WINTER 2008

REGION FOCUS

THE FEDERAL RESERVE BANK OF RICHMOND

PRIVATE EQUITY
Public Mystery

- Virtual Economics
- Payroll to Playoffs
- Central Bank Cooperation

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REGION FOCUS

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President's Message

Of Mortgages and Markets

The tumult in the mortgage markets is on the minds of everyone these days. It's certainly on the minds of all of us here in the Federal Reserve System.

Responding to the recent uptick in mortgage foreclosures and delinquencies is a priority for all of the Federal Reserve banks. One way we can do that is by helping policymakers, journalists, and business leaders put those trends into perspective.

The truth is that the vast majority of homeowners have been able to make their monthly home payments on time, including many that hold what are commonly known as subprime mortgages. Many foreclosures are concentrated in specific regions, and significant portions of those were the product of risky investments made for speculative purposes.

It's also important to recognize that not all foreclosures can or should be avoided. For a variety of reasons, some individuals end up with homes and mortgages that turn out to be unsustainably large relative to their current financial resources and their expected future earnings.

Yet it's hard to overstate how devastating losing a home can be to a family that was simply pursuing the dream of sustainable home ownership. Thus, the Richmond Fed has teamed up with the other banks of the Federal Reserve System to embark on the Homeownership and Mortgage Initiative.

One of our tasks in this Initiative is to lead an outreach effort that can help prevent unnecessary foreclosures. Our Community Affairs Office is collaborating with state finance housing agencies, financial institutions, and nonprofits to provide foreclosure prevention training to Fifth District housing counselors. Our outreach efforts have already contributed to the creation of a foreclosure prevention task force in South Carolina and a 24-hour counseling hotline for North Carolina residents at risk of losing their homes.

The widespread attention to home mortgage delinquencies has given rise to a push for new policy responses from state legislatures and Congress. The risk with such responses, however, is that the policy outcomes may be too hasty and based on uninformed perceptions instead of hard facts.

So, another element of the Richmond Fed's contribution to this effort is our research capability. In an effort to provide financial institutions and policymakers the detailed analysis that can help craft evidence-based policy solutions, we have taken the lead on coordinating a working group consisting of some of the System's top economists and community development experts. Their task is to prepare an overview of the current state of knowledge about housing and mortgage markets. The System will then conduct further research to fill the analytical gaps and better understand the effects of foreclosures on neighborhoods.

The Richmond Fed is also distributing mortgage data and providing analysis to help Fifth District communities identify where foreclosure "hotspots" exist and convening discussions with policymakers and practitioners to understand the underlying causes of foreclosures. In the first quarter of 2008, we have made presentations in the District of Columbia, Virginia, and North Carolina.

We are also taking part in a process that will review and propose updates to the Truth in Lending Act and related statutes. Our hope is to restore some of the underwriting safeguards and disclosure standards that have been eroded in recent years.

There is no question that the U.S. economy is going through a period of adjustment which is quite uncomfortable for some. Yet it's important to remember that a competitive market economy is, over the long run, better for everyone. The cover story on private equity funds in this issue of *Region Focus* is a good reminder of that. For all the bad press they've received over the past year, private equity funds serve a very important function: They help make the allocation of capital in the economy more efficient.

By purchasing companies that are underperforming, private equity funds are able to enhance a firm's productivity through restructuring. And despite the coverage of the short-term layoffs that often occur after a private equity takeover, what isn't often reported is the large number of new jobs that are eventually created by the newly efficient firm. In short, private equity helps facilitate the vibrant competition that is the key to innovation and healthy economic growth.

JEFFREY M. LACKER
PRESIDENT
FEDERAL RESERVE BANK OF RICHMOND

Central Bank Cooperation

BY VANESSA SUMO

Central banks have a long history of working together, but is there still scope for future cooperation?

In the midst of the credit market turmoil last year, the world's major central banks got together in a surprise move to help ease the liquidity squeeze. Central banks were compelled to act — not alone but in a coordinated fashion — because of the international nature of events in the markets. Although critics of this synchronized action say that it does not address the underlying reason why market participants fret about lending, their move was considered far less controversial than past episodes of central bank cooperation.

One well-known controversial example was when Britain returned to the gold standard after World War I. Britain struggled for many years to keep a fixed rate of exchange between gold and sterling. Part of the problem was how to address a weak domestic economy and at the same time maintain this peg. If the Bank of England eased monetary policy to shore up economic activity, then it would risk gold flowing out of the country and complicate the task of defending the peg. Fortunately for Britain, New York Fed President Benjamin Strong's close friendship with Bank of England Governor Montagu Norman made Strong sympathetic to Britain's economic woes.

They speak the same language: Bank of England Governor Mervyn King, left, talks with former Federal Reserve Chairman Alan Greenspan, center, and European Central Bank President Jean-Claude Trichet, right, at a G20 finance ministers and central bank heads meeting in November 2004.

Strong was instrumental in the Fed's decision to reduce interest rates in the fall of 1927 supposedly to help Britain. Lower interest rates in the United States allowed Britain to avoid raising its own interest rate, which would have been counterproductive for its slumping economy. At the same time, the rate cut took some pressure off of Britain's gold peg, because a wider difference between British and U.S. interest rates encouraged gold flows to Britain.

But the Fed's action also meant that credit conditions would be looser in the United States. Indeed, President Herbert Hoover would later blame Strong and Fed policies at that time for the stock market boom and the eventual bust of 1929, and subsequently the Great Depression. Whether this instance of one central bank helping out another actually led to disastrous results is unclear. (Others have argued that the Fed's decision to expand monetary policy was taken mainly for domestic reasons, because of concerns that a rise in interest rates in Britain would depress demand for U.S. exports.)

Central banks cooperate to achieve common goals. This can be accomplished by sharing information, jointly setting standards, collectively intervening in a financial crisis, and coordinating exchange rates and monetary policy. However, cooperating can be complicated, especially if central banks engage in a deeper form of cooperation. For instance, coordinating exchange rates requires following a policy that may be inconsistent with a country's domestic economic conditions. A central bank will then have to weigh the costs of giving up its independence and influence over the economy against the benefits of cooperation.

But aside from this difficulty, tightly linked capital markets and favorable changes in the way central banks conduct monetary policy have cast some doubt on whether coopera-

PHOTOGRAPHY: AP IMAGES

tion should continue in the future. "If central banks are focused on domestic price stability, and if domestic financial stability is assured by adequate governance and regulatory standards (albeit likely to be internationally negotiated), what further role is there for international cooperation?" asked William White, an economist at the Bank for International Settlements (BIS) at a 2005 BIS conference on central bank cooperation. "Globalized" financial and goods markets might imply that coordination is not only beneficial but also necessary to manage spillovers of a country's policies on others. However, if central banks keep their domestic affairs in order, then the rationale for international cooperation is weaker.

If central banks keep their domestic affairs in order, then the rationale for international cooperation is weaker.

Ways to Work Together

In October 1979, the Federal Reserve announced an abrupt change in operating procedures to fight rapidly rising inflation in the United States. Interest rates shot up and were kept at very high levels, even if that meant risking a recession. The Fed's efforts eventually tamed inflation, but not without affecting economies abroad. Latin American countries, in particular, had borrowed heavily from international creditors at floating interest rates. So when rates in the United States (and Europe) went up, Latin American countries struggled to pay their debt. Moreover, demand for their exports weakened as the United States and other countries slipped into a recession, which crippled their ability to earn much-needed foreign currency.

Latin America's debt crisis was worrying because some of the world's biggest banks had lent heavily to these countries and were not sufficiently capitalized to cover these exposures. The situation had the potential to destabilize the world's financial system. So when the crisis erupted in Mexico in August 1982, the Federal Reserve and the Japanese and European central banks moved swiftly to offer a "bridge" loan of $1.85 billion to help Mexico until it reached an agreement with the International Monetary Fund to sort out its financial problems. "We didn't have to spend a lot of time explaining to each other the nature of the emergency," wrote Paul Volcker, chairman of the Federal Reserve from 1979 to 1987, in a book that he co-wrote on international monetary affairs.

Central banks have banded together in similar ways in the past. They cooperated to lend support to Mexico in its 1982 financial crisis. In December 2007, central banks simultaneously injected liquidity in the banking system when banks became increasingly cautious in the interbank credit market. Central banks have also chosen to collectively intervene in currency crises, such as the various efforts to save the gold standard and the Bretton Woods fixed exchange rate system.

But cooperation does not always involve a "rescue." The experience in Latin America in the early 1980s, for instance, highlighted the need to set capital adequacy standards for banks worldwide. Banks serve an important economic role and often take on a high degree of leverage to carry out that role. Banks also have privileged access to central bank funds and their deposits are federally insured. Consequently, there is a strong need to make sure that banks aren't taking on too much risk. A global convergence of such standards is desirable because the collapse of a number of financial institutions could affect other intermediaries throughout the world. And as banks increasingly compete internationally, it is important that they face regulatory environments which aren't too different.

This common recognition drove central banks and financial supervisors of industrialized countries to write and adopt the 1988 Basel Accord. It sets forth guidelines to measure the minimum amount of capital that banks ought to have in relation to the risk they carry. Despite criticisms and shortcomings, the Basel Accord is widely viewed as having achieved its purpose of promoting more consistent regulation across countries. The implementation of the second Basel Accord, which takes into account the complexity of the structure and practices of banking and financial markets today, is now under way.

