Working Paper No. 19843, January 2014.

Rolling Out the Volcker Rule

BY TIM SABLİK

In 2010, former Fed Chairman Paul Volcker testified before Congress in support of a regulation to increase stability in the commercial banking sector. The “Volcker rule” is based on a straightforward intuition: Commercial banks should not use insured deposits to fund short-term trading for profit, often referred to as “proprietary trading.” Deposit insurance and other forms of government protection of banks give creditors less incentive to monitor the risks that banks take with their money. As a result, banks may take on riskier investments than they otherwise would, and taxpayers could be left with the bill if those investments turn sour.

The 2010 Dodd-Frank Act included a provision requiring the regulators to adopt a regulation along the lines of Volcker’s proposal. But it took the five agencies charged with the task — the Fed, the Office of the Comptroller of the Currency (OCC), the Commodity Futures Trading Commission (CFTC), the Federal Deposit Insurance Corporation (FDIC), and the Securities and Exchange Commission (SEC) — more than three years to complete it. The rule went into effect on April 1, but banks will have until next year to comply.

Weighing in at 71 pages with nearly 900 pages of explanatory preamble, the final rule is considerably more complex than the initial proposal made by the former Fed chairman, due largely to the challenge of delineating between acceptable and unacceptable investments. While the Volcker rule prohibits proprietary trading, it allows banks to trade in stocks or other financial instruments for a variety of other reasons, such as hedging against risk or acting as “market makers.” The latter activity, which entails the buying and selling of certain stocks on a regular basis to maintain market liquidity, can be hard to distinguish from proprietary trading.

“The Volcker rule is very complicated because essentially it’s trying to regulate something we can’t define,” says Douglas Elliott, a fellow at the Brookings Institution who specializes in the financial sector and its regulation. “We know proprietary trading when it’s occurring in an extreme form. But most of what is done as market making has the same core characteristics.”

The “extreme” cases are designated proprietary trading desks at banks, tasked solely with making investments to earn the bank profits. Eliminating such activities while allowing banks to continue desirable functions like hedging and market making is likely what Volcker had in mind when he noted that only a “handful of large commercial banks” engaged in proprietary trading in any great volume. Most large banks closed proprietary trading desks ahead of the final rule’s release.

But the rule may have other unintended effects. The regulation prohibits banks from having an ownership inter-

est in certain investment vehicles known as “covered funds,” which are any issuers that would be classified as an investment company under the Investment Company Act. Affected investments included collateralized debt obligations (CDOs) and collateralized loan obligations (CLOs), which are commonly held by banks. Some CLOs are structured in a way that could be considered similar to proprietary investments.

The American Bankers Association (ABA) sued regulators in response to the restrictions on CDOs, arguing that they would force community banks to unnecessarily dispose of \$600 million in capital. They said banks would take huge losses if forced to sell these investments at once because it would flood the market and depress their value. In response, regulators exempted banks with less than \$15 billion in assets from the CDO restriction, and the ABA dropped its lawsuit. In April, the regulators granted larger banks an additional two years to comply with the restriction on CLOs. Even so, the Loan Syndications and Trading Association estimated that banks would have to sell or amend between \$50 billion and \$55 billion in CLO securities before the deadline.

In April, the House passed a bill to allow banks to continue holding CLOs, but legislation would need to pass the Senate and get President Obama’s approval before becoming law.

The final costs of the Volcker rule remain uncertain. In March, the OCC released a cost estimate with a wide range: between \$412 million and \$4.3 billion. In addition to costs for compliance and regulatory supervision, the estimate includes potential lost market value from banks’ investments in restricted assets like CDOs and CLOs, which accounts for much of the uncertainty in the range.

The benefits of the rule are also somewhat unclear. While many analysts agree that allowing banks to use insured deposits to conduct proprietary trades puts taxpayers at risk, it is not clear that it was a major contributor to the financial crisis of 2007-2008. In July 2011, the Government Accountability Office released a study that found that banks suffered some losses from proprietary trading during the crisis, but those losses were a small fraction of the losses from other activities.

Elliott says requiring regulators to determine which banking activities to prohibit and which to allow on a case-by-case basis is the main drawback of the rule. Instead, he advocates using rules like the Basel III capital accords that assess the risk levels at institutions and mandate adequate capital requirements to manage that risk.

“By not forbidding something entirely, you allow it to still happen if it makes underlying economic sense,” he says. “And that gives you the opportunity to revisit it later and discover whether there are actually advantages to that activity.” **EF**

AROUND THE FED

It's All Local

BY CHARLES GERENA

“Enforcement and Immigrant Location Choice.” Tara Watson, Federal Reserve Bank of Boston Working Paper 13-10, June 2013.

The Maricopa County sheriff in Arizona has gotten a lot of attention for his strict enforcement of federal immigration laws. But he isn't alone. More than 60 local police agencies in 23 states have jurisdiction over immigration-related matters after signing agreements with the federal government under Section 287(g) of the 1996 Immigration and Nationality Act.

If these communities and others acting on their own decide to crack down on illegal immigration like Maricopa County does, will foreigners pack up and “self deport”? How would that affect regional labor markets where foreign-born workers can help correct geographic imbalances? Tara Watson, a former visiting scholar at the Boston Fed's New England Public Policy Center, used data from the American Community Survey (ACS) to address these questions.

Excluding Maricopa County from her analysis of ACS data from 2005 to 2011, Watson found that local enforcement of federal immigration laws under 287(g) agreements doesn't appear to influence either the outflow of immigrants from the United States or the inflow of people into the country. The task force model of 287(g) enforcement does have an impact, however. In communities where local police can ask for proof of residence if they have reasonable cause to think that a person is here illegally, immigrants are more likely to relocate within the United States.

“The impact of full task force coverage on internal migration is similar to that of a 15 percent decline in predicted employment demand,” noted Watson in her June 2013 paper. She also found that “non-citizens who are more educated are more responsive to task force enforcement,” suggesting that stricter local enforcement of immigration laws scares away workers who have the most potential to be productive additions to the labor force.

“Do Homeowners Associations Mitigate or Aggravate Negative Spillovers From Neighboring Homeowner Distress?” Ron Cheung, Chris Cunningham, and Rachel Meltzer, Federal Reserve Bank of Atlanta Working Paper 2013-18, December 2013.

A zealous sheriff may hurt labor markets, but an attentive neighbor could help housing markets. Chris Cunningham at the Atlanta Fed teamed up with economists from Oberlin College and The New School to examine communities with homeowners associations (HOAs) and see whether foreclosures had less of an effect on their housing

prices. They focused on Florida, where the number of associations has more than doubled since 1990 and the foreclosure crisis hit hard.

The researchers had a hunch. “HOAs could be well suited for triaging foreclosures in their communities, as they may detect delinquency and a looming default through direct observation of the property or because the delinquent owner also stops paying dues,” they noted in a December 2013 paper. “By providing landscaping and sanitation services, they may also help prevent negative spillovers to neighbors arising from unmaintained homes.”

Their hunch was only partly confirmed. Properties within the borders of an HOA were somewhat more valuable between 2000 and 2008. Extended delinquencies or foreclosures of nearby properties still had some negative pricing effects, however. Relatively larger and newer HOAs did appear to be better able to counter these effects.

“The Impact of an Aging U.S. Population on State Tax Revenues.” Alison Felix and Kate Watkins, Federal Reserve Bank of Kansas City *Economic Review*, Fourth Quarter 2013, pp. 95-127.

The “greying of America” has implications for local and state lawmakers — it is projected to fuel higher per capita demand for government services, which will require higher overall spending if the same level of services is maintained. According a paper co-authored by Alison Felix, a regional economist at the Kansas City Fed, the aging population may also reduce state tax revenue on a per capita basis as income and spending patterns change over time.

Most workers' earnings increase as they progress in their careers and then fall as they approach retirement. As a result, “income tax collections are lowest for young workers aged 15 to 24, many of whom work part time and earn entry-level salaries,” noted Felix and Kate Watkins, her co-author. “Tax collections increase for older workers, peaking among 45- to 55-year-olds then falling as workers begin to retire.”

Consumer spending tends to follow the path of income growth and peaks at middle age, even though people try to smooth their consumption by borrowing when they're younger and drawing upon savings when they're older. Sales tax collections over the average U.S. taxpayer's lifetime follow a similar pattern.

Variations in how states tax goods and services can alter this trend. For example, “As people age and spend less, a greater share of their spending tends to go to services and prescription drugs, which are often tax-exempt,” noted Felix and Watkins. “Thus sales tax collections from the elderly may fall faster than their total spending.” **EF**

Cybersecuring PAYMENTS

Are we losing the fight against next-gen bank robbers?

BY TIM SABLİK

It isn't the kind of holiday news retailers want to deliver. On Dec. 19, 2013, Target announced that its payment terminals and computer systems had been hacked, allowing criminals to access credit and debit card data for as many as 40 million shoppers during the busy Black Friday weekend. The hackers also stole personal information for 70 million customers. In January, department store Neiman Marcus said that payment card information for its customers had been compromised, and arts and crafts chain Michaels said it was looking into a possible breach.

Breaches of payment systems at large retailers are not new. In 2007, hackers stole 45 million customer records from TJX Companies, the parent of T.J. Maxx. To date, such events have not changed the habits of most consumers: In the United States, plastic is king. Cards accounted for two-thirds

Worldwide EMV Payment Card and Terminal Adoption

Region	EMV Cards (millions)	Adoption Rates	EMV Terminals (millions)	Adoption Rates
Canada, Latin America, and the Caribbean	471	54.2%	7.1	84.7%
Asia Pacific	942	17.4%	15.6	71.7%
Africa and the Middle East	77	38.9%	0.7	86.3%
Western Europe	794	81.6%	12.2	99.9%
Eastern Europe	84	24.4%	1.4	91.2%

NOTES: Figures as of Q4 2013. EMVCo does not collect data on the United States, but estimates by other organizations suggest that adoption rates are very small (less than 2% of cards and 10% of terminals). EMV is an open-standard specification for smart cards and acceptance devices. It is managed by EMVCo, which is owned by American Express, Discover, JCB, MasterCard, UnionPay, and Visa.
SOURCE: EMVCo

of noncash payments in 2012, increasingly displacing cash, checks, and other forms of payment, according to a 2013 Fed study of the payments system. But with convenience comes risk. The Fed's study found that payment cards were used in 92 percent of fraudulent transactions, with checks and electronic check transfers making up the remainder.

Cyberattacks have been growing in magnitude. While the number of reported data breaches (including both attacks on payment systems and other attacks) trended down to 2,164 in 2013 from 3,140 the previous year, hackers made off with over three times as many records: 823 million compared with 264 million.

According to a 2013 survey by Verizon, the most commonly targeted sectors were financial institutions and retailers, and payment card information was by far the most stolen type of data. That may not be surprising, given that one of the primary motivations for breaches identified by the Verizon report is financial gain. But an equal percentage of attacks were classified as "opportunistic," which raises the question: Is the payments system an easy target?

During a series of congressional hearings following the Target breach, legislators pointed to the prevalence of chip-and-PIN technology in other developed economies (known as "EMV" for developers Europay, MasterCard, and Visa). These so-called "smart" cards use an embedded microchip to process payments, allowing for more secure authentication that makes intercepted data from any one transaction largely useless to fraudsters. American cards still rely on magnetic stripes, the same technology that powers cassette tapes, to relay static payment data that can be intercepted and copied onto blank cards for fraudulent use. Many have argued that the old cards are well past their prime.

The major card brands — Visa, MasterCard, and Discover — announced their intent to hold merchants who have not upgraded to EMV by October 2015 responsible for fraud that could have been prevented by a smart card. Target plans to be an early adopter, beating the deadline by several months. But EMV is not entirely new — the technology debuted two decades ago. In fact, Target introduced smart cards at

its stores in the early 2000s but abandoned the effort after a year, citing costs and consumer complaints that the new cards complicated checkout. The United States was a pioneer of payment cards but has been much slower to adopt smart cards. According to Javelin Strategy and Research, only 10 percent of payment terminals and less than 2 percent of cards in the United States are EMV compatible, compared with much higher numbers worldwide (see table). Has America fallen behind the times, and if so, why?

Costs and Benefits

Perhaps the highest hurdle to converting the payment network is the upfront cost. With roughly 15 million payment terminals, the U.S. retail market is the largest in the world, and estimates for converting all those terminals range from \$7 billion to more than \$15 billion.

"We were early adopters of credit cards, so we have a very large legacy infrastructure based on swipe card technology," says Catherine Mann, a professor of global finance at Brandeis University.

Depending on the losses they avert, the cost of upgrading all those terminals could pale in comparison to the benefits. In their 2005 book *Managing Cybersecurity Resources*, University of Maryland professors Lawrence Gordon and Martin Loeb concluded that it is generally uneconomical for firms to spend more than 37 percent of expected losses on security measures. Thus, determining the return on any security upgrade requires some knowledge of fraud costs.

"That is a hard thing to figure out," says Richard Sullivan, a senior economist in the payments system group at the Kansas City Fed. "The thing that really holds us back is that we don't have good fraud statistics."

Unlike many other countries, the United States does not have a central source for fraud statistics. But data is improving. The Federal Reserve System reported payment fraud statistics for the first time in its 2013 payments study. According to that report, there were 28.7 million fraudulent payment card transactions in 2012, or about 0.04 percent of all card transactions. Losses from card fraud totaled

\$4 billion, about 0.08 percent of total card transaction value. The August 2013 *Nilson Report*, a payments industry newsletter, documented somewhat higher card fraud costs for 2012, putting the total losses from credit and debit card fraud at \$11.27 billion.

On a percentage basis, those numbers seem small, but in addition to the explicit costs of stolen funds, there are the implicit costs of damaged reputation and lost revenue for impacted firms. In a 2003 study, Gordon and Loeb found that stock prices declined an average of 5 percent for firms that announced data breaches. Target reported \$61 million in expenses related to the breach, and its stock price remained 5 percent below the pre-breach level more than two months after the event.

Smart cards could reduce such costs, but it is unclear by how much. After the United Kingdom adopted EMV, payment fraud costs fell by 15 percent between 2004 and 2006. That decline was driven in large part by declines in fraud from lost, stolen, and counterfeit cards. But during the same period, fraud in card transactions that took place outside of physical points of sale, such as online transactions, grew by 41 percent. Smart cards increase security for point-of-sale transactions, but they don't provide additional protection for online sales, and fraudsters quickly migrated to the weakest link. The Fed study points to such card-not-present fraud already being a much bigger problem than point-of-sale (see charts). While point-of-sale still makes up the vast majority of transactions, online is growing, and consumers in

the United States are more likely to shop online than their European counterparts.

EMV is not entirely safe at the point of sale, either. "It's not clear whether delivering EMV in its current form is a significant enough improvement to justify the huge expense of adopting it in the United States," says Tyler Moore, a professor of computer science and engineering at Southern Methodist University who has written about the economics of cybersecurity. He says that since its initial development 20 years ago, EMV has proven to be far less ironclad than many had hoped.

It's also possible that other countries had more to gain from smart cards. Sullivan notes that European countries have largely offline payment networks, while the U.S. card system was designed to be online, giving card networks the ability to remotely review and authenticate any transaction as it is being conducted. Smart cards allow for authentication to take place between the card and the terminal itself, granting greater security for countries without online payment networks, and it's not clear whether the marginal advantages for an online network would be as great.

"I think that part of the reason we are among the last countries to move to chip and PIN is that the online system already has features that help to control fraud that other countries haven't had," says Sullivan. But even if chip cards are not the ideal solution, most agree that the current system is due for some sort of upgrade.

According to the *Nilson Report*, the United States accounted for 47 percent of global card fraud losses in 2012, even though it made up only about 24 percent of global card volume.

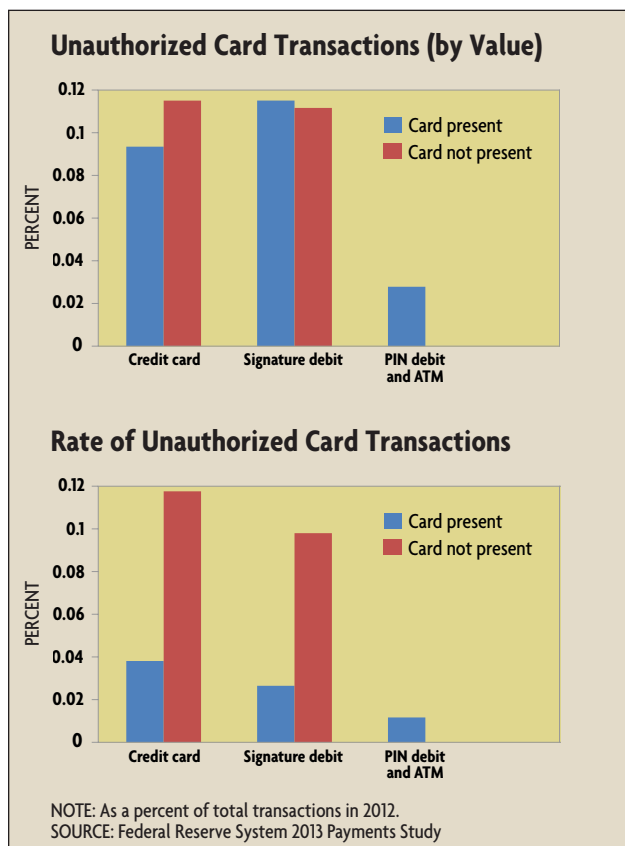
"Because so much of the world has shifted to chip and PIN, hackers see the U.S. cards as weaker links because they are much easier to copy," says Moore. "It has made the U.S. a target."