But perhaps the easiest form of cooperation is in sharing information that central bankers can use to make policy. Indeed, this is what Beth Simmons of Harvard University called "shallow cooperation" at the BIS conference. Its importance, however, should not be understated. Providing each other with quality and timely economic and financial data allows central bankers to compare, assess, and discuss how changing conditions can potentially affect the economy at home. Simmons says that central banks can also share information by "showing one's hand" — that is, by communicating policy preferences and policy choices which may soon be implemented. And it also helps when central bankers talk to each other about their understanding of how the economic world works, knowing that without basic agreement, central banks would be less effective at improving their joint welfare.

From Shallow to Deep

Exchange rate and monetary policy coordination is the most ambitious form of collaboration, because it imposes constraints on a monetary authority's autonomy. That it requires the highest level of commitment is probably why it is also most prone to failure.

When two countries fix their exchange rates, central bankers essentially give up their power to guide the economy using monetary policy. For instance, if a central bank wished to expand the money supply in response to high unemployment, then it would have to eventually sell foreign reserves to maintain the exchange rate. But that would reverse the expansion. Similarly, if the United States experienced high inflation, then countries which have a fixed exchange rate with the dollar would be effectively importing that inflation. Central banks in the other countries would have to (and in fact, do) inflate their economies to keep the exchange rate constant.

The fixed exchange rate regime under the Bretton Woods agreement is an example of this type of cooperation. Signed in 1944, the world's industrialized countries agreed to fix their exchange rate to the dollar, while the United States would peg the dollar to gold. Fixing exchange rates was thought to be an effective way of imposing monetary discipline. No central bank would be able to pursue excessive monetary expansion without breaking the peg. It was also believed to be beneficial to international trade as well as to prevent speculators from destabilizing currencies. However, the demands of such a regime eventually put a strain on this cooperation, particularly in the late 1960s, when accelerating inflation in the United States made it difficult for Germany and other countries to maintain a fixed exchange rate to the dollar. The system eventually collapsed in the early 1970s.

There were also attempts to actively intervene in the exchange rate market after the Bretton Woods era. One rather notorious case involved the efforts of some central banks to weaken what was thought to be an overvalued dollar in the 1980s. America's brittle economy and its large and growing trade deficit was a concern not only for the United States but also for its trading partners. Strong protectionist pressures to discourage imports were building in Congress at that time, and many feared that lawmakers might give in to such demands. To avoid this possibility, U.S. Treasury Secretary James Baker brought together finance ministers and central bankers of the group of five industrial countries (G-5), which included the United States, West Germany, Japan, France, and the United Kingdom.

In a secret meeting at New York City's Plaza Hotel in September 1985, the G-5 voiced concerns that the large external imbalances and the threat of protectionism "could lead to mutually destructive retaliation with serious damage to the world economy." They agreed that "exchange rates should play a role in adjusting external imbalances" and that they would "stand ready to cooperate more closely to encourage this [appreciation of other currencies against the dollar] when to do so would be helpful." A weaker dollar would improve the U.S. trade balance and help lift the economy out of a recession, which would in turn increase demand in the long run for other countries' exports. Moreover, it would head off the possibility of protectionist measures that might trigger similar policy responses from other countries. A concerted effort followed to sell dollars in the foreign exchange market. The dollar fell sharply throughout 1986.

Following the Plaza Accord, Volcker was under pressure to lower interest rates to prop up the domestic economy. Indeed, the Reagan administration had made known its desire for lower interest rates. But Volcker hesitated to move in this direction for fear of a runaway decline in the value of the dollar. He finally agreed to lower interest rates, but only if he could get the German and Japanese central banks to likewise lower their rates, so that the difference between the domestic and foreign return on capital, which determines the flow of funds and therefore the exchange rate, would remain the same. The central banks agreed and the coordination was carried out in March and April of 1986. Such cooperation would be highly unusual today.

However, the continued fall in the value of the dollar started to worry other countries, particularly Japan with its export-driven economy. In a meeting at the Louvre in Paris in February 1987, finance ministers and central bankers of the Plaza Accord group (plus Canada) agreed that "further substantial exchange rate shifts among their currencies could damage growth and adjustment prospects in their countries." Again, there was concerted exchange rate intervention, but this time in the other direction. Central banks bought dollars and sold local currency, which effectively increased the domestic supply of money. Some analysts say that Japan's monetary easing, following these controversial episodes of cooperation, contributed to the financial and real estate bubble that plagued the country in the late 1980s.

Cooperation and Its Discontents

Arguments for coordination are often made in reference to situations like a world shock that hit all countries (an oil price spike, for instance). A central bank might respond by tightening monetary policy to prevent a rise in the overall price level. Higher interest rates would dampen demand for domestic goods, and bring about a stronger currency that would make imports cheaper and keep prices low.

If a neighboring central bank, however, follows a similar strategy, then the exchange rate between the two countries' currencies will stay more or less the same. If each of the central banks responds with even more tightening to get the desired exchange rate appreciation, then they would eventually succeed in bringing down inflation, but only at a high cost in terms of output. Had the two countries coordinated their actions and agreed not to tighten as much, then inflation would be stabilized and the reduction in output and employment would not be as high. Therefore, countries would be better off if central banks coordinated monetary policy.

This argument for cooperation, though, is incomplete. In a 1985 paper, Harvard University economist Kenneth Rogoff notes that such monetary policy cooperation can also be counterproductive if it exacerbates the central banks' credibility problem; that is, the temptation to inflate the economy in order to increase employment. When a central bank expands monetary policy, interest rates fall and the exchange rate depreciates. A weaker currency makes imports more expensive and causes price levels to go up, which provides an automatic check on a central bank that is also concerned about inflation.

But if two countries coordinate their monetary expansion, then the exchange rate between their currencies will not change. This increases a central bank's incentive to give in to the temptation of inflating the economy because of the greater effect on employment. However, because workers anticipate this incentive to inflate, they will demand higher wages. The result is a higher long-run inflation rate than if countries acted unilaterally. Thus, cooperation can only produce a better outcome if central banks can credibly suppress these inflationary impulses.

During the past few decades, central banks of industrialized countries have made substantial progress in mitigating the commitment problem in monetary policy, says Rogoff. Moreover, goods and financial markets are now more tightly linked than ever. Both factors seem to suggest that countries could benefit substantially from monetary policy coordination.

However, Rogoff, in a 2002 paper with economist Maurice Obstfeld of the University of California, Berkeley, finds that on the contrary "this lack of coordination may not always be a big problem." The argument for cooperation in the face of world shocks actually weakens when the monetary authority can credibly commit to keeping prices stable, because they can do so successfully without imposing a large cost on output and employment. When that happens, the benefit of cooperation may be much smaller.

With respect to country-specific shocks, or shocks that hit one country but not another, central bank cooperation may also be unnecessary as capital markets become more integrated. Central bankers may not need to be called upon to sort out shocks of this nature, since countries can borrow from each other through financial markets to smooth consumption when times are tough. Hence, the case for monetary policy cooperation may be much weaker.

The Future of Cooperation

Although central bank cooperation has gone through many ups and downs over the last century, the broader trend that economist Barry Eichengreen of the University of California, Berkeley, sees is that cooperation has grown. Advances in communication and transportation technology have reduced the costs of sharing information, and institutions like the BIS have provided a venue to regularly exchange information and expertise concerning monetary policy.

Perhaps more important, cooperation has grown over time because monetary policymakers now speak the same language. "One can make compelling arguments that the rise of a common monetary policy paradigm — namely, the belief that independent central banks should target low and stable rates of inflation and pursue other objectives to the extent that they do not conflict with this core mandate — is a key explanation for their ability to cooperate," said Eichengreen at the BIS conference. He cites the experience of monetary policy coordination among the European Union group of central banks — the European System of Central Banks (ESCB) — which would have been more difficult had they not agreed on the primary objectives of low and stable inflation. Eichengreen also notes the success of central banks and regulators in establishing and adopting capital adequacy rules for banks, reflecting a common recognition of a market-led financial system.

But while central banks that understand each other may have a greater ability to work together, Rogoff and Obstfeld's finding suggests that countries may be just as well-off if central banks don't cooperate, as long as they follow good policies to ensure price and financial stability. This is because in recent decades, countries can increasingly depend on their own abilities to fight inflation without a costly impact on output, and on internationally integrated capital markets to insure themselves against country-specific shocks.

Even so, the ability to follow sound policies has been helped along by the exchange of information and views between central banks, and by harmonized standards — especially with respect to financial stability — that these monetary authorities helped to establish. Thus, the future may be brighter for these types of cooperation, but less so for exchange rate and monetary policy coordination. **RF**

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JargonAlert

Ricardian Equivalence

BY VANESSA SUMO

When President Bush signed an "economic stimulus" package in February 2008, the hope was that getting hundreds of dollars to every taxpayer in the form of a rebate could help boost the economy. But the money to fund this plan has to come from somewhere. Without reducing government spending, a tax rebate would mean an increase in the budget deficit.

A government sometimes spends beyond its revenues in an effort to rouse a slumping economy. Commissioning roads and bridges, for instance, increases demand for construction workers, services, and supplies. That translates into higher incomes and purchases of other goods and services that, in turn, put more spending power in other people's wallets. The same argument applies to a policy of cutting taxes or tax rebates. Lower taxes mean that people can take home a bigger chunk of their income, which might encourage them to spend more.

But an alternative view in economics — Ricardian equivalence — suggests that such deficit spending is no free lunch. Named by Robert Barro of Harvard University (its main proponent) after 19th century economist David Ricardo, the theory of Ricardian equivalence claims that people will tend to save rather than consume the extra income arising from such spending. This is because people understand that whatever amount a government overspends today has to be repaid in the future in the form of higher taxes, thus unraveling a government's efforts to stimulate the economy. If a tax cut today merely postpones a tax increase until tomorrow, then there would be little reason for people to loosen their purse strings now.

To understand this logic, suppose that a government has a balanced budget and wants to inject billions of dollars through a tax cut that would give every household $1,000. If a government's expenditures are already equal to its revenues, it must finance this policy by borrowing money and promising to pay back the principal and interest several years from now. Recognizing that this will show up as a future tax liability, forward-looking households will likely put away the $1,000 in the bank and let it earn interest. The proceeds of this saving should be just enough to pay for an anticipated rise in taxes.

For this view to hold, a number of assumptions must be satisfied. First, most consumers must be of the type to think far ahead when deciding how much to consume and save, as well as understand some notion of the implications of Ricardian equivalence. Critics say that might be a stretch. After all, it is quite reasonable to assume that some people are shortsighted and fail to recognize that taxpayers ultimately pay for a government's debt.

Moreover, a person can hardly be blamed for not taking into account a tax liability that may come only decades from now. For instance, a government can issue a 30-year bond to finance the deficit spending. Consumers may not care about what happens that far in the future, especially if the liability will likely fall on forthcoming generations. But Barro argues that people leave bequests precisely because they care about their children's welfare, and so would not want to consume more today at their children's expense. Thus consumers think over a much longer, almost indefinite, horizon. If true, the Ricardian view should hold.

But a borrowing constraint can weaken Ricardian equivalence. If a person wishes to consume more today knowing that his future income can pay for his current purchases, then all he has to do is borrow money from a bank. As such, a tax cut would not alter his spending decisions because he can count on borrowed funds to smoothen his consumption. However, if for some reason he is unable to find a lender, then his consumption today is limited by the cash he has on hand. In this case, he may be more inclined to spend the extra cash from a tax cut.

This could be especially true for poorer people. A study published in the *American Economic Review* by David Johnson, Jonathan Parker, and Nicholas Souleles on the impact of the 2001 tax rebates on household expenditures finds that families with low levels of liquid assets and income spent more of their rebates than the average household. In general, the authors find that a typical household spent 20 percent to 40 percent of their rebates on nondurable goods during the three-month period they received their checks. About two-thirds of the rebate was spent during this period and the next three months. Ricardian equivalence predicts that rebate spending should have been close to zero.

However, the overall evidence is inconclusive. Indeed, economists still call on the theory of Ricardian equivalence to debate the effectiveness of the 2008 tax rebate. Many seem to think that it is at least partially true. Government deficit spending may stimulate the economy, but the impact would be somewhat subdued in the Ricardian view. **RF**

ILLUSTRATION: TIMOTHY COOK

Self-Control

BY NASHAT MOIN

Every day we're faced with temptations. Do you reach for a second slice of cake or do you refrain? Whether you ultimately succumb to temptation is influenced at least partly by how much self-control you have.

Economic literature on self-control typically describes the situation this way: While there is an ideal action that people would prefer to take — a decision arrived at after taking into full account the long-term consequences of the intended action — there is often something that tempts them to deviate from this ideal. Those with a lack of self-control give in to the temptation and deviate from their ideal more often, and this can lead to suboptimal economic outcomes.

In theory, self-control problems could hinder accumulation of wealth. People who can't resist the urge to consume will not put aside money in savings. But there is limited empirical support for this seemingly intuitive notion.

"Measuring Self-Control."
By John Ameriks, Andrew Caplin, John Leahy, and Tom Tyler.
American Economic Review, June 2007, vol. 97, no. 3, pp. 966-972.

In a recent paper, economists John Ameriks, Andrew Caplin, and John Leahy team with psychologist Tom Tyler to measure the effects of self-control problems. They assume that people are fully aware of their level of self-control and how it affects their decisions.

In their experiment, they offered 10 restaurant gift certificates with an unlimited budget, each of which could be used once, over the course of two years. Then they asked the participants the following questions:

a) From your current perspective, how many of the 10 certificates would you ideally like to use in year 1 as opposed to year 2?

b) Some people might be tempted to depart from their ideal. Which of the following best describes you: strongly/somewhat tempted to use more in year 1 as opposed to year 2, or not tempted at all?

c) If you were to give in to your temptation, how many certificates do you think you would use in year 1 as opposed to year 2?

d) Based on your most accurate forecast of how you think you would actually behave, how many of the nights would you end up using in year 1 as opposed to year 2?

The measure of self-control used in the study represents the difference between each participant's stated ideal and their expected consumption levels, i.e., their response to (d) minus their response to (a). So, for instance, a positive number indicates that the respondent will tend to consume more ("overconsume") than their stated ideal preference. A score of zero indicated no self-control problems. Out of the 1,520 respondents, two out of every three had no self-control problem according to the measures set forth by the authors of the study.

Yet the researchers also found a significant group of people whose problem was not overconsumption — only around 10 percent suffered from that problem. About 27 percent of the respondents stated they were likely to consume less than their stated ideal amount. The authors take this to mean "that there is a significant group who appear to have problems of underconsumption, at least for consumption activities that also involve time."

To see if this bears itself out in the actual real-world decisions of the participants, the authors compared the results of the survey to each participant's wealth profile. (The sample of survey participants was far from representative. A third of the participants had Ph.D. degrees. The median level of personal debt was zero and net worth was $500,000.) What they found was a statistically significant and strong relationship between the self-assessed measure of self-control and wealth. Those who expected to overconsume in the survey had accumulated on average 20 percent less wealth in the real world than those with no self-control problems. Those who expected to underconsume accumulated 25 percent more.

Among the more striking findings was that older respondents tended to have more self-control. "This finding is certainly consistent with the common view that temptation falls with age, and has important connections with actual consumption behavior over the life cycle."

Critics of the study might suggest that the best test of the authors' theory is how the recipients of the gift certificates actually use them, not whether they say they are likely to use them. Or they might question whether people are able to accurately gauge how much self-control they really have. There's also the possibility that people respond to different incentives when they are presented with an unearned gift versus when they earn a paycheck. Yet, based on this study at least, there is some interesting evidence that whether someone expects they'll reach for that proverbial second slice of chocolate cake could have some real implications in their economic decisions. **RF**

Nashat Moin is an assistant economist at the Federal Reserve Bank of Richmond.

Policy Update

A New Addition to the Fed's Toolkit

BY DOUG CAMPBELL

On Dec. 12, 2007, the Federal Reserve announced a new tool in the ongoing effort to address financial market disruptions. Under the Term Auction Facility program, the Fed provides credit directly to banks — where the demand for liquidity has been highest.

The announcement was made jointly with four other central banks. The Bank of Canada, the Bank of England, the European Central Bank, and the Swiss National Bank said they would also, in slightly different formats, pump funds into their financial systems backed by a wide set of collateral.

The introduction of the auction program came amid serious strains in the financial markets. In announcing the program, the Fed said it was "designed to address elevated pressures in short-term funding markets." Those pressures were evident in the widened spread between two closely watched rates — the one-month London Interbank Offered Rate, or LIBOR, which is the rate at which major banks in London are willing to lend Eurodollars to each other; and the overnight indexed swap rate, or OIS, which can be interpreted as the average expected overnight rate over the course of the next month. Because the OIS rate does not tend to reflect credit and liquidity risk pressure as much as LIBOR, the difference between the rates is useful in showing how much such risks are bothering markets. At its heart, the Term Auction Facility program is about getting funds to banks in a time when credit is tight.

Open market operations are the main tool the Fed uses to inject funds into financial markets. Each weekday morning, the trading desk at the New York Fed sends out an electronic message inviting primary dealers — investment banks that regularly trade government securities — to bid on funds. Typically, the Fed buys securities under one-day or two-week repurchase agreements. The awarded funds make their way into the banking system via dealer accounts at clearing banks. In this fashion, the Fed raises or lowers reserve levels at banks. If it wants to lower the target federal funds rate, the Fed auctions more funds, adding to reserves. When there are more reserves, there are more funds for banks to lend out, and so interest rates, specifically, the rates on interbank short-term loans, should go down.

The Fed also supplies liquidity through the so-called discount window. Banks can go to the discount window at their regional Reserve Bank for short-term loans. Historically, the discount rate is set at 1 percentage point more than the target federal funds rate. But in August 2007, as financial market turbulence picked up, the Federal Reserve Board reduced the spread to half a percentage point and in March lowered it further to a quarter point.

The two things that make the Term Auction Facility program different from the discount window are:

• Its anonymity, allowing banks to borrow directly from the Fed without the perceived stigma associated with the primary credit. Though discount window borrowings are also anonymous, bank counterparties and other market participants might be able to discern that a bank has come to the window. Identifying borrowers is much more difficult with the Term Auction Facility program.

• The control that the trading desk wields over the size of the auction, meaning that there is little uncertainty about the effects on bank reserve levels. By contrast, the potential for large, unanticipated discount window borrowings is something that could greatly complicate the New York Fed trading desk's task of offsetting any significant borrowings in open market operations.

(The Term Auction Facility program is separate from several other major credit and auction programs introduced so far this year. The new Primary Dealer Credit Facility, for example, is an overnight loan program in which borrowers can put up a wider set of collateral than in traditional repurchase agreements. Acceptable collateral for the dealer program includes investment-grade corporate securities, municipal securities, and mortgage-backed securities.)