Why, then, have we been slow to upgrade our defenses?

The Blame Game

In a 2001 paper, Ross Anderson, a security engineering professor at the University of Cambridge who launched the economic study of cybersecurity, wrote that lapses in security can be expected when "the party who is in a position to protect a system is not the party who would suffer the results of security failure."

Who bears the costs of payment card fraud in the United States? Certainly consumers bear some. They must protect their personal information, replace compromised cards, and monitor suspicious activity on their accounts. But on the whole, American consumers are relatively well protected. Regulations E and Z limit consumer liability for fraudulent credit and debit transactions to \$50, but in practice this is reduced to zero, as financial institutions generally make consumers whole. This could potentially lead to consumer negligence by reducing the incentive consumers have to be vigilant. But not everyone agrees the onus for fraud prevention should lie with consumers.



“It’s very difficult for consumers to observe the security levels of the businesses they interact with,” says Moore. “Because they cannot make decisions based on the security of the company, there’s not a lot they can do to really protect themselves.” As a result, it makes more sense for financial institutions and merchants, which have greater control over security, to bear liability. Moore’s research supports this theory. In a paper documenting how liability for payment card fraud in the United Kingdom shifted to consumers after the introduction of EMV, he found that banks there spent much more on security and also suffered greater fraud than their American counterparts.

But banks and merchants disagree over who should bear the larger burden for fraud. According to the August 2013 *Nilson Report*, fraud costs in the United States are split between card-issuing financial institutions and merchants 63 percent to 37 percent. To the extent that card issuers control the network, it might seem appropriate that they shoulder most of the risk. But banks argue that costs are misaligned because the banking sector suffers far fewer breaches than retailers. According to data collected by the Open Security Foundation, businesses and retailers were subject to more than a quarter of security breaches worldwide in 2013, while financial organizations accounted for about 5 percent.

“There are clearly misaligned incentives,” says Doug Johnson, vice president of risk management policy at the American Bankers Association. “When you have an organization on the retail side that is responsible for a lot more of the breaches but less than half of the costs of those breaches, they are going to have different incentives for security than financial service companies.”

But retailers respond that, like consumers, they have little control over payment card security. Mallory Duncan, general counsel and senior vice president at the National Retail Federation, says security measures are determined by the card networks, and retailers are forced to accept vulnerable cards from the major networks because they have no alternatives.

“Most of the decisions are made within the financial services sector,” says Duncan.

The disagreement over how to allocate cybersecurity responsibilities mirrors challenges economists have identified with public goods. Because security expenditures by one party can benefit others who didn’t pay for them, the allocation of responsibilities to protect payments is complicated. In a 2005 paper, George Mason University professor of law Bruce Kobayashi wrote that while resources aimed at identifying and punishing cybercriminals might be more effective at improving society’s overall security, such efforts are likely to be under-produced. This is because firms that invest in such security cannot exclusively capture all of the benefits; that is, there are “positive externalities”

“There’s always a tension between standardizing around something that’s known versus allowing multiple different solutions to flourish.”

– Catherine Mann
Brandeis University

to such investments. Because of this, some firms might attempt to free ride on the security expenditures of others, reaping the benefits without paying any of the costs. Foreseeing this problem, individual firms are more likely to invest in security measures that protect themselves (such as antivirus software or firewalls) and deflect attacks to firms that have not made such investments.

At the same time, the costs from inadequate security do not fall wholly on the firm making investment decisions; that is, a lack of investment in

security imposes “negative externalities” on other firms. In this sense, cybersecurity can be likened to pollution. If you operate a factory that emits pollutants into the air, the people who live downwind from you might be the ones who bear the cost of that pollution rather than you. Similarly, individuals or firms who choose not to invest in strong security and connect infected computers to the Internet pass the costs of those decisions onto other users. As a result, overall payments security against cyberattacks may be determined not by collective effort but by the weakest links.

Indeed, security blogger Brian Krebs, who first broke the news of the Target breach, reported in February that the malware used to infect Target’s system was introduced through a third-party HVAC company. Large firms like Target may have the budget to fund extensive security, but they are still at risk due to smaller firms that either cannot afford adequate security or choose to free ride on the investments of others. To the extent that overall cybersecurity is determined by the weakest link, coordinated action may be crucial to improvement.

“It’s kind of like getting the entire herd to move in one direction, and that can be difficult,” says Mann.

Moving the Herd

The Target breach could provide the push for coordinated improvement of payments. Mann says that unlike in previous breaches, the reputational and stock market damage to Target has been large and persistent, perhaps placing greater pressure on retailers to upgrade their own systems or risk being next. The effect on the bank side has been significant as well, costing them about \$200 million to reissue compromised cards.

“I think the needle has been moved,” says Johnson. “I’m more hopeful now than I would have been a month ago because of the recognition by leadership on both the retail and financial services sides that we need to work together to solve a common problem.”

In March, Visa and MasterCard announced a new cross-industry group to explore security improvements across networks. Setting standards could also help encourage collective action. The Payment Card Industry (PCI) Security Standards Council develops security guidelines

for merchants, and in February, the National Institute of Standards and Technology released a framework for national cybersecurity standards in response to an executive order issued by President Obama last year.

But while financial regulators monitor and enforce risk standards on the bank side, no such enforcement exists for merchants. Standards developed by PCI are voluntary, and the organization has no authority to monitor or enforce compliance. Even when firms do comply, standards may fail to predict or adapt to ever-changing threats. In testimony, Target's chief financial officer said the company was compliant with PCI standards up until its breach.

Lack of enforced standards may not be entirely negative, though. "Sometimes creating a standard around which everyone can coalesce leads to greater efficiency," says Mann. "But there's always a tension between standardizing around something that's known versus allowing multiple different solutions to flourish."

Indeed, standards meant to improve payments can slow adoption of new technology. The Durbin Amendment to the Dodd-Frank Act requires that merchants be given a choice between at least two PIN networks for transactions in order to improve competition. But because EMV was designed to work with only one PIN network, such a requirement has created a speed bump for chip and PIN in the United States. This may prove to be a blessing in disguise. Countries with fewer payment participants were able

to quickly adopt EMV, but it's not clear that this has led to the long-run improvements they hoped for.

"We know from its deployment elsewhere that chip and PIN has quite a few limitations and demonstrated weaknesses," says Moore. "If we're going to spend billions of dollars on upgrading, we want to be developing a standard that's better than what's out there. For now, the United States has been the easiest target, but if everyone increases their security to a common level, EMV's known vulnerabilities will suddenly become economically viable."

Duncan notes that given enough competition in the payments space, the market can often find new security solutions. Merchants have begun exploring mobile payments using smartphones, banding together to design their own mobile payment network. (See "A Wallet in Every Phone," *Region Focus*, Fourth Quarter 2012.) Many banks already employ behavioral analytics to monitor customer transactions and alert them to any purchases that don't fit their spending profile. Some have also started exploring biometrics, such as fingerprint or voice authentication, to replace passwords and PINs. Ultimately, economists and industry insiders agree on one thing: Keeping ahead of the criminals requires collaboration.

"All the interested parties, representing consumers, merchants, card issuers, and networks, need to be talking to one another when making decisions," says Sullivan. "And they need to do it early." **EF**

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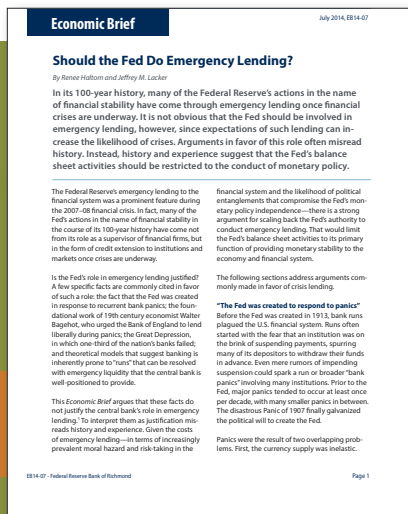
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A Few Questions About Income Inequality

The widening income gap is a serious problem in the United States — or is it?

BY JESSIE ROMERO

At the end of 2011, Manhattan's Zuccotti Park was filled with Occupy Wall Street protesters condemning the growing gap between rich and poor. Today, the only people occupying the park are workers on their lunch break, but inequality remains a concern for many economists, policymakers, and citizens. Numerous studies show that income inequality in the United States is high and increasing, but not everyone agrees about what the data reveal, or if income is the best measure of people's actual welfare. And even if there were complete agreement on the facts, an important question still remains: Is inequality bad for the economy?

What Do Income Data Show?

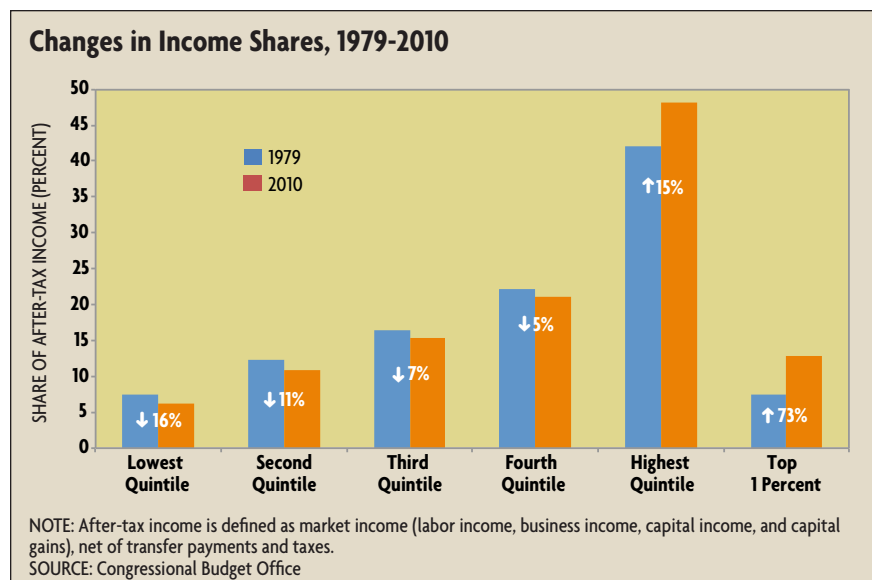
Income inequality is higher in the United States than in other developed countries. According to the Census Bureau, a measure of income dispersion called the Gini coefficient is .476 in the United States. Across the European Union, by contrast, the Gini averages .306. (A measure of 0 would indicate perfect equality; a measure of 1 would mean that a single person earned all the income.) The disparity seems to be increasing: In 1979, the top 1 percent of households took home about 7 percent of total after-tax income, according

to the Congressional Budget Office (CBO). By 2010, their share had increased to nearly 13 percent. Over the same period, the share of income earned by households in other percentiles of the distribution either stayed flat or declined. (See chart.) In 2010, average after-tax income for households in the top 1 percent was \$1,013,100. The average income for the top quintile as a whole was \$181,800; for the middle quintile \$57,900; and for the lowest quintile \$23,700.

Other research depicts a similar trend. According to Thomas Piketty of the Paris School of Economics and Emmanuel Saez of the University of California, Berkeley, the share of pretax income earned by the top 10 percent of households in the United States increased from 32 percent in 1970 to 48 percent in 2012. (Piketty's 2013 bestseller, *Capital in the Twenty-First Century*, has helped draw attention to the inequality issue.) This increase was largely driven by those at the very top of the distribution. While the income share for those in the 90th through 99th percentiles increased slightly from 24 percent to 29 percent, the share for those in the top 1 percent more than doubled, from 8 percent to 19 percent. The share for the top .1 percent nearly quadrupled from 2 percent to 9 percent. Piketty and Saez also found that although people in the top percentiles saw their incomes

decline by a greater percentage during the recession, they've captured a disproportionate share of the gains during the recovery.

Income inequality is a tricky thing to measure, however, and not everyone agrees that the increase in inequality has been so pronounced. For example, the Census Bureau's primary measure of the Gini coefficient doesn't take into account deductions from income such as taxes or noncash additions to income such as food stamps or Medicare, which could exaggerate the difference between the top and the bottom. In addition, studies that look at the changes in income shares over time might be understating income growth in the lower percentiles. This



is because they generally adjust incomes for inflation using the Consumer Price Index (CPI), which many economists believe overstates the actual rate of increase in the price level. Lee Ohanian of the University of California, Los Angeles and Los Angeles venture capitalist Kip Hagopian redid the CBO's study using Personal Consumption Expenditures (PCE) as the measure of inflation and found that income growth in the first quintile was 40 percent higher, growth in the middle quintile 24 percent higher, and growth in the top quintile 9 percent higher than reported by the CBO. Income inequality still increased over time in their analysis, but by a lot less.

More generally, accurate income data is hard to come by, particularly for households at the extremes of the distribution, says James Sullivan, an economist at the University of Notre Dame. "You have to be really careful about what you glean from income at the top and bottom."

At the top of the distribution, the problem is largely "top coding": Publicly available datasets cap incomes at a certain level to protect the anonymity of very high earners. (It wouldn't take many guesses to figure out who earned \$12 billion, for example.) At the bottom of the distribution, the problem is underreporting, because income tends to be more sporadic and inconsistent. "You and I get a W-2 form at the beginning of the year, so if the Census Bureau calls us, we can give them our income by looking at one piece of paper," Sullivan says. "But for people near the bottom, their income comes from a lot of different sources and is therefore harder to report." Research suggests that the degree of underreporting has increased over time, which could help account for the relatively slow growth of income at the bottom of the distribution.

Is Income the Right Measure?

A broader concern about studies of income inequality is that income might not be the best way to measure people's actual welfare. That's because income varies from year to year; a college senior with a very low income this year might be working on Wall Street next year. But consumption tends to be less volatile because people can borrow and save according to their expectations about the future. Many economists thus believe that looking at what people actually buy, rather than how much they earn, is a better gauge of lifetime welfare.

Many researchers have found that consumption inequality is both lower than income inequality and growing less quickly. In a 2010 paper, Jonathan Heathcote and Fabrizio Perri of the Minneapolis Fed and Giovanni Violante of New York University concluded that the increase in consumption inequality between 1967 and 2005 was less than half the increase in income inequality. Sullivan and his co-author Bruce Meyer of the University of Chicago showed that income inequality increased 45 percent between 1980 and

A broader concern about studies of income inequality is that income might not be the best way to measure people's actual welfare.

2011, compared with a 19 percent increase in consumption inequality. These results suggest that a large divergence in income doesn't necessarily translate into the same divergence in living standards. Other research has found, however, that consumption inequality has increased at roughly the same rate as income inequality over the past few decades.

Economists also study wealth inequality, or how the value of households' assets varies across socioeconomic groups. The variation is quite large: In 2009, for example, the median net worth of white households was 19 times the net worth of black households and 15 times the net worth of Hispanic households. The ratios were around 10-to-1 between 1984 and 2004, but black and Hispanic households were disproportionately affected by the decline in household wealth caused by the financial crisis. Not surprisingly, net worth also varies significantly according to income; the median net worth of households in the top income quintile is \$293,000, more than double the net worth of households in the fourth quintile, \$113,000. The net worth of households in the lowest income quintile is just \$5,000.

Wealth has always been quite concentrated in the United States. During the 1920s, the top 10 percent of households owned between 75 percent and 85 percent of the country's wealth. The share declined to around 65 percent during the 1980s but has climbed back to 75 percent as of 2012, according to research by Saez and Gabriel Zucman of the University of California, Berkeley and the London School of Economics. As with income, the increase is primarily at the very top of the distribution: The share of wealth owned by the top .01 percent has increased from about 8 percent in 1980 to 22 percent in 2012. This increase has recently received less attention among members of the general public than the rise in income inequality. But many economists say wealth inequality is most troubling since wealth builds on itself, passes to the next generation through inheritances, and in principle has no effect on one's incentive to work harder. Many economists have even advocated hefty death taxes to reduce wealth inequality. Wealth also provides a safety net to households during economic downturns and can be a source of political power. Its social and mathematical self-perpetuating properties have some economists and policymakers concerned that the concentration will only increase.

Is Inequality Harmful?

What if relatively high consumption levels actually are a sign of serious problems in the economy — problems caused by income inequality? That was the hypothesis put forth by Marriner Eccles, former chairman of the Federal Reserve, to help explain the Great Depression. Writing in 1951, he compared the 1920s to a "poker game where the chips were concentrated in fewer and fewer hands, [and] the other fel-

lows could stay in the game only by borrowing. When their credit ran out, the game stopped.”