Strictly speaking, the Term Auction Facility program is not a tool to conduct monetary policy. No money is added or withdrawn from circulation, and the Fed's balance sheet remains the same because it liquidates holdings in proportion to dollars lent through the auction. It's much closer in practice to discount window lending. In exchange for the loaned funds, the Fed holds collateral from the banks. The collateral is the same as "the wide variety of collateral that can be used to secure loans at the discount window," and goes beyond the Treasury and government agency securities required in open market operations.

The first auction was held on Dec. 17. Banks from every Federal Reserve district submitted propositions. A total of 93 depository institutions bid about $60 billion, out of which an aggregate $20 billion was awarded in 28-day loans. The "stop-out" rate — the lowest accepted rate — was 4.65 percent, compared with the 4.25 percent target federal funds rate at the time (and the 4.75 primary credit rate).

Though the lending rate is set by the market, the Fed sets a floor. For the Dec. 17 auction, the minimum rate was 4.17. On Feb. 25, when the target federal funds rate was 3 percent, the minimum auction bid rate was 2.81. No maximum rate is necessary — the final auction rate would not likely go much above the discount window rate, since banks could go there

continued on page 38

Urban Flight

BY DOUG CAMPBELL

"The Evolution of City Population Density in the United States." Kevin A. Bryan, Brian D. Minton, and Pierre-Daniel G. Sarte. Federal Reserve Bank of Richmond *Economic Quarterly*, Fall 2007, vol. 93, no. 4, pp. 341-360.

People live in cities for many reasons — to be close to their jobs, to culture, and to neighbors, among other motivations. Economists tend to think of these reasons as the positive externalities — or byproducts — of population density. In theory, living close together helps people work together. This in turn improves the productivity of their endeavors. Dense cities have been termed the economic "nucleus of an atom" because of their role in sparking transfers of human capital. One study found that patents per capita rise 20 percent as the employment density of a city doubles. Of course, density also brings negative externalities, such as congestion and higher land prices.

In a new paper, economists with the Richmond Fed lay some groundwork for studying the implications of population density in the early 21st century. With speedy transportation options and hi-tech communication devices, how important is population density to a city's economic growth? The authors build an electronic database containing land area, population, and urban density for every U.S. city with a population greater than 25,000. Such data has been available in the past, but most of it was not in electronic form. Then the authors use the data to estimate the distribution of city densities since 1940.

The results are clear and robust: "There has been a stark decrease in density during the period studied. This deconcentration has been occurring continuously since at least 1940, in every area of the United States, and among both new and old cities." Since 1940, density in legal cities with populations over 25,000 has fallen from 6,742 people per square mile to 3,802, in large part because of increases in city size (mostly through annexation). The leading theories for why people live farther apart include decreased transportation costs, thanks to the automobile, and a desire among some people to live in more homogenized environments, with lower tax rates and better schools.

The authors also believe that improved communication technologies allow people to live farther apart without giving up the positive externalities normally gained through population density. "Falling urban densities suggest that, over the past seven decades, the productivity benefits of dense cities have been weakening," they conclude.

The authors have made their data and replication files available to the public at http://www.richmondfed.org/research/research_economists/pierre-daniel_sarte.cfm.

"The Reaction of Consumer Spending and Debt to Tax Rebates: Evidence from Consumer Credit Data." Sumit Agarwal, Chunlin Liu, and Nicholas S. Souleles. Federal Reserve Bank of Philadelphia Working Paper 07-34, November 2007.

Between July and September 2001, the U.S. government disbursed $38 billion in tax rebates to working Americans. The average amount was $500 per household. Using a new panel dataset of credit card accounts, the authors examine how consumers respond to what they term "lumpy" boosts to their income.

The records indicate that consumers used their rebates to pay down credit card balances, but then quickly ratcheted up their spending. This runs counter to basic economic intuition; if the rebates were anticipated, consumers should not have significantly changed their spending habits at the time they collected their checks. On the other hand, the evidence suggests that the rebates had precisely the effect on consumption that politicians hoped for.

The authors conclude: "Because these results relied exclusively on exogenous, randomized variation, they represent compelling evidence of a causal link from the rebate to spending."

"Hedge Funds, Financial Intermediation, and Systemic Risk." John Kambhu, Til Schuermann, and Kevin J. Stiroh. Federal Reserve Bank of New York *Economic Policy Review*, December 2007, vol. 13, no. 3, pp. 1-18.

As they've grown larger, hedge funds have come under scrutiny for their potential to disrupt the economy. Economists with the New York Fed explain why hedge funds exacerbate market failures that make traditional methods to reduce credit exposures less effective.

They begin with a concise definition for hedge funds as "largely unregulated, private pools of capital." Because they are open only to accredited investors and large institutions, they aren't subject to much regulation and hedge fund managers enjoy great latitude in their choice of investment strategies.

Recent improvements in counterparty credit risk management — specifically, the use of collateral to provide a buffer against increased exposure — as well as the ever-present force of market discipline remain the most appropriate checks on hedge funds, the authors conclude. "While various market failures may make [counterparty credit risk management] imperfect, it remains the best line of defense against systemic risk," they write. **RF**

BASE BENEFICIARIES

New Soldiers to the Fayetteville Area Offer an Economic Opportunity

Through 2013, the region around Fayetteville, N.C., is expected to gain an extra 25,600 people beyond previous forecasts. The growth spurt is attributable to a confluence of three U.S. Department of Defense initiatives, all targeted at Fort Bragg.

Fort Bragg is already the nation's largest army base with about 55,000 employees, but it will add 4,647 active-duty military personnel, 1,893 military civilians, and 616 contractors. Another sort of army — thousands of construction workers, retailers, health care professionals, additional contractors — will follow to support the increased population. In all, it adds up to 25,600 new residents in the 11-county area surrounding Fort Bragg, according to a preliminary study.

Fort Bragg's biggest influx of people comes courtesy of the Base Realignment and Closure Commission (BRAC) process, which wrapped up in 2005. (Also boosting the number of soldiers at Fort Bragg, though to a lesser degree, are two other Army initiatives — the Army to Modular Forces and the Grow the Army programs.) While many communities are adjusting to smaller or shuttered military bases, the Fayetteville area is one of the beneficiaries of BRAC. In fact, the adjacent Pope Air Force Base was slated to lose about 4,000 jobs; even so, the region overall is gaining.

The size of the incoming population will require expansions of infrastructure and many public services, including those to schools and health care facilities. An extra 4,145 children of soldiers are moving in, for example, forcing communities to find or build classroom space.

But aside from the usual headaches associated with "growth management," the population shift to the Fayetteville area has some obvious upsides. "We view it as a major opportunity for economic transformation," says Wayne Freeman, president of Training & Development Associates, the local firm that was tapped to conduct the economic impact study.

Part of Freeman's optimism stems from the caliber of jobs moving to Fayetteville. Ten of the incoming soldiers are generals. (When they arrive, Fort Bragg will have about 45 generals, more than anywhere in the country but the Pentagon.) An expected 779 are field grade officers who make between $102,000 and $142,000 a year (including housing and food allowances). In addition, contractors formerly located in the Atlanta area near Fort McPherson are expected to relocate to Fayetteville to serve Army commands now moving to Fort Bragg.

"We see a transformation of the economy and the work force to meet the needs of the emerging industries associated with defense, and less of a reliance on the declining industries in the areas of textile, tobacco, and agriculture," says Paul Dordal, a retired Air Force general now serving as executive director of the BRAC Regional Task Force at Fort Bragg.

In September 2007, the 82nd Combat Aviation Brigade ran four miles to commemorate the 9/11 tragedy.

It's an exaggeration to say that Fayetteville and its surroundings constitute a boom town. The metro area around Fayetteville comprises some 1 million people, so adding another 25,000 won't be so much a revolution as a mini-makeover.

The Fayetteville housing market is a good example of how the opportunities for new business may be limited. Freeman's study concludes that existing housing — including several developments that recently broke ground in anticipation of the Fort Bragg influx — may be adequate to accommodate the inbound residents. "We think housing is going to be one of those instances where the market is prepared," Freeman says. This expansion at Fort Bragg will eliminate much of the slack in the market right now."

— DOUG CAMPBELL

WELFARE MAKEOVER

Riding the Express to the Middle Class

Overweight, depressed, and can't find a job? Wake County, N.C., is launching a pilot program in April that aims to remove these and other obstacles to deliver poor but motivated individuals and families to the middle-class ranks within five years.

The program, called Middle Class Express, aims for a holistic approach, says the county's human services director Ramon Rojano. Not only will this initiative provide job assistance, but also advice on how to save money, buy a home, and plan a healthy lifestyle — the characteristics that typically define the middle class. A personal coach will help partici-

PHOTOGRAPHY: COURTESY OF THE "PARAGUIDE", FORT BRAGG'S NEWSPAPER

pants develop a life plan as well as guide their progress over five years.

While there's no conclusive evidence that this comprehensive middle-class coaching will work, results from other programs suggest that it should help, says Margery Turner, the director of the Metropolitan Housing and Communities Policy Center at the Urban Institute, a think tank based in Washington, D.C. "It reflects our best understanding now of the challenges that families face," Turner says.

For instance, families may work hard to earn a living but still pay bills late and lack decent health care. Families also may be forced to move frequently, and so housing assistance is a crucial component of success. Finding an affordable home in a safe neighborhood allows a household to balance its budget every month and stabilize family life.

Families can face big hurdles. "For folks with lower skills, it's not an easy path to the middle class," says Susan Gewirtz, program manager for the Center for Working Families at the Baltimore, Md.-based Annie E. Casey Foundation. They may need help finding and accessing public benefits like the Earned Income Tax Credit. Or they may not know how to save money, and so are vulnerable to expensive financial services such as high-cost loans.

But Turner worries that middle-class status may not be easy to reach within five years. Although families can achieve much in that time, it's a big step from a low-skilled job to a higher-paying job that can propel families to the middle class. "The gap in skills and experience is big," Turner says.

Obstacles like drug or alcohol addiction can block these families, too, says Douglas Besharov, a scholar on social welfare studies at the American Enterprise Institute. "A program that's trying to undo these behavioral problems has a much bigger challenge than just trying to get people a job or a little more job training," he says. He thinks that the success of such a program depends on the quality of the people and resources invested.

One advantage for Wake County is that its human services department handles not only social services but also physical and mental health, job training, child support, housing, and transportation services. Rojano says they are the only county in North Carolina with this approach to integrated human services. The program will use this structure to transform itself into a true one-stop guidance center.

After all, every family is unique. And that's what makes this comprehensive approach so attractive.

— Vanessa Sumo

BANDWIDTH BONANZA

Spectrum Auction Uses Experimental Design

When television broadcasters dump analog signals in 2009 to bring shows like "American Idol" to viewers in high resolution, a precious portion of the airwaves will be vacated. So what's the best way to distribute this reclaimed space? Auctions have long been the Federal Communications Commission's solution, but a University of Virginia economist recently contributed research that makes spectrum auctions even more efficient.

Wireless firms ponied up more than $19 billion in March for licenses to use these frequencies, with AT&T and Verizon coming out on top. The industry wants the licenses because signals in this piece of the electromagnetic spectrum have a valuable characteristic: They travel farther, faster, and penetrate buildings more easily than those in the higher-frequency band currently used for mobile phones.

Spectrum is sold by band (frequency range) and geographic area. Since the airwaves belong to the public, it's important to distribute them as efficiently as possible if they're used by private firms. Auctions reveal spectrum value. The widest portion, the "C" block, was auctioned in a way that allowed participants to bid on a package rather than on many individual licenses. The format was designed by University of Virginia economist Charles Holt and a colleague, Jacob Goeree of the California Institute of Technology. The design was tested by university students in an economics lab.

Although auctions can allocate spectrum effectively, it's hard for a firm to buy the mix of local licenses that would establish or complete a national or regional footprint. Customers like getting coverage over a wide area, and firms like it, too, because they can operate efficiently and make more money. If firms don't win key parts of an area in the auction, the licenses end up being worth less than they otherwise would be.

"This is known as the 'exposure problem,' which, if anticipated, can result in lower bids and inefficient allocations," according to Holt.

This "package bid" design lets firms bid on license combinations. It also solves a "free riding" problem for participating small, regional providers. Those firms might wait for others (or free ride) to outbid a national company on multiple licenses in a given area. But they might lose out if they wait. Also, this new auction design provides base prices for each license, according to the prior round's bids.

"Prices tell bidders how high they need to go to get into the action and win a particular license," according to Holt.

Careful auction design can also make a difference because auctions raise money for the public. The auction's proceeds will be handed over to the U.S. Treasury by June 30, and spent on public safety and digital television transition efforts, according to the FCC.

This particular set of airwaves attracted more than 200 participants, including all the major players in communications. Google did not post a winning bid, but they still provided a valuable contribution. They successfully pressed the FCC for rules to force the industry to open wireless networks to a wide variety of phone equipment and Internet applications.

— Betty Joyce Nash

Going Private

Another private equity boom has passed, but the underlying need for the industry has not

BY VANESSA SUMO

In the mid-1980s, Meineke Discount Muffler had a problem. Automakers began fitting their cars with stainless-steel mufflers with life spans of 12 years. Until then, cars had been fitted with cold-rolled steel mufflers, which rusted after three years. This innovation was worrying for the Charlotte, N.C.-based company because a huge chunk of its business, about 65 percent in 1995, depended on short-lived mufflers.

Meineke managers were determined to find new ways to grow, but its parent company, an Australian multinational, wasn't too interested in investing in new plans. "They were very forthright about it," says Kenneth Walker, Meineke's president and chief executive. Meineke's role in the parent company's portfolio was mainly to generate cash, which the parent wanted to spend in other ways.

Meineke executives longed to be independent, a wish that was fulfilled in August 2003 when two private equity firms, Carousel Capital, located just down the street from the Meineke headquarters, and The Halifax Group, which has offices in Washington, D.C.; Dallas, Texas; and Raleigh, N.C., helped management buy Meineke from its parent company for $68.5 million. Meineke changed its name to Meineke Car Care Center and was transformed into an independent company with a more diverse service offering, significantly improved marketing, and increased sales and profits. Carousel and Halifax assisted Meineke to get to that point in more ways than just injecting capital. Less than two years after buying Meineke, Carousel and Halifax sold their investment and another private equity firm stepped in.

Hundreds of deals involving private equity firms take place in the country every year. For more than 25 years, the private equity industry has been an important source of funds for a number of groups: entrepreneurs starting a business; families wishing to sell the business after the death or retirement of a founder; firms with strong growth prospects but in need of capital; companies in financial distress; and publicly listed companies seeking to go private. Private equity managers typically restructure the companies they buy and sell them later, keeping a part of the profits and giving the rest to investors.

Often, the deals take place with little publicity. Others are more high-profile, like the infamous takeover of RJR Nabisco in 1988 by Kohlberg Kravis Roberts & Co., one of the world's largest private equity firms. That deal inspired a book and a movie, *Barbarians at the Gate: The Fall of RJR Nabisco*, a title that suggests the kind of reputation which private equity firms had then and have even today.

Private equity has burst into the limelight again in recent years, primarily because of the large amounts of capital that some groups have been able to raise, as well as the size of the deals that have been made. In the 1980s, a $200 million to

PHOTOGRAPHY: GETTY IMAGES

$300 million fund would have been considered large. But today, that's just a fraction of the $21.7 billion fund that Blackstone, another large private equity firm, raised in 2007.

The large influx of money from various investors, favorable credit conditions, and the willingness to form "club deals" allowed private equity firms to splurge on buyouts of some big-name companies. Chrysler, Hilton Hotels, and Hertz are just a few names. In the United States, the number of private equity-backed mergers and acquisitions (M&As) with values topping $1 billion jumped from eight in 2002 to 102 in 2007, according to Thomson Financial.

But private equity is not just about the deals and the firms that make the splashy headlines. About nine out of 10 private equity-backed M&A deals worldwide were less than $1 billion in the last three years, and seven out of 10 were under $250 million.

Critics are skeptical whether private equity firms leave companies better off in the long run. They cite the quick flips, the sometimes ruthless, cost-cutting way private equity firms go about getting results, and the seemingly nonchalant way they spend money. The current turmoil in the credit markets, which will likely be painful for private equity firms in terms of their ability to finance deals and the returns that they can expect, has prompted questions on whether this is the end of private equity.

That seems doubtful as past waves have shown. The private equity market tends to be cyclical. Moreover, most academic studies suggest that private equity firms do enhance the performance of the companies they purchase. The new owners, refining techniques developed over many deals, introduce strategies to make their companies more efficient. If so, then why is this industry so controversial? Part of the problem is the veil of secrecy that surrounds it. "This is still in many respect[s] a very mysterious business," said Harvard Business School's Josh Lerner at a private equity conference organized last fall by the think tank American Enterprise Institute (AEI). "There is a lot which is not really understood about it, and a lot of what seems to be understood is absolutely wrong."

What is Private Equity?

The private equity market is one way through which companies can obtain funds. Investors provide capital in exchange for ownership shares in companies that are not traded in public markets, hence the name "private equity." But instead of investing directly in private companies, investors or the "limited partners" — typically big groups like public and corporate pension funds, financial institutions, college endowments, and sovereign wealth funds or very wealthy individuals — place their money in the hands of a team of professionals, or the "general partners." The general partners then select and manage a portfolio of companies on their behalf.

Private equity investing took off in the early 1980s thanks in part to the widespread adoption of this limited partnership arrangement. The other big boost came in 1978 from a ruling that putting money in seemingly risky private equity funds did not violate the Employee Retirement Income Security Act's (ERISA) "prudent man" requirement for investing private pension funds, as long as these investments were part of a larger pool. As a result, venture capital partnerships — the predominant private equity activity at that time — raised $50 million in the first six months of 1979 from pension plans governed by ERISA, up from less than $5 million a year between 1976 and 1978.

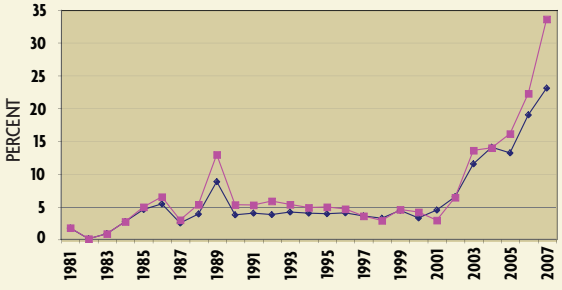
During the life of the partnership, usually about 10 to 12 years, the investors' money is tied up and they have little control over how it is managed. It might seem that investors would be better off without an intermediary. However, this would involve identifying and monitoring each of their investments. Effective private equity investing requires considerable skill in choosing and structuring investments as well as in providing business advice to acquired companies, expertise that firms presumably have gained through participating in a large number of deals. Thus, working through a private equity firm can be better than investing directly provided the limited and general partners' interests and incentives are well-aligned.