Similar theories have been proposed to explain the recent financial crisis and Great Recession. In his 2010 book *Fault Lines*, Raghuram Rajan, who is currently on leave from the University of Chicago to head the Central Bank of India, argued that the consumption levels of people below the 90th percentile of the income distribution prior to the financial crisis were achieved only through a significant expansion of credit. That expansion was engineered by politicians, who, unable to tackle the primary problem of growing income inequality, propped up consumption by increasing the availability of housing credit. In Rajan’s view, income inequality was a direct cause of the housing boom and subsequent bust, which precipitated the financial crisis.

Barry Cynamon, a visiting scholar at the St. Louis Fed, and Steven Fazzari, an economist at Washington University in St. Louis, tell a similar story about the role of income inequality in the Great Recession and subsequent slow recovery. In a recent paper, they observed a seeming paradox: Economic theory predicts that greater income inequality should lead to lower aggregate consumption because people who earn more tend to save a greater portion of their income. But rising income inequality after 1980, the result of a sharp drop in income growth for the bottom 95 percent of the distribution, actually coincided with a large increase in aggregate consumption. The reason, Cynamon and Fazzari concluded, is that households in the bottom of the distribution responded to their slower income growth by decreasing savings and increasing debt. When the financial crisis cut off the supply of credit, however, consumption fell and has not yet recovered, explaining the recession and slow recovery. “Borrowing postponed demand drag from rising inequality and helped the economy grow in the years prior to the Great Recession. But with this borrowing cut off, the bottom 95 percent can no longer grow their spending fast enough to maintain something close to full employment,” Fazzari says.

Cynamon and Fazzari view the rise in debt as a result of increases in both supply and demand. Regulatory and technological changes made credit more available, and con-

sumers with stagnating incomes turned to credit to maintain their lifestyles, not only for discretionary items but also for services such as child care. “You need the weapon and the motive,” Cynamon says. “The weapon was the supply of credit, and the motive was keeping up with the Joneses.”

Other research attributes the increase in debt almost entirely to the supply side factors. In a recent working paper, Olivier Coibion of the University of Texas at Austin, Yuriy Gorodnichenko and John Mondragon of the University of California, Berkeley, and Marianna Kudlyak of the Richmond Fed found that low-income households in areas with high inequality actually borrowed less than low-income households in areas with low inequality, which suggests that upward comparisons were not a factor in the rise in household debt before 2008. Instead, they concluded that the increase in debt was due to banks channeling more credit to low-income households in certain regions.

It’s also possible that the financial crisis had nothing to do with inequality. In a 2012 working paper, Michael Bordo of Rutgers University and Christopher Meissner of the University of California, Davis studied financial crises in 14 developed countries between 1920 and 2008. They found that while credit booms were strongly associated with the probability of a crisis, those booms were caused by low interest rates and strong economic growth; this finding “resoundingly rejects any role for income concentration” in fueling credit growth and subsequent crises.

Whether or not income inequality caused the financial crisis, research has linked it to a variety of social ills, including higher rates of divorce, obesity, bankruptcy, and crime, among others. Particularly in developing countries, inequality might contribute to social unrest and ethnic violence. But this research relies on cross-country comparisons, and it’s hard to disentangle the effects of income inequality from other factors, such as universal health care, government spending on education, or other economic and government institutions. Overall, the jury is still out on the effects of income inequality. As Harvard University professor of social policy Christopher Jencks recently told the *New York Times*, “Can I prove that anything is terrible because of rising inequality? Not by the kind of standards I would require. But can they prove I shouldn’t worry? They can’t do that either.” **EF**

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BETTING *the Farm*

Preservation programs pay farmers to forgo development

BY JESSIE ROMERO

The eastern half of Loudoun County, in northern Virginia, is home to some of the fastest-growing suburbs in the United States, their streets crowded with cars shuttling residents from subdivision to office tower to shopping center. But just miles to the west, the pavement gives way to rolling countryside dotted with vineyards, horse stables, and Christmas tree farms — and residents who fear the encroachment of those suburbs.



In Loudoun County, Va. — as in much of the Northeast and mid-Atlantic — fields give way to subdivisions.

PHOTOGRAPHY: ALLAN KUZMOWSKI

It's a tension that has become common in many areas of the country over the past several decades, as farmland is increasingly converted into strip malls and single-family homes. In response, many states and localities, especially in the Northeast and mid-Atlantic, have adopted farmland preservation programs to protect rural areas. One of the most popular and effective tools to preserve farmland is a "purchase of development rights," or PDR, program, wherein a landowner sells the development rights to their property. At first glance, PDR programs are a win-win — but the costs and benefits to communities and to farmers aren't always clear-cut.

Why Save Farmland?

Although the decline in agricultural employment began in the early 1900s, farmland wasn't converted for development on a large scale until the 1970s, when the expanding interstate highway system and the completion of beltways around many cities enabled people to move farther and farther away from the city center. Since the early 1980s, more than 24 million acres of agricultural land — an area nearly the size of Virginia — have been converted for development.

Many conservationists and local officials believe that slowing this conversion is crucial for both the economy and the environment. According to Virginia's Office of Farmland Preservation, for example, agriculture contributed \$80 billion to the state's economy in 2006; it contributes \$1 trillion per year to the national economy, according to the conservation group American Farmland Trust (AFT). At the same time, farmland requires considerably fewer municipal resources, such as fire protection and schools, than developed land. Numerous "cost of community services" studies have concluded that agricultural land generates more in tax revenue than it uses in services. Studies in Maryland, Virginia, and North Carolina, for example, have found that agricultural areas consume about 50 cents in services per dollar of tax revenue, compared with residential development, which consumes about \$1.21 per dollar of revenue.

Developers also are likely to target the same land that's best suited to crops. "The best land for agricultural use is land that's well drained, that has good topsoil and a level slope, that doesn't have a lot of rocks. But those attributes also make that land really easy to develop," says Bob Wagner, senior policy and program adviser at AFT. "So we're not competing over marginal lands, we're competing over the most efficient places to grow food." And once that farmland is developed, "it's game over," Wagner says. "Even if we decided to start tearing down houses and pulling out septic tanks, we've so altered the topsoil and the terrain that you no longer have prime farmland."

Of course, the United States isn't in any immediate danger of running out of food, notes Gordon Groover, an agricultural economist at Virginia Tech. "With the level of efficiency within the agricultural sector now, that's not as big a concern to society as it was at one time." Many of the arguments for saving farmland are less about preserving

agricultural operations per se than about preserving rural amenities such as scenic views, recreational opportunities, wildlife habitats, and environmental benefits such as erosion and flooding control. That's especially true in more densely populated states, where the public may value such amenities as much as, if not more than, actual agricultural operations.

Selling the Rights

State and local governments can employ a variety of tools to encourage agriculture and discourage development, including zoning restrictions, preferential tax treatment, or subsidy programs. Many states and localities also have enacted PDR programs, in which the owner of an agricultural property places a permanent deed restriction, known as an agricultural easement, on the land. The easement prohibits any nonagricultural use of the land, such as industrial or residential development. The owner can continue to live and work on the land, and can sell it or will it to heirs, but future owners also are prohibited from future development. In exchange for the development rights, the owner is compensated for the fair market value of the land, which is based on the difference between what it could be sold for on the open market with no deed restrictions and what it's worth as farmland.

PDR programs were developed as a more market-friendly alternative to traditional conservation tools; unlike zoning regulations, for example, a PDR program is voluntary and does not deprive the landowner of the full economic value of the land. (An agricultural zoning restriction reduces the land's market value without compensating the landowner; in essence, farmers bear the costs of the benefits that accrue to the community as a whole.) Advocates of PDR programs also note that they provide farmers with working capital to keep their farms operating and decrease the property taxes since removing the development potential lowers the property's market value. The lower property value also makes it easier to pass farmland on to the next generation by lowering the potential estate tax.

That isn't necessarily a great deal for the next generation, though, which might find it more difficult to make a living as the economics of farming change. "As efficiencies improve and the requirements to be a viable farm increase, land that was profitable when the easement was placed on it might age out of its ability to be profitable," Groover says. In addition, if easement programs aren't part of a comprehensive planning effort, there is the potential for a "checkerboard" of preserved and developed land, which can make it difficult for farmers to access the services they need or lead to conflict with neighbors who don't want to share the roads with slow-moving tractors.

"We're surrounded by development," says Wade Butler, who owns Butler's Orchard in Germantown, Md., with his brother and sister. Butler's parents started farming in 1950, just a few years before the construction of what is now I-270 a few miles to the west of their land connected Germantown to Washington, D.C. Today, their farm abuts one of the

region's busiest suburbs. "Some of the services have certainly left the area. And agriculture has a certain amount of noise and dust and odors, which becomes more of a concern as we get more neighbors."

At the federal level, agricultural easement programs are supported by the Natural Resources Conservation Service (NRCS) within the U.S. Department of Agriculture. The NRCS provides funding and technical assistance to state and local governments, Indian tribes, and nongovernmental organizations to help them purchase development rights. These funds were first appropriated through the 1996 farm bill; about \$1.2 billion was allocated nationwide between 1996 and 2012.

States operate PDR programs by purchasing the development rights themselves, offering matching funds to localities, or both. Maryland and Massachusetts were the first states to start purchasing development rights, in 1977. Today, 28 states operate PDR programs, but not all of them are fully funded, particularly since the 2007-2009 recession. The programs are most prevalent in the Northeast and mid-Atlantic and on the West Coast, where the population is most concentrated and where there has been the most exurban growth. Although some Midwestern states do have PDR programs, the relatively large amount of tillable land in that region has historically made preservation a less pressing issue, Wagner says. In many states, there are also nonprofit organizations that purchase agricultural easements, either alone or in cooperation with the state or local government.

As of January 2013, states had spent \$3.6 billion (not including any federal or nonprofit funding) to purchase the development rights on 2.3 million acres of farmland. Maryland ranks third in the country in terms of both dollars spent, \$672 million, and acres protected, 361,000. New Jersey has spent the most, nearly \$1 billion, while Colorado has protected the most acres, 590,000. Elsewhere in the Fifth District, Virginia, North Carolina, and South Carolina have spent an average of \$11 million each to protect about 12,500 acres of farmland in each state. West Virginia has purchased the rights to 2,800 acres at a cost of \$1.7 million.

Rocks vs. Hammers

In real estate, land value is determined according to a concept known as "highest and best use," defined as the most probable use of land or improved property that is legally permissible, physically possible, financially feasible, and which results in maximum profitability. According to this definition, agriculture is unlikely to be the highest and best use: Farm production expenses average more than \$100,000 annually, yet fewer than one-quarter of the farms in the United States gross more than \$50,000 per year, according to USDA data. Certainly, the market would seem to value development over agriculture; in Charles County, Md., for example, farmland sells for about \$5,000 per acre if it's going to be used for crops and up to \$200,000 per acre if it's sold to a developer for homes or businesses.

Farmland preservation efforts, however, are based on the idea that there is a failure in the market for agricultural land.

This failure stems from the presence of positive externalities — benefits such as the aesthetic value of open space or the stability of a rural community's economy — that aren't reflected in the price of that land. In other words, the highest or most profitable use of the land is not the same as the "best" use. In theory, when such a market failure exists, the government can play a role to correct it, in this case by compensating farmers for the development rights to their land.

But is there actually a market failure? While there might be real benefits to preserving farmland, there is room for debate about how large they are and how they should be weighed against valid competing interests.

Advocates of farmland preservation, for example, point to the many environmental benefits of preserving farmland. But it's also the case that there can be environmental costs. Agricultural runoff — water contaminated with fertilizer and pesticides, among other pollutants — is the number-one source of nitrogen and phosphorous in the Chesapeake Bay, which create algae blooms and dead zones that kill fish. Agricultural runoff is also the leading source of pollution in rivers and lakes, according to the Environmental Protection Agency.

Another major rationale for preserving farmland is to halt urban sprawl. But sprawl isn't necessarily a concern in some states that have enacted easement programs. Two of the stated goals of West Virginia's Voluntary Farmland Protection Act (VFPA), enacted in 2000, for example, are to "control the urban expansion which is consuming the agricultural land, topsoil and woodland of the state" and to "curb the spread of urban blight and deterioration." But eight of the 19 counties with operational VFPA programs have no connection to any metropolitan area (having a population of 50,000 or more), or even to a micropolitan area (having a population of 10,000 to 50,000), according to research by Odd Stalebrink of Penn State Harrisburg and Samuel Wilkinson of West Virginia University. And none of the counties in West Virginia with a population density high enough to be considered an urban area by the Census Bureau has established a VFPA board; the closest is Berkeley County, with 324 persons per square mile, still far from the 1,000 persons per square mile required for urban area status. Stalebrink and Wilkinson conclude that "based on measures of sprawl ... the VFPA appears to be directed at solving a problem that does not exist."

In many areas, there also might be a conflict between the need for affordable housing and the desire to preserve farmland. All else equal, development restrictions could lead to higher costs for housing and might also encourage higher-end housing than would otherwise be built. It's a conflict illustrated at the extremes by Hawaii, which prides itself on its agricultural heritage and the beauty of its views, yet also has a shortage of affordable housing: A single person can earn nearly \$55,000 per year and still qualify for housing assistance, and the state has the highest homelessness rate in the country. Despite the lack of housing supply, however, it took a decade to win approval for a 3,500-home development on the island of Oahu; it required the Honolulu

City Council to convert around 600 acres of land from an agricultural district to an urban district. Approval was finally granted at the end of 2013. (Hawaii has strict agricultural zoning but has not yet implemented a PDR program.)

Even farmers themselves aren't always fans of the programs. Changes in circumstances can dramatically alter the calculation a landowner originally made 20 or 30 years ago. In Charles County, Md., for example, farmers are advocating for the passage of a bill that would allow landowners who have sold their development rights to the state to devote up to 5 acres of their land to generating wind or solar power. Some conservation groups are opposed to the bill, but farmers argue that the additional income they could earn from leasing their land to energy companies is essential to keeping their farms operating.

In Howard County, Md., members of the Mullinix family have sought to terminate four easements they signed in the 1980s. Maryland's law includes a clause allowing landowners who signed an easement before 2004 to apply for termination after 25 years if they can prove that farming the land is no longer profitable or feasible. The Mullinixes were the first landowners in Maryland history to make such an application, but there are about 1,600 other easements signed before 2004 that are eligible. The family argued it could no longer make a living through farming, in part because its land was now surrounded by suburban development, and it needed to be able to pursue other business opportunities prohibited by the easement. (The family tried renting space to a landscaping business but was threatened with a \$50,000 fine.) The Maryland Agricultural Land Preservation Foundation has not yet ruled on their application, but the Howard County Council recommended that it be denied.

Farmland preservation supporters note that just because one family can't profitably farm, that doesn't mean the land is agriculturally unviable and should be turned into a subdivision. "One family might think farming is a dead end," says Wagner. "But someone new coming onto that farm might think about community-supported agriculture, or a vineyard, or agritourism. There is all this new blood and new ideas." According to this view, a farmer struggling to make a living on protected property could always sell the land to someone else to farm, although that may be easier said than done.

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The Butler family started growing peaches in Montgomery County, Md., in 1950. Today the family farm is surrounded by development. "We're very happy here," says Wade Butler, "but if it ever gets to the point where taxes get too high or traffic gets too bad, it's nice to have some options."

That's why the Butlers have been reluctant to place an easement on their land. "If we give up all the rights and it's nothing but farmland, I don't think there would be a whole lot of takers for 280 acres in the middle of Montgomery County," says Wade Butler. "We're very happy here, but if it ever gets to the point where taxes get too high or traffic gets too bad, it's nice to have some options."

Ultimately, the value and efficacy of a PDR program, or any farmland preservation program, depend on the particular circumstances of the surrounding community and the particular needs of the farmer. A community interested in preserving scenic views might be unhappy with the noisy and dirty reality of an active farming operation, and the children of a farmer who decided to place an easement on the land might wish they'd been left with more options. While Groover believes that, on the whole, farmland preservation provides net benefits to society, communities must think carefully about whether a PDR program is the best preservation method. "A rock can be used as a hammer," he says. "But it's not always the best tool." **EF**

PHOTOGRAPHY: COURTESY OF BUTLER'S ORCHARD

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Richard Timberlake

Richard Timberlake has one of the longest-spanning careers of any economist. His first article was published in 1957, when he was 35 and earning his Ph.D. at the University of Chicago. His latest book, a history of the most important Supreme Court decisions affecting money, was published in 2013, when he was 90. After teaching at the University of Georgia for 26 years, Timberlake has been retired for a nearly equal length of time — he retired, he says, so he could get some work done.

Timberlake is widely regarded as one of the world's foremost experts on monetary history. The intriguing thing about money, he says, is that its existence since ancient times proves that people can use it whether or not they understand how it works or what gives it value.

His work has often taken an anthropological perspective, exploring the influences over key policymakers and lawmakers who have shaped U.S. monetary policy — in many cases, he argues, to its detriment. In *Constitutional Money*, he argues that key court cases weakened the monetary clauses of the Constitution, making way for the era of fiat money that has prevailed almost since the Fed was created.

He was one the first economists to show, in 1984, that private clearinghouses were quite successful at resolving bank panics long before the Fed came into existence. Timberlake is perhaps best known as a staunch supporter of monetary rules, like a gold standard, that remove the discretion from monetary policy to keep policy insulated from political pressures and human fallibility.