The compensation structure provides this control — as well as a lucrative way to reward general partners for good performance. When

a private equity firm sells a portfolio company, the firm returns the investors' capital and whatever remains is split between the general and limited partners. Investors typically take 80 percent of the profit, and the private equity firm gets 20 percent or what the industry calls the firm's "carried interest." The bigger the profit, the larger the firm's share of the pie, which is a powerful incentive to invest well. Limited partners also pay management fees equal to about 2 percent of the amount of capital they commit to a fund. But these fees are not based on performance and are intended to cover basic expenses.

Heady Growth

The value of private equity deals surged to about a third of all merger and acquisition deals in 2007. However, analysts say that private equity activity slowed in the last few months of that year.



SOURCE: Thomson Financial

Reputation is also a valuable incentive. Private equity managers are eager to establish a good record because that determines their ability to raise more funds from investors and lenders in the future. Partnerships have a finite lifetime, and if a private equity firm earned a low return on its last fund, investors would seek other places to put their money.

From the portfolio companies' perspective, private equity can be a good alternative, especially if they are unable to raise capital from other sources such as banks or the public market. For instance, firms with high-growth prospects that are young and untested might benefit from venture capital, which is a type of private equity investment. America's venture capitalists have financed well-known companies like Google, Apple Computer, and Intel.

Smaller family firms may have opportunities to grow but are resource-constrained. The founder may have to put in more of his own money, but he can only do that for so long. "Their family and friends network is only so big and so they need to go to an outsider," says Fred Russell, managing director and CEO of Virginia Capital Partners, a small private equity firm in Richmond. Also, as the founder of the firm ages, he may want to retire and sell the business.

The issue of succession applies to middle-market family firms and closely held private companies as well, which are typically bigger, well-established companies with stable cash flows. The company may be sold to the heirs of the founding family or a new management team in partnership with a private equity firm that organizes the funds for the sale. Middle-market firms may also be looking for capital to finance an expansion or acquisition. Depending on their size, these firms do have access to debt markets, but that may not be sufficient to meet their financing needs. And because they may have no desire to go public, private equity can be a good option.

But perhaps the most familiar private equity transactions today are buyouts of public companies. Many people have probably heard of a leveraged buyout, which is a common way of taking over a big public company using a substantial amount of debt. Public companies go private so they can have a freer hand in making adjustments that will benefit the company, without having to constantly worry about short-run fluctuations in their stock prices, the costs of compliance imposed on public companies by the Sarbanes-Oxley Act, and various pressure groups. Of course, CEOs will still have a boss: the private equity firm.

Inside a Deal

Private equity firms buy shares in private companies that they hope to sell later at a higher price. Companies typically go through a process of what Harvard's Lerner calls "intensive therapy." This process can be painful as private equity firms work to weed out inefficiencies. But the hope is that companies will emerge healthier, more profitable, and more valuable. How do they do this?

A report by consulting firm McKinsey & Company finds that in the best-performing deals, partners devoted more than half their time to a portfolio company during the first 100 days and met with top executives almost every day. Carousel Capital likewise thinks this is a key factor in determining the success of an investment. "We're a big believer that investing relatively close to home is a good practice, because it promotes so much interaction between the investors and the management team," says Brian Bailey, one of Carousel's managing partners.

Carousel prefers to invest in the Southeast so that the partners can easily get to their companies and spend more time with management when needed. Meineke's Walker talked with his primary contacts at both firms about once a month, if not once a week. Although few private equity firms are located just a few blocks from one of their portfolio companies, he could sometimes meet up with a Carousel partner for lunch and talk business. "It was an informal way to stay connected with one of the partners," says Walker.

Private equity firms are demanding bosses. "If you talk to managers who work with private equity partners on their board ... 'anxious vigilance' can sometimes describe their world," said economist Karen Wruck of Ohio State University at the AEI conference. General partners "vigorously exercise their governance rights," said Wruck. Running the business becomes a much more intense process, where private equity partners ask tough questions and make managers understand how

their decisions affect the value of the company. It's not so much that private equity firms always know how to run a specific business. Their knack is in finding the right people and organizing the company in such a way that they let managers use their expertise but hold them closely accountable for the results. Private equity firms can get very good at employing the same principles over and over again — applied many times to different deals and companies.

Changing the capital structure of a company through a leveraged buyout is another way to align the incentives of management and shareholders, but private equity firms often get much flak for using a lot of leverage. Borrowing to finance a buyout allows private equity firms to purchase companies with only a small amount of equity capital, and shareholders to receive very high returns. Say, for example, a private equity firm buys a company for $100 million, using $30 million of its own equity capital and $70 million in borrowed funds. If the private equity firm later sells it for $130 million, then, after repaying the debt, the investors actually double their money even though the company's value rose by only 30 percent. The gains flow mostly to equity holders because debt holders receive only a fixed rate of return. Critics say, however, that piling on debt makes a company more vulnerable to going bust and therefore poses a risk to the economy.

But leveraging can be a powerful tool in changing the way managers behave. Economist Michael Jensen of the Harvard Business School noted almost two decades ago that a central weakness of a public company is the inherent conflict between owners and managers of a firm over the control and use of corporate resources. In particular, managers of public companies may be hesitant to distribute the extra cash that is left over (after all profitable investments have been funded) to shareholders in the form of dividends. Managers want to hold on to this extra cash because it makes them less dependent on the capital markets.

This may, however, lead to a temptation to invest in wasteful projects if they no longer need to convince providers of capital each time of the soundness of their investment plans. Borrowing, therefore, can impose discipline on company managers. Since interest is paid out of a company's cash flows, paying off debt is in effect a substitute for paying dividends. Debt can improve the company's performance because managers must make sure that there is enough cash to meet interest payments and because they are dissuaded from squandering company funds.

A leveraged buyout also puts equity in the hands of a smaller group of investors, which mitigates the problem of monitoring managers when there are many dispersed shareholders. Moreover, buyouts usually dictate that managers invest their own money in a substantial stake in the company, so they're given a bigger chance to participate in the success (or the failure) of the company. CEOs of portfolio companies tend to own a larger share of the company than their counterparts at public corporations, and this can be a powerful incentive.

Leveraging is an important part of the private equity firms' tool box, but it is no longer a strategy that is only available to private equity firms. So, even as firms apply financial and governance techniques, they also focus specifically on improving their portfolio companies' operations, by building industry expertise and bringing in operations specialists and consulting groups to help them identify points for improvement. Some of these measures include reducing costs, for which private equity firms are sometimes heavily criticized. But even as they cut and tighten, buyout shops today also look for opportunities to expand the reach of their companies' products in this country or abroad.

While it is possible for public companies to employ these same techniques without having to go private, it may be difficult to do in

Private Equity's Impact on Jobs

There are other ways to measure the private equity industry's contributions apart from financial returns. A 2007 *Journal of Corporate Finance* paper surveys U.S., U.K., and other country studies on the real effects of buyouts. The summary finding is that buyouts "enhance performance and have a salient effect on work practices" of their portfolio companies. For instance, plant productivity increased substantially after a buyout. However, much media attention has focused on employment numbers. Critics, in particular, have often accused private equity firms of enriching themselves while slashing jobs in the process.

That private equity destroys jobs is not completely untrue. "It's not that it's an inaccurate claim, but when you fill out the whole picture, the story is much more mixed," says University of Chicago Graduate School of Business economist Steven Davis, who co-authored a large-scale study of the employment impact of buyouts on U.S. establishments. "I don't think the story fits with the narrative that the critics have put forth, nor does it really fit the sometimes glowing testimonials from the private equity community itself," says Davis in an interview.

The study, published in the January 2008 World Economic Forum report, follows target businesses before and after the buyout transaction, and then compares them with other establishments with no ties to private equity. When broken down in terms of job creation and destruction, target establishments are cutting jobs at a faster rate than comparable businesses, but target businesses create jobs at a similar pace. This suggests that private equity firms start out with some "housecleaning" of businesses which seem to be already in distress even before the buyout, as the study finds.

But companies also expand their businesses, and thus employment, when they open new manufacturing plants, retail locations, and other facilities. Thus, to complete the picture, the authors look at jobs create by private equity-backed companies at these newly opened establishments. Private equity emerges the winner: They find that target firms create jobs at a much faster rate than firms with no ties to private equity. Overall, it appears that job losses are partly offset by job gains from this expansion.

— Vanessa Sumo

practice, particularly with respect to governance. In portfolio companies, CEOs effectively have a boss. In a public corporation, by contrast, CEOs typically don't have one. Jensen, who also spoke at the AEI conference, said that the board of directors of a public corporation generally see themselves as employees of the CEO. This situation changes only in the event of a crisis, but by that time, too much inefficiency has already set in. (Public-to-private transactions account for about a quarter of all buyouts worldwide in terms of dollar value, according to a recent World Economic Forum report. Most buyouts are acquisitions of private firms and corporate divisions.)

In the end, whether the hard work has paid off partly depends on the private equity firms' ability to "exit" an investment well; that is, to find the right buyer. An exit route can be arranged through an initial public offering (IPO) of the company, accomplished by selling shares in the public market or by selling the business to another company or private equity firm.

In Meineke's case, the partners had a five-year plan that they achieved in less than two years, and everybody around the table agreed that it was time to move on. "Companies do get to a certain point in their life cycle where they would perhaps benefit from another owner," says Bailey. Carousel and Halifax were bought out by Allied Capital, a private equity firm based in Washington, D.C., together with Meineke's management. Carousel and Halifax say they earned more than their typical annualized target return of 25 percent. "They were the right partners at the right time," Walker says.