Timberlake is also the author of *They Never Saw Me Then*, a memoir of his experiences as a bomber co-pilot during World War II, for which he earned three Purple Hearts, and he was a Richmond Fed visiting scholar in the early 1970s. Renee Haltom interviewed Timberlake at his home in Bogart, Ga., in February 2014.



EF: Let's start with a unifying theme of your work: Your support of a gold standard. Several great neoclassical monetary theorists — Marshall, Walras, Wicksell, Fisher, and Keynes — argued that a rules-based fiat money could outperform a gold standard. Why do you disagree?

Timberlake: Let me say first of all that I am not a “gold bug.” Nonetheless, the fact is that an operational gold standard works to promote a free society, and no other monetary policy seems able to do so.

The key word in your question is “could.” But the policymakers won't allow it to. The reason they won't is found in public choice economics, which argues that the policymakers, like all other human beings, have a stronger motive to further their own self-interest than to promote sound public policy — not only at the Fed, but everywhere. Until maybe 10 or 20 years ago, economists who studied money felt that they could prescribe some logical policy for the Federal Reserve, and ultimately the Fed would see the light and follow it. That proved illusory. A central bank is essentially a government agency, no matter who “owns” it. The Fed's titular owners are the member banks, but the national government has all the controls over the Fed's policies and profits. And as with all government agencies, the Fed is subject to

public choice pressures and motives.

The gold standard, by contrast, constrains the quantity of money because gold itself is a limited substance in the crust of the earth and is recognizable for what it is everywhere. It is amazingly constant in value relative to other commodities, over not only centuries but millennia. In ancient Egypt, the value of silver to gold was about 3 or 4 silver to 1 gold. By the end of the 19th century it was 30 to 1. By the end of the last century it was 80 to 1. Recently it has been closer to 50 to 1, which seems more or less right. But its value relative to all goods and services, so far as that can be determined, has hardly changed at all.

EF: What inspired you to write *Constitutional Money*?

Timberlake: Primarily, it was the observation that Supreme Court decisions had never been discussed analytically in terms of monetary economics. In U.S. history there have been about 10 important monetary rulings. I found that these decisions very much impacted both beliefs and policies and significantly influenced monetary affairs. I also found an important trend during the period I studied: Those court decisions rendered the constraint of the gold standard less and less forceful.

The culminating decisions were the last ones I examined — the Gold Clause decisions of 1935, which took place after Congress significantly devalued the dollar in terms of gold in 1933-1934. The U.S. Treasury then was authorized to call in all the gold and melt it down so it was unusable as money, while government ownership and legislated devaluation gave the government a windfall profit of \$2.8 billion. This profit almost equaled the federal government's total revenue for that year. To prevent a similar windfall that would benefit private holders of contracts redeemable in gold, Congress banned gold payments for contractual debts. The constitutionality of this decision then became a court case.

In its decision upholding the abrogation of gold clauses, the Supreme Court reaffirmed, without re-argument, its decisions in 1871 and 1884 that gave Congress full control over the monetary system, including the issue of full legal tender paper money called "greenbacks." Those decisions were politically motivated and patently anti-gold standard, as well as invalid. I say "invalid" in the sense that the decisions were contrary to all constitutional precepts, but also in the sense that there was a dichotomy between what the Supreme Court decided in 1871 and 1884 and the monetary principles the public universally believed and acted on. Subsequently, the Fed was created in 1913 with no presumption at all that it had complete control over the monetary system. But neither that fact nor the absence of any other common evidence supporting the court's conclusion ever became part of the argument in the Gold Clause cases. Passage of the Gold Standard Act in March 1900, for example, would have been

The "lender of last resort" label never fit the reality of the Fed as an institution.

superfluous and trivial if Congress had actually had such constitutional powers.

With the Banking Act of 1935, Congress formally granted the Fed complete discretionary power over the monetary system that was implied by the 1935 Gold Clause

decisions, even though almost nobody knew how unfettered monetary policy would work. Such an understanding requires knowledge of how the central bank creates money, how the commercial banking system creates money, and how an individual bank creates money, as well as an understanding of the behavior of money and what the limits are to monetary manipulation. No one in the government then knew or cared about such principles. Fed policies from 1935 to 1952 were all politically determined by the Treasury Department.

EF: So how does monetary policy since the 1930s argue for a gold standard, in your view?

Timberlake: After the Depression ended in about 1941, the Treasury simply put the central bank in tow, especially during World War II. When the Fed finally broke loose with the Fed-Treasury Accord of 1951, Fed policymakers still had to be politically correct. Nevertheless, Fed policy was reasonably good under Chairman William McChesney Martin, and I would say also reasonably good under Alan Greenspan. However, with a gold standard in place, no personality decides monetary policy. No one throws stock markets into a panic with comments about "irrational exuberance." A simple constitutional law is in place that everyone understands: The quantity of gold in banks and the rest of the market system is strictly limited and determines the quantity of common money. No government agency can manufacture gold to bail out any big banks or corporations, or raise or lower interest rates. There is no QE (quantitative easing) 1, 2, 3, and so on.

A gold standard provides a stable monetary system because it operates under the principle of spontaneous order. After Congress specifies the amount of gold in the unit of account — the dollar, in the United States — millions of people making tens of millions of decisions in thousands of markets determine prices, wages, and the patterns of production. It's easy to understand, even if a person doesn't know exactly how the gold standard works. Under a gold standard, governments can rarely initiate spending orgies. Only with a war developing can mortal legislators overrule the gold standard's strictures.

At the present time, the Fed, with its monetary facilities, enables the U.S. Treasury to extend its fiscal base for creating a seemingly limitless national debt. The worst possible scenario is one in which the front door of the Treasury is also the back door of the central bank. With such an institutional nightmare in place, the Treasury sells the securities and the Fed immediately buys them, thereby creating more money,

which then goes out of the Fed's front door. Currently, much of that new money is in the form of commercial bank reserves. The Fed has successfully neutralized their monetary impact by initiating interest payments on them so that bankers will not use the new bank reserves to expand credits and deposits. However, that policy cannot last forever. If the economy starts recovering, interest rates will begin to increase and the Fed will have to raise the near-zero interest rates it now pays banks not to use those excess reserves. Increasing market rates of interest will provoke political demands that the Fed "lower interest rates" — something it will not then be able to do.

Currently, it is difficult to imagine what a constrained monetary system, or a constrained government of any kind, might look like. Expansive monetary policy finances the government's unstable welfare system, unending foreign wars, and all the rest of the government's limitless tax-and-spend policies. I cannot see any kind of market equilibrium with this kind of unstable institutional environment.

Going back to a more constrained system, such as a legitimate gold standard, couldn't be done overnight. It requires a public consensus, an ethos for a constrained government as well as a disciplined monetary system. Public choice theory suggests that government agencies would drag their feet to prevent it, because getting back on a gold standard would take monetary powers away from government control. So returning to any truly constitutional government will be a long, hard haul.

EF: Do you think there are viable rules-based alternatives to a gold standard that would be better than the fiat system we have?

Timberlake: Since any central bank unequivocally controls the quantity of money, two rules are possible that would suitably restrain the government's monetary excesses. The first would be a rule mandating that the Fed, by means of its full control over the quantity of money, stabilize a price index of commonly used goods and services, without any excuses or exceptions. Many economists favor this rule. While an acceptable rule, it would not be foolproof.

The second possibility — which the late Milton Friedman finally decided on after studying the lagged effect of monetary policy on prices, and after it became apparent that the Fed would not bind itself to a price index policy — is a fixed rate of increase in the quantity of money. Such a policy would be simpler than an indexed price level policy because the

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► Present Position

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► Other Positions Held

Florida State University (1958-1963);
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► Education

Ph.D., University of Chicago (1959)
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B.A., Kenyon College (1946)

► Selected Publications

Author of the books *Constitutional Money: A Review of the Supreme Court's Monetary Decisions* (2013), *Monetary Policy in the United States: An Intellectual and Institutional History* (1993), and others. Articles have appeared in journals such as the *Quarterly Journal of Economics*, *Journal of Economic History*, *Journal of Political Economy*, and *Journal of Monetary Economics*

Fed has unquestionable day-to-day (or week-to-week) control over the quantity of money, even though Fed spokesmen have not always liked to talk about it.

I was visiting at the Richmond Fed in the summer of 1970, and I wrote an article for the Richmond Fed's *Monthly Review* to acquaint the layman with the mechanics of money creation. (See "The Supply of Money in the United States," *Monthly Review*, January and February 1971.) I constructed a basic diagram that showed the Fed's control over the quantity of money. But the editor of the *Review* had to run it by the Federal Reserve Board in Washington, and they almost squelched it because it explicitly discussed the Fed's control over the quantity of money. (*Editor's Note: The Board no longer approves the publications of the Reserve Banks.*) The Board did not want the Fed to be controlling the quantity of money.

That operation is too simple. Policymakers want the Fed to do other things that are more "important," such as fiddle around with interest rates, so that the Fed organization continues to have an unquestionable reason for existing. However, even with a stable price level rule in place, all the Fed's parts and pieces could stay in place to ensure that this policy, no matter how simple, was being perfected.

Friedman recommended a steadily increasing quantity of money — that is, bank checking deposits and currency — between 2 and 5 percent per year. Prices might rise or fall a little, but everybody would know that things were going to get better or be restrained simply because the Fed had to follow a quantity-of-money rule. I wrote him a letter at the time and remarked, "I agree with your idea of a stable rate of increase in the quantity of money, and I suggest a rate of 3.65 percent per year, and 3.66 percent for leap years — 1/100 of 1 percent per day." He responded dryly, "Your percentage is very ingenious."

EF: Some economists argue that the Fed should target nominal GDP (NGDP), essentially stabilizing prices in the long run and perhaps reducing unemployment in the short run. What do you think of this proposal?

Timberlake: Providing a hard rule for policymakers is always going to get the discretion out of policy, so virtually any rule is better than unlimited discretion. An NGDP target is better than what we're seeing now, which is unfettered money creation and stimulus spending. However, this policy has a major drawback: The Fed can affect only one side of the market, the quantity-of-money side. The other side is

the real sector, where goods and services are produced. The Fed cannot do anything about that side, as current monetary excesses have confirmed. But it can keep the monetary side in order. That was the principle that Milton Friedman emphasized. With a central government generating so much uncertainty and counterproductive policies for the real sector, an NGDP policy might well see nothing but price level increases. The real sector would be stuck on a zero or declining rate of increase due to anti-market incentives, such as those currently in place — excessive taxes, with huge dead weight losses; a plethora of counterproductive regulations; anti-enterprise government propaganda; and stifling controls of all kinds, such as minimum wage laws and legislation costly to the financial sector, such as the Dodd-Frank Act.

Current Fed policy is to promote an inflation *rate* of 2 percent per year married to a minimum *level* of unemployment. That is an absurd confusion of monetary and employment policies. First of all, an annual rate of increase of 2 percent in the price level will not achieve anything that a zero rate of increase would not do, and also has other associated pitfalls. In fact, there is a very good case for a monetary policy that would allow the price level to fall at the rate of increase in the production of real goods and services. In any case, most economists know that price level increases have no effect on production, that a stable price level is as good in the longer run as any inflationary policy so far as real production is concerned. Friedman also argued that an optimal price level policy would reduce the price level 2 to 5 percent a year. He had very good theoretical arguments to back this proposal.

The problem with an advertised falling price level is that it is politically unacceptable. But a stable price level policy, which is plenty good enough, is acceptable and plausible. Like a gold standard, everyone understands what it means. Just as everyone understood that more gold meant more money, everyone would understand that average prices would be constant, even though people might argue about which specific prices and weights to include in the policy index.

EF: When, if ever, has the Fed followed a good rules-based policy, in your view?

Timberlake: The first — and only — stable price level policy followed by the Fed was initiated by Benjamin Strong, president of the New York Fed in 1922, who showed how it would work. He initiated this policy as a temporary action until international agreements could re-establish the gold standard. The policy ended in 1929 due to his death the previous October.

The New York Fed was the largest Reserve Bank by far and was in the center of the financial district. Strong realized that the Fed System could promote financial stability because of his banking experiences in the panic of 1907, when privately owned and operated commercial bank clearinghouses extended their credit facilities to fulfill the extraordinary demand for money that had developed

in financial markets. Strong thought he could promote a stable price level and then reconstitute the gold standard when prospects seemed favorable. During that period, 1922 through 1929, the price level (CPI) rose a total of 2.3 percent, and the wholesale price index actually fell. Prices were essentially stable and enterprise flourished.

After Strong died in late 1928, activists on the Fed Board in Washington took over. The Board member most influential at that time was Adolph C. Miller, a “real bills” proponent who was also a fanatic about speculation. He managed to prevail on the Board to crusade against this evil practice no matter what that policy did to the banking system. The result was disastrous, absolutely calamitous. The anti-speculation policy “cured” the patient by killing it.

Incidentally, some economists’ papers printed in the *American Economic Review* in 1925 discussed Strong’s price level policy. The gist of what several said was that Strong’s policy was legally questionable and about as far as the Fed could go under constitutional law, and only acceptable until the gold standard could be resumed. Nonetheless, Strong’s policy showed unquestionably that a central bank can maintain a stable price level even in the presence of the carping criticism of the real billsers.

EF: That’s a good setup for my next question: What is the real bills doctrine, and how did it lead the Fed astray during the Great Depression? And why didn’t the Fed realize it at the time?

Timberlake: The Fed was founded on the basis of the real bills doctrine, which simply meant that the money and “credit” it created were supposed to be backed by short-term loans that bankers made for the marketing of real goods and services. The idea is that the banker creates credit and new money for the entrepreneur, who uses the money to make goods and services, and then sells those goods and services to pay off the bank loan, 30, 60, or 90 days hence. The newly created bank credit was supposed to be of short-term duration and self-liquidating.

The real bills doctrine can be destabilizing because the monetization of bank assets depends on the variable discretion of the banker, whereas the monetization of gold has no discretion connected to it at all. Any amount of gold can be turned into money at a fixed rate. Its monetization is a rule of law, with no one’s discretion applicable. However, when operating as a subsidiary policy to the gold standard, the real bills doctrine is harmless; the gold standard dominates the creation of money, no matter how many real bills appear.

So it wasn’t the real bills doctrine, as such, that led the Fed astray in the Great Contraction of 1929–1933. It was the sub-policy of anti-speculation that did all the damage. Anti-speculation was politically appealing at that time because the stock market seemed to be going wild. It also sounded so virtuous. It especially appealed to those speculators who had lost money.

Many Fed policymakers, and most economists, believed

in the real bills doctrine. Since the gold standard was no longer operational — in fact, had not been since 1914 — real bills proponents in the Fed had the chance to bring it in as a policy and put it into practice. The Board's anti-speculation regulations were initiated in February 1929. From then on, Reserve Bank loans were denied to all banks that had any taint of speculation to them. That started a cumulative process of contraction. The monetary and banking data show this decline without any question, and the policy went on and on until the speculation was cured, by which time the patient was dead.

EF: So do you agree with Milton Friedman and Irving Fisher that if Benjamin Strong hadn't died in 1928, the United States and the world would have avoided the Great Depression?

Timberlake: Miller was always at odds with Strong. He said out loud that Strong was one of those "dangerous economists" who had weird ideas about the banking system. But in the early '20s, Strong had the power. His was a dominant personality. He was president of the Fed bank of New York, so he had as much power over the system as Janet Yellen or Ben Bernanke or Alan Greenspan have or had in modern times. He knew what he was doing. A lot of the others didn't know because they refused to acknowledge how the system worked quantitatively. They were still real billsers. To answer your question: Yes, undoubtedly. (See "Taking Charge," page 4.)

EF: What should the Fed do about asset bubbles?

Timberlake: The Fed shouldn't pay any heed at all to asset bubbles. If it followed rigorously a constrained price level, or quantity-of-money rule, I don't think there would be bubbles. Markets would anticipate stability. Markets today, however, anticipate, with good reason, all the government interventions that lead to bubbles. If we had a stable price level policy and everybody understood it and believed it would continue, there wouldn't be any serious bubbles. We don't even know whether the 1929 "bubble" was even a bubble, because after the Fed's unwitting destruction of bank credit, no one could distinguish in the rubble what was sound from what might have been unsound.

EF: Walter Bagehot, the 19th century British economist, is often credited with having written the playbook — literally, in his 1873 book *Lombard Street* — for what a central bank should do in a crisis. Economists have different interpretations of what he was prescribing, however. What is your interpretation of Bagehot?

Timberlake: Bagehot discussed the operations of the Bank of England, which was at the time a budding central bank but also a commercial bank. It was a sort of super commercial bank. He did not argue that the Bank of England should try to counter the actions of the gold standard. He was

analyzing the role of a commercial bank that was also the government's bank but constrained by the gold standard for which it was a shock absorber.

Bagehot said there were five principles to central bank credit intervention to allay a panic. The first two most often cited are that it lend freely at high interest rates. He also added that it should lend only on "paper" that financial markets recognized traditionally as good bills — assets that everybody knew were sound. The fourth principle was to preannounce this policy, and the fifth was to continue it boldly until the now-central bank was out of gold. The bank then would have done all that was possible, and the gold standard would take over.