Measuring Performance

If you ask Walker, he'll say that private equity firms do create value. His big idea was that the company could grow quickly and profitably by buying other franchise automotive brands while taking advantage of the company's back-end resources, which include the accounting, legal, and financial management departments. He was proven correct. "It was private equity that allowed us to do that," says Walker. "It just allowed us to be a more efficient company."

However, others are more doubtful about the merits of private equity. The quick flip is one tactic that doesn't come across favorably, with many asking whether overleveraged companies have been sold too rapidly in the public market. For instance, the private equity groups that bought car rental company Hertz in 2005 announced an IPO in just less than a year, which prompted *BusinessWeek* to call that move "rent-a-company." A 2006 NBER paper by Lerner and Jerry Cao of Boston College finds some evidence that leveraged buyouts which went public after less than a year performed much more poorly than companies held longer. Such a strategy would then seem futile since buyout groups typically retain large ownership stakes after the IPO and failure is too costly for their reputation.

But Lerner and Cao also find, overall, leveraged buyouts that later offered shares to the public through an IPO "consistently outperform other IPOs and the stock market as a whole." Moreover, they find no evidence that the returns of these "reverse" leveraged buyouts deteriorated over time. This suggests that private equity firms make their portfolio companies more valuable, even long after an IPO.

Another way to measure performance is by comparing the returns of a private equity fund to one that invests in a stock market index such as the S&P 500. In other words, which would do a better job of generating higher returns — a private or a public company? A well-cited 2005 Journal of Finance study by University of Chicago Graduate School of Business economist Steven Kaplan and Antoinette Schoar, an economist at the Massachusetts Institute of Technology, finds that the returns to private equity funds — *gross* of fees paid to the general partners — beat the returns on investing in the S&P 500 (the analysis includes venture capital and buyout funds). Other studies come to similar findings.

However, Kaplan and Schoar's study finds that the same returns to private equity funds — *net* of fees — were roughly equal to the returns on the S&P 500. So, while their findings suggest that private equity firms create value at the company level, investors don't seem to do better than if they just put their money in a market index fund. It would then seem bizarre that investors pour so much money in this asset class given the poor returns.

There may be other reasons why investors put their money in private equity funds. Investors might value the option of participating in a future fund if participating in the first one gives them access to the next. Investors know that in this business, a firm can get better at what they do over time. Certain investors like big investment banks may also value investing in private equity funds for the relationship that comes along with it, because they value the possibility that private equity firms will call upon their consultation or underwriting services. Or, it could be that investors have a hard time comparing funds' returns to that of the market index.

But the best-performing funds within this larger group do better than the market index even after fees. There seems to be persistence in fund performance as well; that is, a good private equity firm can consistently generate good returns. This persistence is stronger than in other fund types such as hedge funds and mutual funds.

Feast, Famine, and the Future

As credit markets became more cautious over the past several months, many predicted a substantial slowdown and even the demise of what they perceived was an overheated private equity market. But the boom-and-bust nature of the industry is nothing new. "This is a story we have

seen many times before," said Lerner.

Money from investors flows into private equity when returns are perceived to be higher relative to other types of investment. Together with favorable credit conditions, which are important to private equity because the deals typically involve leveraging, private equity firms can raise large funds for their acquisitions. But more capital available means more competition, which bids up the prices of companies they buy. Moreover, when the industry as a whole is doing well, money also flows to inexperienced groups who enter the market in the hopes of replicating the success of the industry's best performers. Hence, as the supply of capital goes up, returns go down and investors pull out. Poor performers leave the market, competition eases, returns go up, and the cycle starts all over again.

The buyout boom of the late 1980s, culminating in Kohlberg Kravis Robert & Co.'s takeover of RJR Nabisco, is in many ways comparable to the heady growth in buyouts in the last few years. Both episodes were marked by large amounts of capital, record-breaking deals, intense public scrutiny, and the use of debt securities that fueled aggressive deal-making (the junk bonds of the 1980s and the collateralized loan obligations of recent years).

As in the earlier buyout wave, deal volumes and returns on private equity investment will likely drop as the current cycle turns. The difference, however, is that the companies' capital structures are actually much safer today, said Kaplan, who also spoke at the AEI conference. Even with the firms' aggressive use of debt, companies' debt levels are lower and there is more of a cushion to make repayments. Thus, in the event of a recession, portfolio companies will probably not experience the large number of defaults that was seen in the early 1990s.

But even those who believe in the merits of private equity worry that some of the firms' practices may be weakening the very attributes that have made them effective at what they do. For instance, because the amount of capital committed by investors has increased tremendously in recent years, the management fees collected by the firm as a percentage of this capital has likewise soared. Lerner cited a study that shows partners' pay from "carried interest," the performance motivator, is actually a relatively small slice of their overall compensation and that much of the income comes from fees. He thinks that this is a concern because it might lead to pressure for firms "to just do the safe thing, rather than doing the right thing."

There are also worries about private equity firms themselves going public — as Blackstone famously did in 2007 — because it could undermine the incentive structure that has been built into the limited partnership arrangement. Private equity firms are motivated to make deals work because their reputations are on the line. Their partnerships with investors have a fixed lifetime, so if they want to raise another fund, they must show investors that their past funds have performed well. Thus, replacing the funding provided by a partnership with permanent capital from issuing public stocks removes this important motivator.

As this relatively young industry grows in size and influence, it is perhaps inevitable that there are increasing pressures for more regulation and transparency. Some are also calling for private equity partners to pay taxes on the carried interest based on the income tax rate, rather than the lower tax rate on capital gains.

But those who think that private equity will fall under the heavy weight of criticism and its perceived excesses might be disappointed. The industry has been remarkably successful and it generally has a good story to tell. Its influence extends even beyond the firms that it operates. "If you have a competitor who has private equity as a significant owner and they are making huge improvements, you had better make similar improvements or you will not be competitive," said Wruck. The message is clear: Companies that are not backed by private equity firms will be forced to shape up. Otherwise, they may soon find themselves competing against one that is. **RF**

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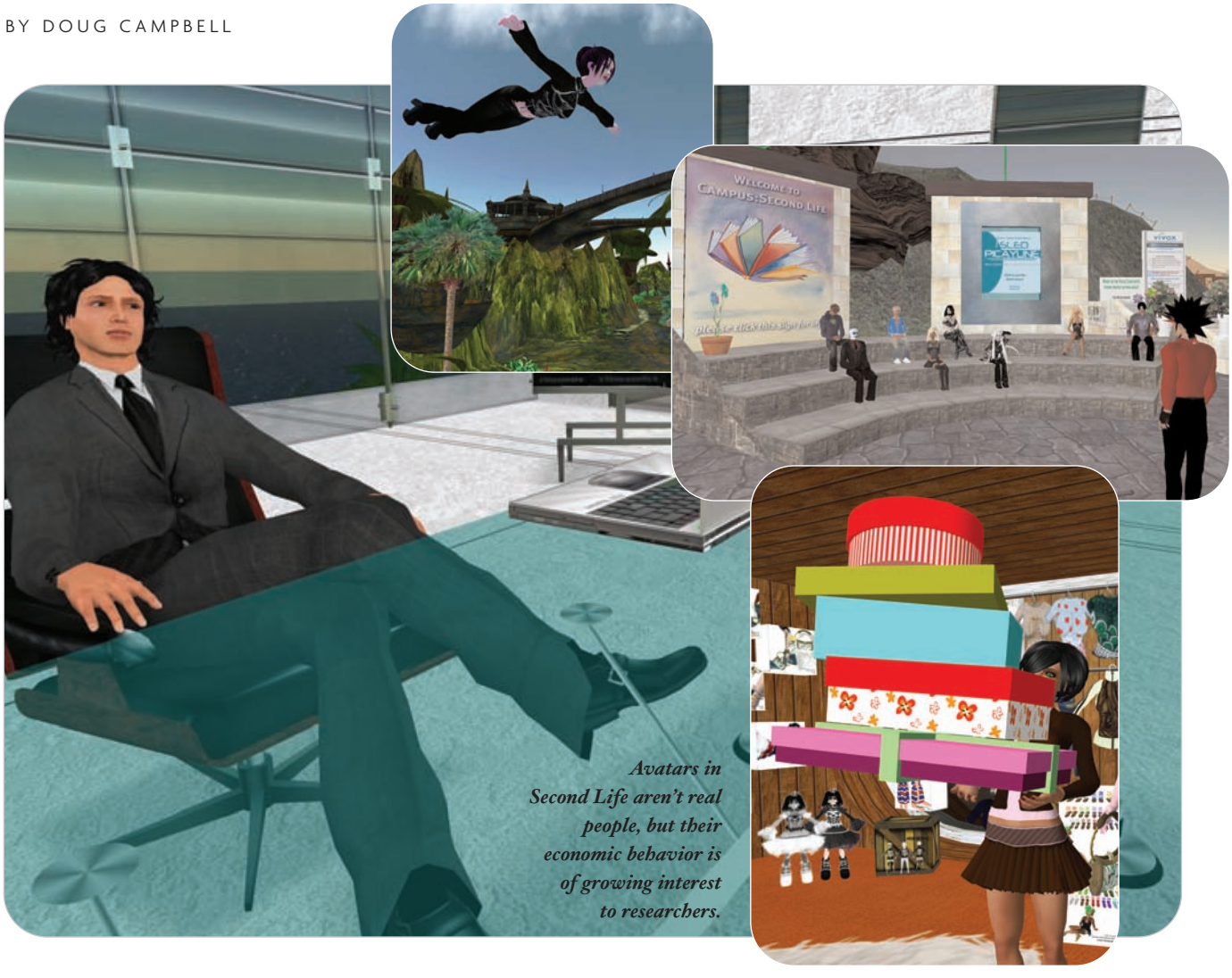
Virtual Economics

Economists explore the research value of virtual worlds

BY DOUG CAMPBELL



Avatars in Second Life aren't real people, but their economic behavior is of growing interest to researchers.