EF: Did the Fed follow Bagehot's prescriptions during the 2007-2008 financial crisis?

Timberlake: No, not at all. The Fed was never a lender of last resort, and it wasn't this time either. The Fed should never point its finger at a particular sector and construct a policy that might help that sector, such as agriculture or employment, and say, "We're going to act until this particular problem is corrected." That goes back to the fact that the Fed has no rights, responsibilities, or abilities to do anything at all about the real sector. It has to deal with the monetary sector alone and not try to extend itself into the real sector. But when it's called upon to counteract "bubbles," it is being given a role that it cannot fulfill. If it tries, it ruins any price level stabilization policies it might have.

EF: What do you mean by "the Fed was never a lender of last resort"?

Timberlake: The Fed was created solely to be a lender of last resort under the law of the gold standard. It was supposed to be similar to the Bank of England.

Soon after the Federal Reserve Act was passed in 1913, the U.S. government was embroiled in World War I, and the Fed became a subsidiary of the Treasury Department. In fact, it was housed in the Treasury Building in Washington until about 1937. Wartime Treasury policies determined Fed policy for the next several years. For three years after the war ended, from 1918-1921, the Fed was still a lackey of the Treasury. It finally broke loose and squeezed out the bubbles that had developed, so that by 1922 it was back to where it was supposed to be. By the time that the gold standard might have been reintroduced in late 1929 or early 1930, Miller and the real-bills Fed Board upset the apple cart and promoted the disaster that was the Great Contraction and then the Great Depression. Then the Banking Act of 1935 gave the Fed complete control over the monetary system. Thus, the lender of last resort label never fit the reality of the Fed as an institution.

EF: Then does the financial system inherently require a lender of last resort at all?

Timberlake: No, I don't think it does. Private institutions will always furnish lender of last resort services if markets are free to operate and if there are no government policies in place that cause destabilization. In the last half of the 19th century, the private clearinghouse system was a lender of last resort that worked perfectly. Its activities demonstrated that private markets handle the lender of last resort function better than any government-sponsored institution.

EF: I want to ask about your experience at Chicago in the 1950s, because that was a period in which Chicago was really becoming the Chicago we think of it as today. Who were some of your key influences there?

Timberlake: My two mentors there were Earl J. Hamilton and Milton Friedman. Hamilton was an economic historian — an economist first, a historian second — and of course everyone knows who Milton Friedman was.

Milton Friedman was a triple star player in economics — runs batted in, total hits, and percentages, he had it all. He could communicate with the public, he was good at theory, and he was an excellent empiricist. What more can you be?

I recall the time when I presented a potential Ph.D. thesis proposal at Chicago to the economics department. The audience included professors and many able graduate students. I could feel that my presentation was not going over very well. After the ordeal was over, Friedman said to me, "Come back up to my office." When we were there, he said, "The committee and the department think that your thesis proposal has less than a 0.5 probability of acceptance." I knew that was coming, and I despondently replied that I had had a very frustrating time "finding a thesis." My words suggested that a thesis was a bauble that one found in a des-

ert of intellect that no one else had discovered. It was then that Milton Friedman turned me around and started me on the road to being an economist. "Dick," he said, "theses are formed, not found." It was the single most important event in my professional life. I finally could grasp what economic research was supposed to be.

Other excellent economists who were my teachers included Lloyd Mints, who specialized in monetary theory and policy. He retired in 1953. I found him a very inspirational teacher because he was right on the button. His most noteworthy work was *A History of Banking Theory*, in which the real bills doctrine was a centerpiece.

I had other very good professors there — Gregg Lewis, George Tolley, and of course Frank Knight. I remember some of the things he said, such as, "All civilization is capital," in answer to a question about capital values.

I never studied under George Stigler, but I knew him a bit, and I was always impressed with his work. *Production and Distribution Theories* is a great book. If you're just a beginning graduate student in economics and you read that book, you'll understand what economics is all about. He well deserved the Nobel Prize.

Incidentally, the fact that Anna Schwartz never got the Nobel is criminal. The Nobel Committee's disregard of her contributions says more about the committee than it does about her. She was an excellent economist. Very kind, too. I would put her as one of my teachers, even though I never had a formal course under her guidance.

I sometimes say that I was Milton Friedman's worst student, because I was surrounded by geniuses who knew much more economics than I. Nonetheless, I have enjoyed my professional role as an economist, and I have never regretted making it a life's work. **EF**

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The digest features summaries of work by economists in the Bank's Research Department published externally from June 1, 2013, through May 31, 2014.

Why U.S. Economics Departments Won

BY DAVID A. PRICE

Almost all of the universities in the top tier of economics are in the United States. So says a 2011 ranking of world economics departments by the London newspaper the *Guardian*, which puts U.S. departments in seven of the top 10 spots. So says a 2008 article by Rabah Amir of the University of Iowa and Malgorzata Knauff of the Warsaw School of Economics that ranks economics departments on the basis of Ph.D. placements since 1990; their list has only one non-U.S. department in the top 10. So says a recent ranking by the Tilburg University School of Economics and Management (Netherlands), which includes zero non-U.S. schools in the top 10.

The committee for the Nobel Memorial Prize in Economic Sciences seems to agree. Over the past quarter-century, it has awarded prizes to 49 economists, of whom only six received their doctorates from non-U.S. universities — and one of those, 1988 winner Maurice Allais, received his degree in engineering, not economics.

In sum, according to University of California, Berkeley sociologist Marion Fourcade in her 2009 book *Economists and Societies*, “The primary empirical fact about the international field of economics has been, since World War II at least, the overwhelming dominance of U.S.-based scholars, scholarship, and institutions and their commensurate power over the rules of the game that prevail in it.”

What’s going on? In a field that was more or less created by foreigners — Adam Smith, Léon Walras, William Stanley Jevons, Vilfredo Pareto, and John Maynard Keynes among them — how did U.S. departments come to be this dominant?

In the last decades of the 19th century, the United States remained a backwater in academic economics. Americans seeking advanced training in economics (or “political economy,” as it was then called) usually went to Germany for their Ph.D. degrees. During the same period, however, programs in this country were growing in response to greater interest in the field as a possible source of light on issues such as bank failures and the power of railroads. John Parrish of the University of Illinois, in a 1967 article in the *Southern Economic Journal*, found that although U.S. universities awarded only three doctoral degrees in political economy in the 1870s, that figure increased to 95 in the 1890s.

A further advance in the standing of U.S. programs came in the late 1930s and 1940s as the result of man’s inhumanity to man. Prior to World War II, oppression of Jews by fascist governments brought numerous refugee economists to American institutions, such as future Nobel laureates Franco Modigliani and Leonid Hurwicz. Other European economists, such as future Nobel winner Tjalling Koopmans, came to America to stay clear of the war.

The Rockefeller Foundation, endowed by oil magnate John Rockefeller Sr., played a central part in bringing about many of those migrations, according to Roy Weintraub, a professor at Duke University’s Center for the History of Political Economy and author of the 2002 book *How Economics Became a Mathematical Science*. “Beginning in the 1920s, the major U.S. outreach to European economists was through the Rockefeller Foundation, through its sponsorship of business cycle research institutes,” Weintraub says. “There were centers in Russia, in Vienna, in Italy, in Kiel, in Rotterdam. Many of the people who were known in the U.S. and sponsored to get out of Europe by Rockefeller took a major role in refugee placement and funding.”

During the period just after the war, economics in the United States enjoyed still another advantage in the form of rapid growth in American higher education in general. The Servicemen’s Readjustment Act of 1944, better known as the G.I. Bill, provided aid to college-bound veterans. Overall college enrollment in the United States grew from 1.3 million in 1939 to more than 2 million in 1946, bringing demand for more faculty — and, thus, more opportunities for prospective doctoral students — at a time when European economies were struggling.

Today, demand for research economists in the United States continues to be high, helping to draw strong students to the field, thanks in part to the growth of American business schools and to demand from the U.S. financial sector and consulting. In this country, Fourcade noted, “economists’ work options in the private sector are much more abundant than in other nations.”

Another factor today is declining government support for European universities, says Weintraub. “There is not the kind of financial support or the opportunities for advancement. Students will come here to do the Ph.D. and want to stay. The exception probably would be China; there are many opportunities for Chinese to go back and have fast-track careers with American degrees because there are so many universities that have started.”

Elite American research universities, both public and private, benefit from diverse sources of funding, especially an engrained tradition of private philanthropy. Together with the institutions’ other advantages, their money brings the ability to recruit top talent. Five U.S. institutions in 2013 had endowments larger than \$18 billion; Harvard’s, at \$32 billion, was four times that of Britain’s most wealthy, the University of Cambridge.

But the worm already turned once in the early- to mid-20th century. Who’s to say it won’t turn again? Mighty MIT and hegemonic Harvard, look out. **EF**

ECONOMIC HISTORY

From Loophole to Mandate

BY KARL RHODES

Employment-based health insurance was born at Baylor Hospital in 1929. At the time, most births still happened at home, but on the eve of the Great Depression, health care delivery and health care financing were on the brink of dramatic transformations.

In 1929, many medical services were beginning to move from homes to hospitals as people became aware of significant advances in medical science. These breakthroughs made institutional health care more attractive, but just as the demand for hospital services was increasing, people's ability to pay for those services was decreasing.

When Justin Ford Kimball was put in charge of Baylor Hospital in Dallas, he quickly discovered that many of its patients were not paying their bills. He also noticed that many of those nonpayers were teachers in the public school system, where he had served previously as superintendent. So Kimball devised a prepaid group hospitalization plan for teachers in the Dallas area. For 50 cents a month, they could purchase insurance that would pay for up to three weeks in Baylor Hospital.

The idea caught on with other hospitals, and by 1940, several of these prepaid plans were operating under the Blue Cross banner following guidelines from the American Hospital Association (AHA). The success of the Blue Cross plans demonstrated that focusing on large groups of employed people could make health insurance work by mitigating the problem of adverse selection — the concern that only sick people would

sign up for such plans.

Less than 10 percent of Americans were covered by health insurance in 1940. That percentage was growing as more Blue Cross plans took shape and as commercial insurers began to enter the market, but it was federal government policies that made employment-sponsored health insurance the dominant financing mechanism for American health care. During World War II, the United States instituted strict wage controls administered by the National War Labor Board, but the board did not define employer-paid health care premiums as wages. Faced with surging demand for goods and services and a shortage of traditional workers, corporations started offering group health insurance. By 1957, more than 75 percent of Americans were covered by health insurance, and the vast majority of that coverage was obtained through employer-sponsored plans.

The employment-based system was much better than the charity-based system of hospital financing that it gradually replaced. It kept many hospitals in business, mitigated the problem of adverse selection, introduced economies of scale, and increased access to health care for many people. The system also helped finance the development of new technologies and new drugs that were highly effective. But economists have argued that linking health insurance to employment distorted a variety of labor market decisions and contributed to excessive levels of health care coverage and health care spending.

Federal policies have fostered employment-based health insurance

A plaque at Baylor University Hospital marks the birthplace of Blue Cross.



Despite these flaws, the employer-sponsored system is not likely to go away anytime soon. In fact, mandating employer-sponsored health insurance for employers with 50 or more full-time-equivalent workers is a key provision of the Patient Protection and Affordable Care Act, also known as “Obamacare.” The Act’s employer mandate, which takes effect next year, may alleviate some existing labor market distortions while potentially creating some new ones.

Early History

In 1847, the Massachusetts Health Insurance Co. started issuing “sickness” insurance to cover lost wages. At the time, replacing wages was a far bigger issue for sick people than paying health care expenses because most medical treatments were inexpensive and ineffective. Many people resorted to institutional health care only in desperation.

Some employers and labor unions maintained sickness funds, primarily to offset lost wages, and in the late 1800s, a few larger corporations — mostly railroads, lumber companies, and mining operations — started deducting fees from employees’ wages to pay company doctors. These arrangements helped inspire the Blue Cross and Blue Shield plans that emerged in the 20th century.

By 1920, there were 16 European countries with some form of compulsory national health insurance, according to Melissa Thomasson, an economics professor at Miami University’s Farmer School of Business. In sharp contrast, American movements to create compulsory health insurance programs failed in 16 states during the 1910s.

“We didn’t really have the labor movement until the Progressive Era, and when World War I hit, a lot of anti-European sentiment took over,” she explains. “We didn’t have the strong centralized government that could make things happen, and on the state level, there wasn’t the organization and the impetus to make it happen.”

But the biggest reason why the United States did not follow Europe’s lead was a simple lack of demand. “The public had little confidence in the efficacy of medical care,” Thomasson wrote in a 2002 article in *Explorations in Economic History*. “Patients were typically treated at home, and hospitals were charity institutions where the danger of cross-infection gave them well-earned reputations as places of death.”

There was a huge difference between good physicians and bad physicians, she notes, but even the best doctors provided few effective treatments. “Good physicians who were educated before 1920 could diagnose you accurately, they could set bones, they could give you diphtheria antitoxin, and they could talk about hygiene, but that’s about it.”

The development of antibacterial sulfonamides (sulfa drugs) did the most to boost public confidence in doctors and hospitals, Thomasson says. “In 1924, Calvin Coolidge’s son gets a blister on his big toe. It goes septic and he dies. In 1936, Franklin Roosevelt’s son contracts strep throat. It goes septic and they think he’s going to die, but researchers at Johns Hopkins were testing sulfa drugs at the time. They give them to Roosevelt and he makes a miraculous recovery.”



This 1920s X-ray machine likely was in service at Baylor when the hospital’s leader, Justin Ford Kimball, established the Blue Cross prototype plan in 1929.

The Blue Period

In the early 20th century, hospital care was financed largely by charitable contributions and patient payments, and both of these funding sources were running dry during the Great Depression.

Many hospitals started offering prepaid plans patterned after the Baylor model. As they began to spin off these insurance plans under the Blue Cross banner, the AHA endorsed the ones that followed its guidelines. “The AHA wanted to think about how these plans should be structured, but also they wanted to reduce inter-hospital competition,” Thomasson notes. “They didn’t want two plans in the same area competing against each other and driving down prices.”

Blue Cross programs became nonprofit organizations that received exemptions from taxes and state insurance regulations in exchange for offering community-rated plans. In other words, everyone in a group — sick and healthy alike — paid the same premium. Typically, the Blue Cross plans offered insurance to large groups of employees, which mitigated the problem of adverse selection by providing safety in numbers and by excluding people who were too sick to hold jobs. In an era when work was more physical and employers could avoid hiring people with chronic ailments, a job was a reasonable proxy for good health.

Until the advent of Blue Cross, most physicians had opposed health care insurance because they believed that third-party payers would diminish the quality of medical care by reducing doctors’ income and autonomy. The American Medical Association (AMA) successfully lobbied against a provision in the Social Security Act that would have established compulsory national health insurance. But by the late 1930s, the threat of national health insurance and the success of Blue Cross plans prodded physicians to come up with health care plans of their own under the Blue Shield banner. “They were loath to start Blue Shield,” Thomasson says, “but they thought perhaps they should forestall any

future efforts for national health insurance by coming up with their own plan.”

Taking their cues from the Blues, commercial insurers also started offering health insurance plans. But they were under no obligation to offer community-rated insurance, so they began providing experience-rated plans with lower premiums for healthy people. This practice skimmed some of the cream off the pools of Blue Cross and Blue Shield. According to Thomasson, there is evidence that the Blues were in an “adverse selection death spiral” as early as the mid-1950s. To escape the problems that stemmed from their obligations to community-rate their plans, most of the Blues became traditional insurance companies in the 1980s and 1990s.

Are Benefits Wages?

During World War II, the Stabilization Act of 1942 imposed price and wage controls, but because of the war, demand for goods and services was going up, and the traditional supply of workers (able-bodied men) was going down. So the National War Labor Board allowed corporations to use “fringe benefits” — including company-sponsored health insurance — to recruit and retain workers.

“I don’t think it was intended as a loophole,” Thomasson says. “I don’t think they realized what they were about to set in motion. I think they thought, ‘well, it’s small potatoes, we’re not going to worry about it.’ They had no way of foreseeing the amazing medical advances that would increase demand and the subsequent tax treatment that would increase demand again.”

For purposes of wage control, the War Labor Board ruled that employer-paid health insurance premiums were *not* “wages,” but for purposes of collective bargaining, the National Labor Relations Board (NLRB) ruled in 1948 that fringe benefits essentially *were* wages.

“The labor unions liked it as a benefit that they could bargain for, so when the NLRB said, ‘yes, this is something that can be subject to collective bargaining,’ the unions became invested,” says Thomas Buchmueller, a health economist at the University of Michigan’s Ross School of Business.

Another key federal policy emerged in 1954, when the Internal Revenue Service ruled that employer-paid health insurance premiums were *not* wages for tax purposes. The law also clarified that employer-paid premiums were fully tax-deductible for employers.

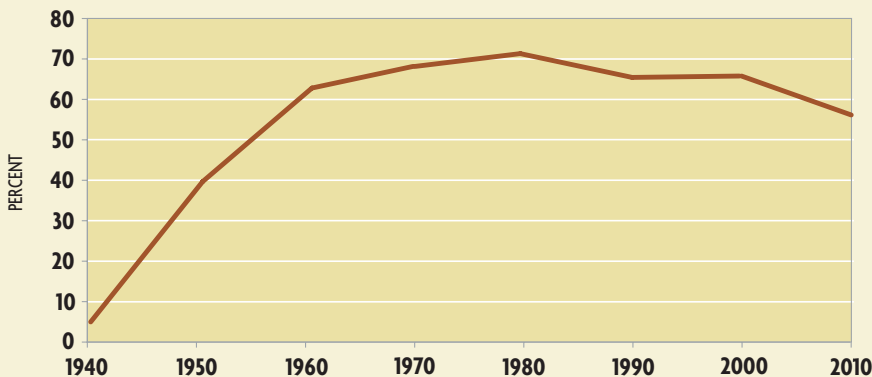
“The thing that really cements it is the tax treatment,” Buchmueller says. “The war is over. You have a number of large firms that still have these benefit plans, so the question arises, ‘Is this compensation?’ And when the IRS says it is not going to consider this taxable income, it created essentially a subsidy where the employer could provide a dollar’s worth of benefits for less than a dollar’s worth of after-tax cost. The tax angle continues to be part of the business case to this day.”

Conflicting federal definitions of “wages” were important catalysts for the growth of employer-sponsored health insurance, but the inadequacy and awkwardness of the charity-based system also was a big factor. During the Great Depression, hospitals quickly discovered that charity and individual payers could no longer fund their growing operations. Some employers maintained charitable funds to assist sick workers, but the collecting and distributing of those funds was burdensome.

Even the corporate number crunchers viewed this burden as a primary problem. In the 1960s — long after the dissolution of the National War Labor Board — actuarial pioneer Wendell Milliman listed four reasons why employers were adopting group health and life insurance plans. His *first* reason was to “eliminate ‘passing the hat’ among a worker’s fellow employees in case of illness or death.” His *fourth* reason was to “help in attracting and holding capable employees.”

The Rise and Decline of Employer-Sponsored Health Insurance

Percentage of U.S. Population Covered



NOTE: Numbers for 1940, 1950, and 1960 are Health Insurance Council estimates based on the number of people covered by group hospitalization policies issued by traditional insurance companies, Blue Cross, Blue Shield, and medical societies. Most, but not all, of these policies were employer-sponsored. Numbers for 1970 through 2010 are National Health Interview Survey estimates of the percentage of people under age 65 with employer-sponsored health insurance coverage.

Advantages and Disadvantages

By 1980, the employer-based system was providing health insurance to 71 percent of Americans under the age of 65, while Medicare and Medicaid were covering many retirees and other jobless people (see chart). More than 10 percent of the population still lacked coverage, but the system created enough payers to subsidize significant amounts of charity care for nonpayers.

After 1980, however, the share of Americans covered by employer-sponsored health insurance started to decline as the system became increasingly costly.

Employer-sponsored insurance is a good system for the people who can afford it, Thomasson says. “But it limits labor market mobility. It distorts labor market decisions, and the tax treatment

encourages an overprovision of benefits relative to wages.”

Labor economists generally agree that employers cover nearly all of their health insurance costs by paying lower wages, but employees who might want to opt out of employer-sponsored health insurance plans typically have no way of capturing their employers’ contributions in the form of higher wages. So a young, healthy employee who might be better off with a catastrophic-coverage plan — or no plan at all — might still sign up for his employer’s highly comprehensive plan because the employer contribution and the tax subsidy make the deal somewhat beneficial to him.

“Once I am in such a plan, if I get sick, I am going to use more care.” Buchmueller asserts. “That’s the moral hazard problem. There is really no benefit to me individually to be a hero because the premiums are shared across the whole pool. So more generous coverage leads to greater use of care, which leads to higher premiums.”

Tax subsidies, in particular, encourage firms to offer and employees to accept more insurance, as Thomasson noted in a 2003 article in *American Economic Review*. She examined data from the 1953 and 1958 Nationwide Family Expenditures Surveys and estimated the short-term effect of the 1954 IRS ruling. Thomasson found that the tax subsidy increased the amount of coverage purchased by 9.5 percent during that initial five-year period.

Tax-subsidy distortions can be an issue with any insurance system, Buchmueller notes, “but job-lock issues are unique to employer-sponsored health insurance.” He cites the example of a worker who wants to retire early. “Prior to the Affordable Care Act, you could have a really hard time going out in the market and buying health insurance, so you might stay in your job until you turn 65. Maybe you want to retire fully, maybe you want to cut back your hours, maybe you want to move to consultant status, but all of those options, which may be preferable to you, are going to be constrained by the availability of health insurance.”

Most labor economists acknowledge that job lock is a problem because it makes labor markets less flexible, but they disagree about the magnitude of the problem. Harvard economist Brigitte Madrian analyzed data from the 1987 National Medical Expenditure Survey and estimated that job lock reduced voluntary turnover by 25 percent. Kanika Kapur, an economist at University College Dublin and RAND Corp., later crunched the same numbers and found “insignificant estimates of job lock.”

Whatever the extent of the problem, the Affordable Care Act could mitigate some of the effects, according to Thomasson. “We often hear that the Affordable Care Act will destroy jobs because firms won’t want more than 50 employees,” she says. “But on the other hand, I know people who work for big corporations who would love to start their own businesses, but they don’t because of the lack of benefits. So in some ways, having a place for people to be able to purchase affordable insurance outside of the workplace could be a good thing for job creation.”

From Loophole to Mandate

After the Affordable Care Act’s employer mandate takes effect, Buchmueller expects most large employers to continue offering health insurance because tax subsidies and economies of scale remain substantial and because risk-pooling remains effective. “The individual health insurance market is still plagued by adverse selection,” he notes. “But with employer-sponsored coverage, you have a group of people who have been brought together for reasons other than purchasing insurance. You have a range of ages, and generally it’s a relatively healthy pool.”

Thomasson agrees, but she hedges her prediction with an alternative scenario: What if one high-profile firm dropped its coverage, paid the penalty, and raised wages by more than enough to cover the average cost of obtaining health insurance in an exchange? “That firm might lure the people who are less attracted by benefits — the healthier, younger, smarter people,” she says. Then other firms might start competing on the basis of higher wages instead of better health insurance.

Just as government loopholes for employer-sponsored health insurance have distorted the labor market, government mandates for employer-sponsored health insurance are likely to distort the labor market, too. “My guess is we will see changes on the margin in the short run,” Thomasson says. “For example, firms that are close to that 50 limit may act differently, but I think it’s going to take a few years for people to see how it all will work.”

Large companies that employ many low-wage workers will face the biggest challenge, Buchmueller predicts. “Those firms are toying with ideas of shifting workers to part-time schedules or just sucking it up and offering them benefits or paying the penalty. But for the bulk of large firms that are currently offering insurance, the calculation has not changed that much.”

EF

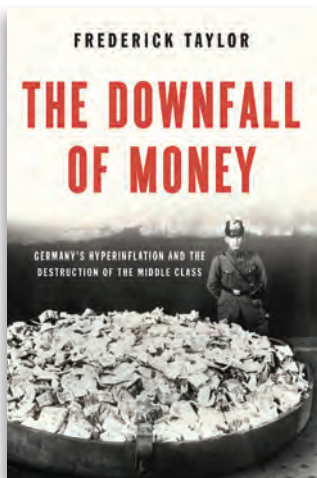
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**THE DOWNFALL OF MONEY:
GERMANY'S HYPERINFLATION
AND THE DESTRUCTION OF THE
MIDDLE CLASS**

BY FREDERICK TAYLOR
NEW YORK: BLOOMSBURY PRESS,
2013, 359 PAGES

REVIEWED BY DAVID A. PRICE

In 1923, Maximilian Bern withdrew his life savings of 100,000 marks from his bank account in Berlin. In earlier times, the money would have been enough to fund the elderly man's retirement. But this was the peak period of the Weimar Republic's hyperinflation, when printing presses were turning out currency so fast that stores sought retail clerks with banking experience to deal with the constant changes in prices.

Thus, Bern took his savings and put it all into buying a subway ticket. "The old gentleman took a last ride around his city," recounts historian Frederick Taylor in *The Downfall of Money* — then returned to his apartment to starve and die.

Highlights of the Weimar hyperinflation are widely familiar to Americans thanks to high school history: grocery shopping with baskets full of money, the scramble of workers on payday to buy necessities before prices went up again, the burden on Germany of World War I reparations. In his new account of the period, Taylor sets out the domestic and international politics that led to the crisis and portraits of its effects in many corners of the country's life. Although sometimes overly detailed in its rendering of the musical-chairs game of Weimar politics, it gives a colorful and astute view of the era.

Germany, like Britain and the United States, had experienced significant inflation during the war. But the starting point of Germany's great inflation was the Treaty of Versailles, signed in 1919. In it, the Allies imposed reparations to cover not only damage to the territory Germany had occupied, but also the cost of waging the war and the pensions of dead and injured Allied soldiers and sailors. While the policy of the Allies was motivated in large part by vengeance, it also had an economic basis, Taylor notes: France had borrowed heavily from Britain to pay for the war, and both had borrowed heavily from the United States. France and Britain were counting on money from Germany to pay off their own debts.

The obligations imposed on Germany put its budget massively out of balance. At the same time, the government owed its citizens repayment of its war bonds. Taxation would not be enough. Inflation, which eroded the debt burden, began in earnest in 1919 and became dramatically higher from 1921

BOOK REVIEW

Weimar's Money Deluge

to late 1923 (when monetary reforms finally curbed the issuance of new money). Wholesale prices increased more than fortyfold in 1922 and over 450 millionfold in 1923. Economist Thomas Sargent, now at New York University, noted in his 1982 essay "The Ends of Four Big Inflations" that at the end of October 1923, more than 99 percent of all the marks in circulation had gone into circulation that month.

One lesson of the Weimar hyperinflation, which Taylor's account highlights, is the extent to which inflation can have redistributive effects. Although inflation is commonly defined as a *general* increase in the price level, "general" doesn't necessarily mean "neutral." As in any inflation, the most obvious losers were the creditors — here, the citizens who had responded to patriotic appeals to buy war bonds. They lost everything as the value of their bonds vanished. In the same plight were the members of the middle class, both educated professionals and laborers, who had put their money in bank accounts and other supposedly secure investments.

At the same time, workers suffered as their wages quickly eroded. In theory, wages could be indexed for inflation, but in practice, workers' earnings were not fully protected from inflation for years, if ever. The double hit to savings and wages left many in a state of overwhelming crisis; for some families, this meant pushing daughters and sons into the sex trade in a quest for hard currency or tradable goods. Rural dwellers, with their access to food that could be bartered, were in a better position than their city counterparts; urban dwellers with relations in the countryside were better off than those who had none.

If there were losers from the hyperinflation, however, there were also winners. Borrowers, of course, came out ahead. Germans with access to foreign currency early in the crisis — or who were able to adapt quickly enough to gain access to it — could often live like the rich. Industrial companies enjoyed boom times from exports, thanks to the mark's declining value, and could buy factors of production cheaply within Germany.

"Slow thinking and a reliance on previous experience were punished with hunger and death," recalled a German journalist who was a teenager during the hyperinflation, "but impulsive action and swift comprehension of a new situation were rewarded with sudden, huge wealth."

Yet the greatest beneficiaries by far were the political extremists. John Maynard Keynes anticipated that Germany's experience with inflation "may disorder the minds of her working class, the source of her political stability." As the mismanagement of the economy pummeled the faith of the populace in the regular political system, the stage was set for a demagogue's rise. **EF**

The Richmond Fed at 100 Years

BY SONYA RAVINDRANATH WADDELL

On Nov. 16, 1914, the Federal Reserve Bank of Richmond opened its doors in a former store building at 1109 East Main St. It had fewer than 50 employees; George Seay, a banker who was instrumental in bringing a Reserve bank to Richmond, was at its helm. It opened alongside 11 other regional Reserve banks that were spread across the nation and that, along with the Board of Governors in Washington, D.C., made up the new Federal Reserve System. It opened in a country and a region in which agriculture was still a large share of the economy. And it opened in a country that had no unified currency, no unified or consistent means of clearing checks, no uniform supervision of the banking sector, and little knowledge of monetary policy or economics in the way that we think of it today.

In the 100 years since, events such as war, recession, urbanization, technological innovation, the rise of the service economy, and national policy changes have all shaped the way that the Bank approaches its key operations, which revolve primarily around payments processing, the supervision and regulation of financial institutions, and monetary policy research.

The Richmond Fed and the Fifth District in 1914

To choose the Reserve bank cities, the Federal Reserve Act called for the establishment of a Reserve Bank Organization Committee; Richmond would be one of 37 cities asking to be made headquarters of a Reserve bank. The committee for locating a Reserve bank in Richmond concentrated its promotional efforts heavily in the Carolinas, so that even when Charlotte, N.C., and Columbia, S.C., decided to seek regional banks, many leading bankers in those states had already endorsed Richmond.

In its final brief, the Richmond group emphasized four key advantages. First, the city's geographic location provided a link between the South Atlantic and the Northeast. Second, the city had extensive transportation and communication facilities — including north-south and east-west rail lines, and river and coastal waterways — which allowed efficient contact with every point in the proposed district and provided a natural point for clearing checks and distributing currency. Third, Richmond had extensive banking connections, both as a holder of bankers' balances and as a lender. Richmond's national banks were lending in the 13 Southern states more than the national banks of any city except New York City. Finally, the city was important as a commercial and financial center. On April 2, 1914, the Organization Committee announced that Richmond was one of the 12 selected cities. (See "A Division of Power," *Region Focus*, Winter 2007.)

When the Reserve banks opened on Nov. 16, 1914,

the country was still responding to the declaration of war in Europe in July of that year. According to the Federal Reserve Bank of Richmond Annual Report from 1915, of all the regions of the United States, "in no section was the strain [of the war] more keenly felt than in the territory within the limits of the Fifth Federal Reserve District." Primarily, this strain was due to potential trade obstacles. Many farmers and merchants in the Fifth District relied upon cotton exports and with the uncertainty of war, credit became scarce, and cotton prices started to fall. In addition, all Reserve banks had to quickly ramp up operations to facilitate the federal government's financing of the war effort, which started officially for the United States in 1917.

Agriculture was predominant in the Fifth District economy at this time. In 1910, more than 70 percent of the Fifth District population lived in rural areas, compared with a little less than 50 percent of the U.S. population. (See chart.) This was particularly true in the southern part of the District. Cotton, according to the Bank's 1915 Annual Report, "most intimately touches the interest of the greatest number," while tobacco was also cited as an "endeavor of commanding importance." In fact, the need for credit and banking services in rural areas was one key reason for the establishment of the Federal Reserve System; the United States needed a banking system that could serve all interests — urban and rural — in the developing nation.

One of the most important reasons to develop a central bank — to furnish an elastic currency that could expand or contract with demand — was also illustrated in the 1915 Annual Report. "Credit is shortest in supply in the months of August and September, and, as a rule, is easiest immediately following the maturing of cotton in the early fall." The inelasticity of the currency and the subsequent rise in interest rates during the periods of highest demand (primarily harvest season, holiday seasons, and financial crises) was a driver of the movement to reform the U.S. financial system that resulted in the Federal Reserve Act.

In addition to a strong agricultural presence, the Fifth District manufacturing sector had started to develop. According to the 1910 Census, 11.6 percent of employment (of those 10 years of age and older) in the District was employed in manufacturing, compared with 17.3 percent in the nation as a whole. This varied considerably by state, with 19.9 percent of Maryland workers employed in manufacturing, compared with only 0.6 percent of workers in West Virginia.

Changes in the Role of the Richmond Fed

In 1913 — as is still the case today — the United States operated under a dual banking system in which a bank can either

be nationally chartered or state chartered. The Federal Reserve Act required the approximately 7,500 national banks in the United States to be members (although they continued to be supervised by the Office of the Comptroller of the Currency), but state-chartered banks had a choice of whether or not to be members of the Federal Reserve System. (The Fed now has supervisory authority over all bank holding companies as well, regardless of whether the subsidiary bank of the holding company is a national bank, state member bank, or state nonmember bank.) As of June 30, 1915, only 17 of nearly 20,000 state banks had elected to join the Federal Reserve System; one year later, that figure had increased to only 34. In the Fifth District, by the end of 1915, all 503 national banks and five of the state banks were members of the Federal Reserve System. By the end of 1920, the number of national banks had grown to 554 and state members to 56 banks — still a very small percentage of state banks in the Fifth District in that year.

The 1920s were a period of rapid economic growth, fueled by the development of the automobile, radio, major appliances, and innovations in the organization of production. But the agricultural sector remained depressed for the entire decade, and large numbers of bank failures occurred almost every year. The failure of banks was not necessarily in line with economic growth — although the pace of bank failure generally grew during the Great Depression from 1929 through 1934. Richmond Fed economist John Walter showed in a 2005 *Economic Quarterly* article that the ratio of the number of banks to GDP fell notably from 1921 to 1934. As U.S. banks dropped from a peak of more than 30,000 in 1920 down to a little more than 15,000 in 1934, the number of banks in the Fifth District (excluding Washington, D.C.) dropped from about 2,200 in 1920 to about 1,100 in 1935. Some of these failures might have been due to macroeconomic weakness, although some have argued that the banking industry generally had become overbuilt and that it was the macroeconomic shocks in conjunction with overbuilding that produced the 12-year retrenchment in the banking industry.

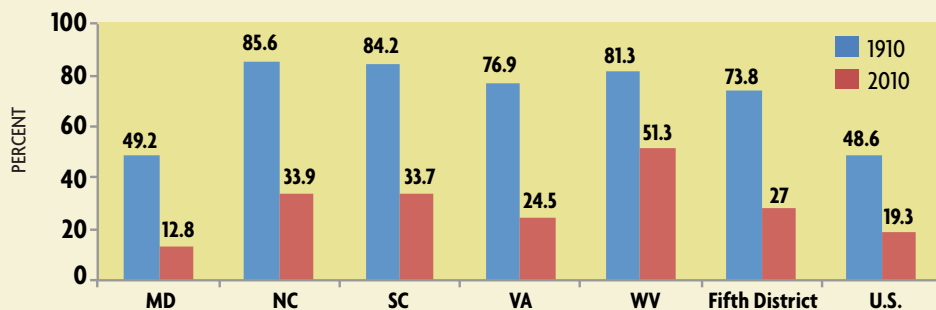
Another reason for steady declines in the number of banks in the country was changes to branching laws. According to a 2007 *Journal of Law and Economics* article by Rajeev Dehejia and Adriana Lleras-Muney of New York University and the University of California, Los Angeles, respectively, in 1919 only Maryland of all Fifth District states allowed branching. The McFadden-Pepper Act, passed in 1927, allowed national banks to establish local branches in the city of their home office if state law allowed branching. In 1933, the Glass-Steagall Act permitted national banks to branch within any state that allowed state banks to branch. States were still free to set branching regulations for state banks. By 1931, in the Fifth District, only West Virginia prohibited state bank branching. In 1994, with the passage of the Riegle-Neal Interstate Banking and Branching Efficiency Act, interstate branching by national banks became legal regardless of state laws. The steady decrease in the number of banks in the Fifth District and in the United States over the 20th century largely reflected the consolidation in the banking industry that resulted from this slow liberalization of restrictions on bank branching.

The operation of the supervision and regulation function in the Fifth Federal Reserve District has also been affected by the steady technological innovation and cultural changes of the 20th century. In the 1940s, the examination staff consisted of 10 examiners and 11 assistant examiners. They were all white males who were supported by the “girls” of the office staff. Also in that decade, the Examining Department got electric typewriters, with the following report from a Richmond Fed publication: “The girls in the Examining Department are finding it a little difficult to become accustomed to the machines but are hoping to soon love them, as those who are experienced predict.” The first female and black bank examiners were hired across the System in the late 1960s.

An addition to the supervision and regulation role came in 1977 when Congress enacted the Community Reinvestment Act (CRA), which was intended to encourage depository institutions to help meet the credit needs of the communities in which they operate,

including low- and moderate-income neighborhoods. By requiring that each depository institution’s record in helping to meet the credit needs of its communities be evaluated by its regulator, the CRA in effect required the Reserve banks to have bank examination staff qualified to conduct these exams. At the Richmond Fed, a compliance unit was formed in 1977 and separate consumer affairs examinations began to be conducted.

Share of Population Living in Rural Areas



NOTE: The share of the population in the District of Columbia living in rural areas, as defined by the Census Bureau, was zero in both 1910 and 2010.

SOURCE (1910): U.S. Statistical Abstract 1914, <http://www2.census.gov/prod2/statcomp/documents/1914-04.pdf>

SOURCE (2010): U.S. Census Bureau, <https://www.census.gov/geo/reference/ua/urban-rural-2010.html>

Interstate Banking and Charlotte

Charlotte has always played a big role in the operations of the Richmond Fed, particularly for supervision and regulation staff. Although North Carolina was the last of the 13 original states to charter a privately owned bank, it allowed branching early: In 1814, its General Assembly gave bank directors permission to establish branches or agencies at any locations they saw fit. In 1911, Wachovia National Bank and Wachovia Loan and Trust Company merged, forming the Wachovia Bank and Trust Company, with \$4 million in deposits and \$7 million in total assets. In 1927, the Richmond Fed expanded to open a branch in Charlotte (the first branch was opened in Baltimore in 1918).

The importance of North Carolina as a banking center increased with the rise of a second major institution. By 1960, through a series of mergers and acquisitions, North Carolina National Bank (NCNB) emerged as the

second-largest bank in North Carolina (\$500 million in assets, behind Wachovia's \$658 million); by 1972, NCNB had surpassed Wachovia in total assets.

In 1981, NCNB used a loophole in the McFadden Act to buy a Florida bank because it already owned a trust company in the state. NCNB bought First National Bank of Lake City and the Fed signed off on the purchase, so NCNB became a two-state bank. In June 1985, the U.S. Supreme Court upheld regional banking compacts that allowed banking companies in Southern states to acquire and be acquired by banking companies in other Southern states, enabling them to grow without fear of competition from the much larger Northern banks. In 1988, NCNB bought First Republic Bank Corporation in Dallas. Once the acquisition was complete, NCNB nearly doubled in size to \$55 billion in assets, making it the nation's 10th biggest bank. At the end of 1991, NCNB became NationsBank.

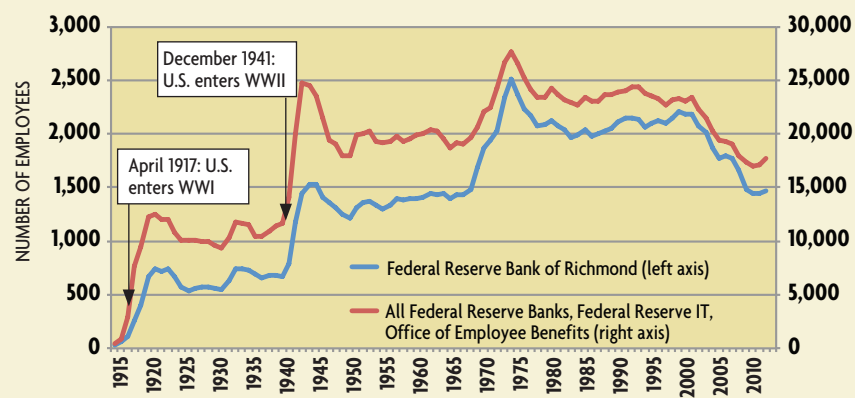
By the end of 1997, with help from the passage of the Riegle-Neal Interstate Banking Act and another series of mergers and acquisitions, Charlotte was the nation's number-two banking city by assets. In the fall of 1998, the Richmond Fed set up a permanent staff of examiners in Charlotte. That year, NationsBank and BankAmerica (headquartered in San Francisco) merged to become Bank of America, headquartered in Charlotte. In 2001, First Union merged with Wachovia to create the fourth largest bank in the nation, named Wachovia and headquartered in Charlotte. Thus, Charlotte now had the second- and fourth-largest banks in terms of assets.

Although Charlotte lost one of its big bank headquarters when Wachovia was bought by Wells Fargo at the end of 2008, several developments caused the number of supervision and regulation staff in Charlotte — particularly those examining large banks — to keep growing. First, Bank of America grew through its acquisition of Merrill Lynch. Second, all Federal Reserve Banks took on more responsibility with regard to large bank operations, primarily as outlined by the most comprehensive piece of banking legislation since 1935: the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. The Richmond Fed's supervision and regulation function will continue to adapt to changes in the banking environment, such as the decline in the number of community banks and the increased public scrutiny of large banks after the financial crisis.

World War II and the Richmond Fed

Many of the changes in Richmond Bank activities are mirrored in its employment levels. The effort surrounding World War II led to the Bank's largest employment expansion. At the end of 1941, the Bank employed 795 people, but by the end of 1945, employment had almost doubled to 1,534 people. Much of the increase was connected to the war effort. Practically the entire increase consisted of women, with 1,472 employees of Reserve banks leaving to enter military service. Although the employment expansion was largely related to war savings bonds, war production loans, and consumer credit control, economic research activities also grew at this time. And this employment expansion was not limited to the Richmond Fed. Systemwide, employment rose from 14,083 workers in 1941 to 23,522 employees in 1945 — a 67 percent increase.

Employment in the Federal Reserve Banks



SOURCE: Federal Reserve Bank of Richmond Annual Reports

Payments and Check Processing

Facilitating payments systems — and most particularly in 1914, the clearing of checks — was a critical part of the Federal Reserve System's early responsibility. Checks were the most convenient and secure means of payment, but outside of the major cities, clearing checks could be a hassle, even

with the correspondent banking system. The Richmond Fed Transit Department opened with seven people in 1915, but quickly grew to 276 people by 1920, and continued to grow.

In fact, the number of checks handled by the Fed grew quickly in the Fed's first 75 years. The same was true in the Fifth District. In 1920, the Richmond Fed processed about 33 million checks; by 1950 that number had more than quadrupled to almost 150 million, and by 2000 the Richmond Fed was processing over 1.7 billion checks per year. In 1970, a regional check-clearing center opened in the Baltimore branch — the first operation of its kind to be established by a Federal Reserve Bank. In 1974, regional check-processing operations began in the Richmond and Charlotte offices, as well as in Columbia. Another regional check-processing center in Charleston, W. Va., became fully operational in 1977.

Technological developments again created a need for change in the way the Fed operated. In 2003, Congress passed legislation endorsing Check 21, an electronic means of processing checks, which took effect in October 2004. Also in 2003, the number of electronic payments exceeded the number of check payments for the first time, and the gap has only widened since. (See chart.) In response, check-clearing operations across the country began to close, including those in the Fifth District. In 2003, the Federal Reserve System had 45 check-processing sites; in 2009, the Fed went down to one paper-processing site in Cleveland and one Check 21 site in Atlanta. On the other hand, the Fed continues to process and distribute cash, the demand for which has remained high among consumers despite the proliferation of electronic means of payment.

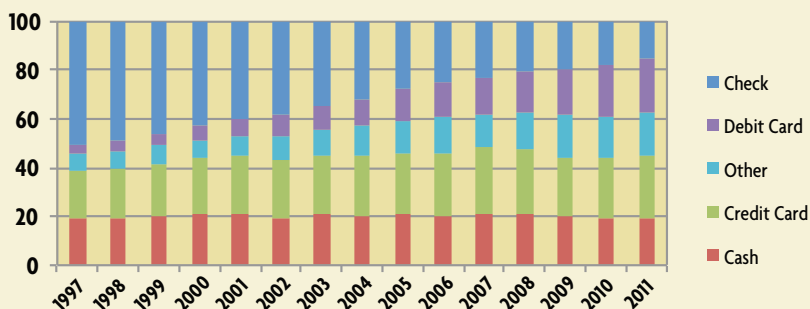
Research and Monetary Policy

Unlike banking supervision and payments services, the role of the Reserve bank research departments — either in the area of monetary policy or in the area of regional analysis — was not explicit in the Federal Reserve Act. Despite that, research has always been part of Reserve bank activities.

Initially, research departments focused on keeping up with regional economic conditions and developments, both for the individual Reserve banks and for the Board of Governors. As the Board's 1942 Annual Report explained, "the location of the Federal Reserve Banks and branches throughout the country and the inclusion on their directorates of local representatives of industry, trade, and agriculture, as well as finance, provide an unusually good opportunity for regional studies."

Research departments at Reserve banks still study regional conditions, but they have broadened their scope to include many areas of academic economics. One reason these areas

Share of U.S. Personal Consumption Expenditures by Payment Type



SOURCE: Nilson Report, Federal Reserve Bank of Richmond

of research came later is that monetary policymaking through the Federal Open Market Committee, as we know it today, was not instituted until the Banking Act of 1935.

Primarily due to the difficulty of cross-country travel at that time, either the president of the Richmond Bank or the president of the Philadelphia Bank would, in the late 1940s and 1950s, participate in the meetings where most monetary policy decisions were made. This created an early need for the Richmond research department to develop a strong base of economists well-versed in economics and monetary policy. Even then, a research department filled with Ph.D. economists who inform monetary and banking policy did not start to develop until the late 1970s. In 1975, the research department had fewer than 10 Ph.D. economists. That number grew particularly in the 1980s and first half of the 1990s so that the department has consistently had between 15 and 25 Ph.D. economists since the 1990s.

Several from their ranks have become Richmond Fed presidents. Robert Black, president from 1973 through 1992, was the first Ph.D. economist to do so. The two subsequent presidents, Alfred Broaddus (1993-2004) and Jeffrey Lacker (2004-present), also have doctorates in economics and served as directors of research at the Richmond Fed before becoming president.

Conclusion

It would take a book, and not a short one, to cover the full history of the Richmond Fed's operations. Not only has the Bank established new departments such as human resources and information technology, but banking legislation has also brought about new areas of operation, such as a community development department required by the CRA and an Office of Diversity and Inclusion required by the Dodd-Frank Act.

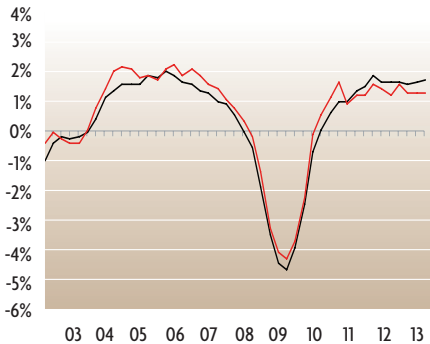
The Federal Reserve Bank of Richmond — and the Federal Reserve System — has evolved over the past 100 years. As changes in technology and in the political and financial landscape of the United States and the Fifth District continue, so will the operations of the Richmond Fed. **EF**

STATE DATA, Q3:13

	DC	MD	NC	SC	VA	WV
Nonfarm Employment (000s)	746.7	2,596.1	4,055.7	1,899.0	3,766.6	762.9
Q/Q Percent Change	0.2	0.1	0.3	0.5	0.0	0.1
Y/Y Percent Change	1.6	0.8	1.8	2.2	0.8	0.0
Manufacturing Employment (000s)	1.0	106.2	442.0	224.6	230.6	48.6
Q/Q Percent Change	0.0	-0.3	-0.1	0.1	-0.3	0.3
Y/Y Percent Change	0.0	-2.2	0.3	2.2	-0.3	0.1
Professional/Business Services Employment (000s)	156.0	416.5	551.3	242.6	677.3	65.2
Q/Q Percent Change	0.2	0.1	0.9	0.9	-0.8	0.5
Y/Y Percent Change	1.0	1.1	3.2	2.2	-0.3	0.9
Government Employment (000s)	238.4	503.6	709.6	351.2	710.8	154.5
Q/Q Percent Change	-1.2	-0.3	-0.4	-0.4	0.1	1.6
Y/Y Percent Change	-1.6	0.0	0.3	0.9	0.5	1.5
Civilian Labor Force (000s)	368.1	3,123.3	4,684.5	2,179.9	4,240.4	794.2
Q/Q Percent Change	-0.9	-0.4	-0.5	-0.3	-0.1	-0.5
Y/Y Percent Change	0.2	-0.1	-0.5	-0.1	0.6	-1.7
Unemployment Rate (%)	8.3	6.6	7.9	7.5	5.6	6.5
Q2:13	8.5	6.7	8.3	7.9	5.6	6.5
Q3:12	9.0	7.0	9.3	8.9	6.0	7.5
Real Personal Income (\$Bil)	44.9	299.7	354.0	159.0	375.7	61.6
Q/Q Percent Change	-0.4	-0.4	0.3	1.1	-0.2	-0.5
Y/Y Percent Change	1.3	0.6	1.7	2.2	0.9	0.7
Building Permits	1,082	4,991	12,022	6,250	8,067	617
Q/Q Percent Change	23.7	-2.0	-12.3	-0.2	-2.3	-21.5
Y/Y Percent Change	-16.9	34.0	5.1	35.5	21.3	37.1
House Price Index (1980=100)	649.7	413.0	304.7	307.5	401.4	219.3
Q/Q Percent Change	3.3	0.4	0.8	0.6	0.3	1.5
Y/Y Percent Change	10.7	2.0	1.7	1.1	1.7	2.1

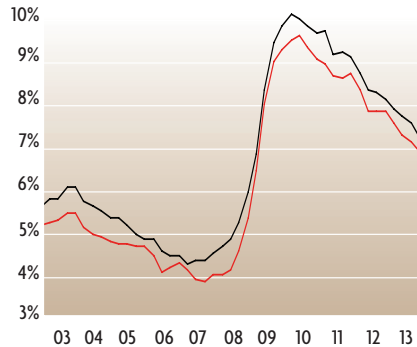
Nonfarm Employment

Change From Prior Year
Third Quarter 2002 - Third Quarter 2013



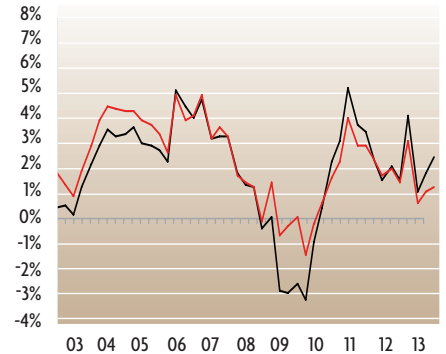
Unemployment Rate

Third Quarter 2002 - Third Quarter 2013



Real Personal Income

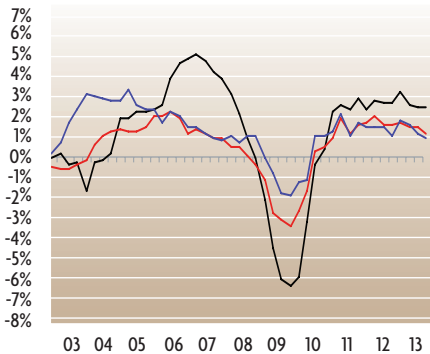
Change From Prior Year
Third Quarter 2002 - Third Quarter 2013



— Fifth District — United States

Nonfarm Employment Metropolitan Areas

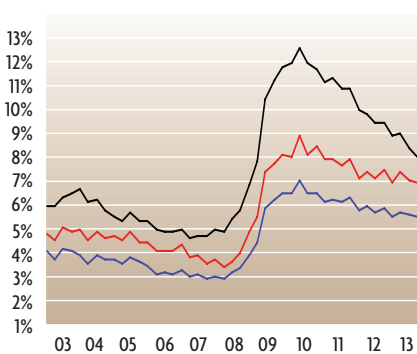
Change From Prior Year
Third Quarter 2002 - Third Quarter 2013



— Charlotte — Baltimore — Washington

Unemployment Rate Metropolitan Areas

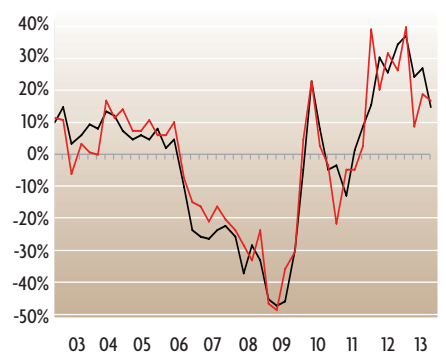
Change From Prior Year
Third Quarter 2002 - Third Quarter 2013



— Charlotte — Baltimore — Washington

Building Permits

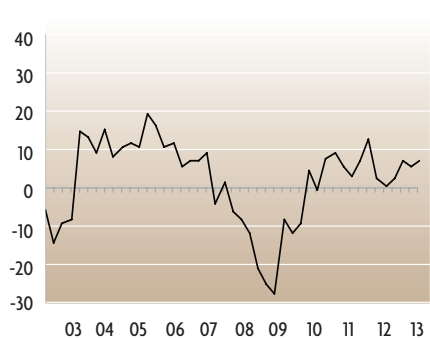
Change From Prior Year
Third Quarter 2002 - Third Quarter 2013



— Fifth District — United States

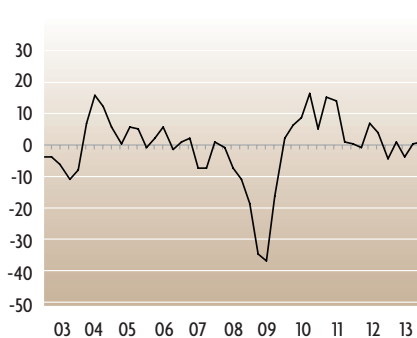
FRB—Richmond Services Revenues Index

Third Quarter 2002 - Third Quarter 2013



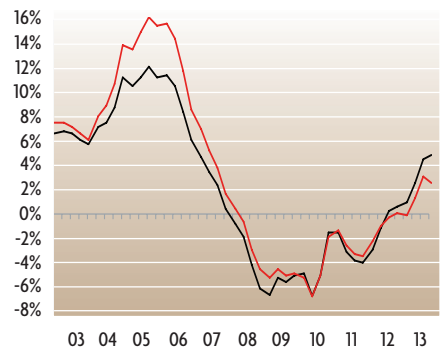
FRB—Richmond Manufacturing Composite Index

Third Quarter 2002 - Third Quarter 2013



House Prices

Change From Prior Year
Third Quarter 2002 - Third Quarter 2013



— Fifth District — United States

NOTES:

- FRB-Richmond survey indexes are diffusion indexes representing the percentage of responding firms reporting increase minus the percentage reporting decrease. The manufacturing composite index is a weighted average of the shipments, new orders, and employment indexes.
- Building permits and house prices are not seasonally adjusted; all other series are seasonally adjusted.

SOURCES:

Real Personal Income: Bureau of Economic Analysis/Haver Analytics.
 Unemployment rate: LAUS Program, Bureau of Labor Statistics, U.S. Department of Labor, <http://stats.bls.gov>.
 Employment: CES Survey, Bureau of Labor Statistics, U.S. Department of Labor, <http://stats.bls.gov>.
 Building permits: U.S. Census Bureau, <http://www.census.gov>.
 House prices: Federal Housing Finance Agency, <http://www.fhfa.gov>.

METROPOLITAN AREA DATA, Q3:13

	Washington, DC	Baltimore, MD	Hagerstown-Martinsburg, MD-WV
Nonfarm Employment (000s)	2,507.1	1,328.9	104.3
Q/Q Percent Change	-0.3	-0.7	-0.3
Y/Y Percent Change	0.9	1.1	0.7
Unemployment Rate (%)	5.4	6.7	7.0
Q2:13	5.5	7.0	7.2
Q3:12	5.7	7.2	8.0
Building Permits	5,752	2,404	259
Q/Q Percent Change	-15.8	15.4	4.4
Y/Y Percent Change	3.9	38.0	30.2

	Asheville, NC	Charlotte, NC	Durham, NC
Nonfarm Employment (000s)	174.1	869.5	282.5
Q/Q Percent Change	-0.6	-0.4	-0.6
Y/Y Percent Change	1.8	2.5	2.1
Unemployment Rate (%)	6.1	7.9	6.0
Q2:13	6.5	8.4	6.4
Q3:12	7.4	9.3	7.2
Building Permits	418	2,911	1,329
Q/Q Percent Change	-2.1	-19.1	31.5
Y/Y Percent Change	8.9	-7.6	13.4

	Greensboro-High Point, NC	Raleigh, NC	Wilmington, NC
Nonfarm Employment (000s)	343.6	543.0	142.9
Q/Q Percent Change	-0.7	1.1	0.3
Y/Y Percent Change	1.6	2.9	1.9
Unemployment Rate (%)	8.2	6.2	8.1
Q2:13	8.7	6.6	8.6
Q3:12	9.7	7.5	9.4
Building Permits	666	2,331	918
Q/Q Percent Change	20.0	-32.9	-0.4
Y/Y Percent Change	85.0	-9.7	9.4

	Winston-Salem, NC	Charleston, SC	Columbia, SC
Nonfarm Employment (000s)	207.2	312.1	359.8
Q/Q Percent Change	-0.2	0.1	-0.5
Y/Y Percent Change	2.4	2.5	1.8
Unemployment Rate (%)	7.2	6.2	6.7
Q2:13	7.7	6.5	6.9
Q3:12	8.7	7.3	7.8
Building Permits	601	1,287	910
Q/Q Percent Change	78.3	0.2	-20.2
Y/Y Percent Change	245.4	31.6	1.7

	Greenville, SC	Richmond, VA	Roanoke, VA
Nonfarm Employment (000s)	312.2	634.0	158.5
Q/Q Percent Change	-0.1	-0.1	0.0
Y/Y Percent Change	2.9	1.4	0.4
Unemployment Rate (%)	6.3	5.8	5.8
Q2:13	6.5	6.0	5.9
Q3:12	7.4	6.3	6.1
Building Permits	802	1,620	109
Q/Q Percent Change	4.0	9.1	-60.6
Y/Y Percent Change	37.1	30.2	16.0

	Virginia Beach-Norfolk, VA	Charleston, WV	Huntington, WV
Nonfarm Employment (000s)	759.4	146.1	112.6
Q/Q Percent Change	0.3	-1.0	-0.5
Y/Y Percent Change	1.4	-0.6	-0.3
Unemployment Rate (%)	6.0	5.8	7.0
Q2:13	6.1	6.0	7.1
Q3:12	6.5	6.9	7.2
Building Permits	2,501	51	19
Q/Q Percent Change	64.0	8.5	46.2
Y/Y Percent Change	69.6	30.8	58.3

For more information, contact Jamie Feik at (804) 697-8927 or e-mail Jamie.Feik@rich.frb.org

Fed Communications in Unusual Times

BY JOHN A. WEINBERG

On occasion, communication between Fed policymakers and financial-market participants seems less than perfect. The Federal Open Market Committee (FOMC) releases a statement, or the chair makes a remark at a press conference, that triggers outsized market responses — outsized, that is, in relation to the likely economic impact of the Fed action in question. Invariably, in such cases, some commentators complain: Why can't the Fed get communications right?

These occasions may arise most often when policy appears to be near a turning point, or more generally when there is more than a normal amount of uncertainty about the path forward for the economy or policy. This, of course, is when markets would be expected to take the greatest interest in the Fed's exact words. For instance, in 2006, after the FOMC had been raising rates gradually and with great regularity for an extended period — a quarter of a point at every meeting beginning in June 2004 — observers scoured any change in the language of the Committee's statements for hints as to when this measured tightening might end.

The summer of 2013 provided a particularly notable episode of an apparently outsized market reaction. It centered around discussions about the first steps of tapering the Fed's asset purchase program. The program had started in September 2012, with purchases of \$85 billion per month in the form of a combination of long-term Treasury securities and mortgage-backed securities. At its inception, the program was open-ended, with the duration dependent on labor market conditions. Through the first half of 2013, as many market indicators performed better than anticipated, there were questions among observers about when the Fed might begin to scale back its purchases.

For some, Chairman Bernanke's June press conference indicated that the tapering might begin sooner than they had thought. They seemed to focus on his language that "the Committee currently anticipates that it would be appropriate to moderate the monthly pace of purchases later this year ... ending purchases around midyear [mid-2014]." On one hand, these observers gave little weight to surrounding language that emphasized the statement's highly conditional nature; on the other hand, one plausible interpretation was that the chairman was outlining what the FOMC viewed as the most likely course of events. Many commentators saw this episode as poorly handled communication, with the Fed not clearly describing what it was doing and why. Others pointed to the episode as an example of how the Fed's policies can cause financial-market volatility.

I would suggest that economic conditions in this period were ripe for an episode like the so-called "taper tantrum." While Fed communications tend to be of greater public

concern when, as I noted, policy appears to be near a turning point, the stakes involved in Fed communications are even higher than normal during an era in which the Fed is maintaining near-zero interest rates, as it has been doing since December 2008.

Before then, the Fed's interest rate policy since the mid-1980s followed a pattern that had become reasonably consistent and predictable. The statistical relationship between the Fed's policy rate and economic indicators — the Fed's policy reaction function — did a pretty good job of explaining movements in the Fed's interest-rate targets. In theory, forward guidance from the Fed is actually superfluous when its behavior is sufficiently described by such a reaction function and when the inputs into that function (measures of inflation and economic activity) are known to the public. The Fed was never *that* predictable — the Fed's guidance was important and attracted attention during this period — but it was more so than it is today.

What happened? In the Great Recession, the Fed's historical reaction function implied that interest rates should have been significantly negative. The FOMC's ability to set a nominal rate less than zero is limited, however. So the Fed's behavior was forced off of its historical pattern; people who had grown accustomed to that pattern lost their compass. The zero lower bound created a situation of greater uncertainty regarding the future path of interest rates. At the same time, after the Fed lost one of its important levers in influencing the economy — cutting the federal funds rate — the Fed itself became more reliant on forward guidance to attempt to stimulate the economy. These phenomena, in turn, increased the likelihood that statements from the Fed would be closely interpreted, and, in some instances, over-interpreted.

The situation looks like what economists might call a regime-switching problem. After decades of fairly consistent behavior by the Fed, the zero lower bound forced the Fed into a new regime. Now markets have to predict when the Fed will switch out of that regime. But because this is the first time that the Fed's behavior has been forced away from its typical patterns by the zero bound on interest rates, there are no data points about the Fed's behavior that anyone can look at to try to fashion a model and predict when the Fed is likely to do so.

So we see irregularities in how Fed communications and market behaviors interact with each other. It's an illustration of how deviating from predictable policy creates hard problems — both for the Fed and for markets. **EF**

John A. Weinberg is senior vice president and director of research at the Federal Reserve Bank of Richmond.

Should We Worry About “Overpopulation”?

For centuries, many thinkers have predicted economic and resource collapse from overpopulation. Doomsday prophecies have failed to come true, however, as countries' fertility rates tend to decline with economic development. Economists now say that, in the right setting, large populations can boost economic growth and help produce innovations to use resources more efficiently.

Islamic Banking

Islam is one of the fastest-growing religions in the United States. Accordingly, Islamic banking — financial instruments and mortgages compliant with Islamic laws and moral codes, or Sharia — is a small but important part of America's financial landscape.

Unemployment Insurance

During the last recession, the federal government more than doubled the duration of unemployment benefits. Those extended benefits expired at the end of 2013, amid debate over their effects on employment. Economic theory suggests that, on balance, extended benefits will contribute to longer unemployment spells, but proponents say that perceived gains from reducing benefits are the result of individuals giving up their job search rather than finding work.

Federal Reserve

Research indicates that the graying of America could affect financial markets — and, perhaps, the power of monetary policy. Seniors tend to borrow less than the young, making them less sensitive to interest rates, and they have other financial preferences that could change how the Fed's traditional tools influence the economy. What does economics foretell about monetary policy in an older America?

Interview

Dani Rodrik, an economist at the Institute for Advanced Study, discusses globalization, development, and factors that make governments more likely to implement successful economic policies.

The Profession

Some economics Ph.D. programs are identified with methodological approaches and research that are outside the mainstream of the economics profession. While some of these “heterodox” programs have found it difficult to survive, others have flourished, producing economists with relevant and marketable skills.

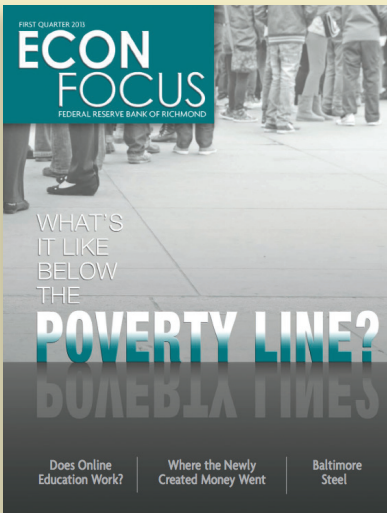
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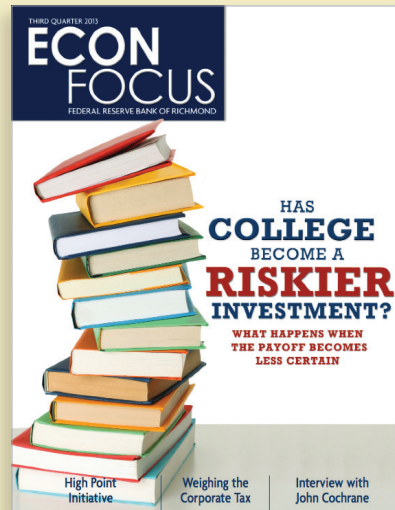
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Federal Reserve

When Talk Isn't Cheap

Interview

Christopher Carroll
Johns Hopkins University



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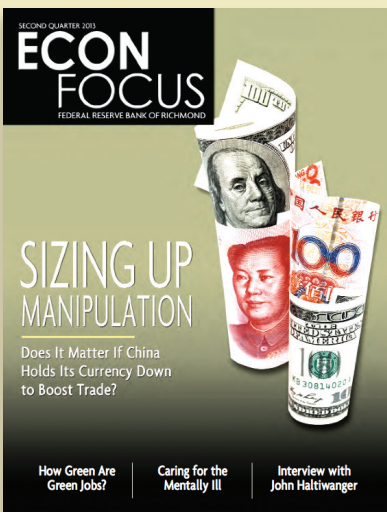
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Reaching for Yield

Interview

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University of Chicago and the
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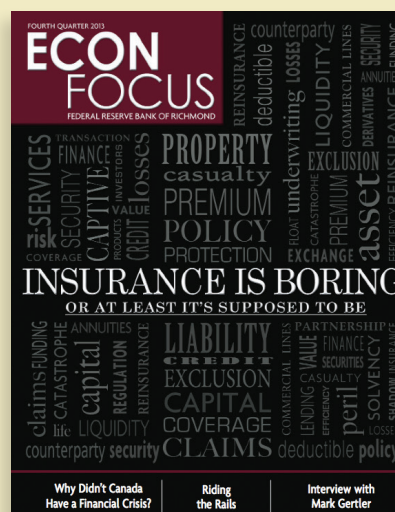
Currency Manipulation: The
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