Jazmine Sciarri is a fashionable brunette who favors flared miniskirts and colorful tops. Her background is a bit of a mystery, though she has been known to dance with hippies. Curiously, Jazmine seems to be fascinated with banking. Wherever she goes, she looks for bankers. She has many, many questions for them.

Before any bankers in the audience get too excited, let it be known that Jazmine isn't real. If you've read enough stories about virtual-world gaming, by now you probably have already figured out that Jazmine is a stand-in — or avatar —for a flesh-and-blood person.

Most of the time, it might be logical to assume that Jazmine's creator was a 16-year-old boy clicking a mouse in his parents' basement. In this case, Jazmine was invented by Courtney Nosal, an economic analyst with the Federal Reserve Bank of Atlanta. Nosal is neither a brunette nor a flower child (though for fun, she likes to visit a virtual island of dancing hippies). But she does share Jazmine's interest in bankers.

Nosal wants to talk with people who have set up virtual banks in the digital realm of Second Life, a popular Internet site. How do they attract depositors, invest their money (with the local Linden dollar currency), and make loans? If they're a lot like banks in the real world, all the better.

The Atlanta Fed is asking these questions because of the light the answers may shed on real-world banking trends. The effort is the brainchild of David Altig, the Atlanta Fed research director, who thinks virtual worlds could prove fertile ground for the study of economic policy, institutions, and crisis management. There may even be an opportunity to perform "risky" virtual-world experiments that would be unethical and impractical in the real world.

PHOTOGRAPHY: COURTESY OF SECOND LIFE

What if the Fed unexpectedly cut the funds rate by 5 percentage points? (Let's see if that makes Jim Cramer happy, Altig likes to joke.) Inside the confines of a virtual world, where the consequences are also virtual, perhaps we can find out. "I'm not interested in studying the economics of virtual worlds," Altig says. "I'm interested in studying the real-world lessons that we might learn from virtual worlds."

Fantasy Facts

Virtual worlds can take on many forms. They can be as simple as Internet message boards, where people use pseudonyms to post political rants or riff on celebrity gossip. They can be massive online role-playing games such as World of Warcraft, in which players assume new identities and computerized bodies as dwarves or paladins and together go "questing" for gold and battle. Other virtual worlds are less game-like and more like pure social networks. There is no win-or-lose-game in Second Life except for the side matches that residents organize themselves.

Online virtual worlds have existed as long as the Internet. Early efforts included 1991's ImagiNation Network, whose dial-up subscribers could play games and interact with other players in a variety of environments. Meridian 59, which launched in 1995, is credited with sparking the explosion in virtual-world gaming as we know it today. It allowed users to create avatars that could be maneuvered about a landscape fighting monsters and chatting with other players. From there, environments such as Ultima Online, EverQuest, and the 8-million-member-and-growing World of Warcraft took hold.

With the caveat that estimates vary, the population of role-playing virtual worlds such as those described above is about 30 million and growing. The first economist to get widely noticed for studying virtual worlds was Edward Castronova of Indiana University. His research began as a lark. He decided to gather data about EverQuest players by sending messages to two popular message boards.

In the course of 48 hours, Castronova logged 3,619 responses and put together what he called the "Norrath Economic Survey," named after the particular region of EverQuest under study. He reported population characteristics, microeconomic conditions, and macroeconomic indicators. Then he posted the information as a working paper in December 2001. It was an instant hit, and Castronova's phone began to ring off the hook. A few years later, besieged by requests to expand on the subject, he wrote a book about his economic studies in virtual worlds, and now is recognized as a leading authority on the subject. "It really just started as a joke," Castronova says today. "But it continued from there."

Castronova quickly concluded that supply and demand operate in virtual worlds the same as in the real world. The "points" that players accumulate can be in the form of gold coins, "gils," or other trinkets, depending on the game. Players amass currency by killing monsters, crafting apparel, and smelting weapons, among other activities. In World of Warcraft, for example, one player may buy a shield from another player. Though the transaction is made in the local currency — gold coins — buying and selling of the coins also occurs outside the game at Internet auction sites. Players swap real currency for virtual currency through an online retail site, then have their avatars meet in some prearranged virtual location to swap the goods. (The difference between real and virtual currency is a topic that could fill the pages of a book, for how is a Linden dollar any less currency than a U.S. dollar if people use both as units of exchange?)

The existence of such clear economic behavior has convinced Castronova that virtual worlds may — but don't always — provide venues for economists to learn things about economic activity that they otherwise couldn't. Traditionally, economists have relied on 1) theoretical models that require perhaps imprecise abstractions and assumptions about human behavior 2) statistical regressions of past economic activity, which may fall short because changing the rules of the game will probably mean changes in future behavior, rendering the lessons from the past moot, and 3) experiments with groups of people in random and control groups, which tend to suffer because of the small sample sizes and unrealistic environments.

Virtual worlds are different. With so many players acting in purposeful ways toward common goals, collectively they can be thought of as representations of human society. It may not matter so much that the synthetic version is a realm of elves and warlocks, or of uncommonly slim, attractive, and fashionable digitized humans who can also fly. Or that people think of their avatars differently than their regular selves (a reported 25 percent of gamers switch genders with their avatars, for instance). True, there are differences — barriers to entry are clearly lower in virtual worlds, as are the opportunities to cultivate economies of scale in worlds with basically boundless supplies of content.

What's important is that the societies which form in these virtual worlds are — for all intents and purposes — real. People talk, form relationships, buy things, and sell things. What's more, these are controlled environments, making experimentation much easier.

"Given this level of control, an easy yet breathtakingly powerful research strategy almost immediately leaps to mind," Castronova wrote in a 2005 paper. "Build several synthetic worlds in exactly the same way, except for some difference in a variable of interest … attract people into the worlds, sit back, and watch what happens."

Not Quite Funny Money

At the Atlanta Fed, Altig cautiously agrees with that assessment. He looks at virtual worlds and sees different

monetary systems and different institutions and wonders: What if different outcomes in prices and inflation in those worlds could be tied to the existence of particular institutions and the rules that govern those institutions? "The big payoff would be to populate a world and observe the outcomes under different institutional, banking, and payments arrangements,"Altig says.

At first glance, the world of Second Life looks like a promising candidate for such a project. It is one of the fastest-growing, massively multiplayer online sites, with more than 12 million residents.

Unlike other popular Internet realms, Second Life is not exactly a game, per se. It's basically an artificial universe for people to meet, interact, and possibly do business together. (Plus, Second Lifers can fly, a fun bonus.) Most of the environment is created by players themselves — from digital night clubs to shopping malls. In all of these subenvironments, Second Life residents can talk to each other, either through instant messaging, traditional e-mail, or microphones that transmit players' actual (though sometimes purposely distorted) voices.

In Second Life, there is no stated purpose that requires the accumulation of Linden dollars. But all the same, players who want to buy virtual property or don fancy hats must pay. They can earn money by taking virtual jobs, or by paying for Lindens with real-world currency.

Some 4.3 billion Linden dollars were in circulation as of February, trading at about 265 Lindens per U.S. dollar. Though real-to-virtual world transactions occur across just about all synthetic environments, Second Life actually encourages the exchange of its currency for U.S. dollars. (The emergence of the "gold farming" industry is probably the most infamous example of the crossover between real and synthetic economies — in China, many businesses hire gamers to obtain gold coins in World of Warcraft and then sell them for real currency.) It keeps a Lindex market board where traders can see the going exchange rate. Real banks — and many other commercial enterprises, from Toyota to IBM — have also set up sites in Second Life and other places, but these tend to be little different than existing Internet offerings.

Among the most intriguing user-created businesses that have sprouted up in Second Life are banks — or at least, virtual institutions that call themselves banks. An estimated 100 self-identified banks were in operation last year, most offering depositors certain rates of return on their Linden dollars, and some making loans to Second Life residents for mortgages or business ventures. These banks set up ATMs around the digital world; customers could deposit their money there in hopes of collecting promised interest payments and then withdraw when they needed to make transactions with other players.

The Adventures of Deeter Gumbo

Deeter Gumbo, my Second Life avatar, is a klutz. And painfully shy around attractive strangers, of which there is no shortage in the virtual world. But for all his faults, he's good at making a quick buck. I mean "Linden dollar."

I had never set foot in a virtual world before February. I opened a Second Life account with a single mission — to find a bank (or at least something calling itself a bank), deposit some money, and make an investment in a business. Here is the surprisingly short-lived story of how it happened:

8:05 a.m.: Opening an account in Second Life is a snap. You first choose your avatar's name — the first name is whatever you want; I chose Deeter because, because ... Upon reflection, I have no idea. Perhaps it's because I always liked that Mike Meyers character of the same (if differently spelled) name on Saturday Night Live. "Gumbo" was picked from a drop-down menu of semi-ridiculous last names that Second Life mandates you to use. Then it's just a matter of entering your birth date and e-mail address.

8:10 a.m.: Now to select my avatar's body type. This is something I'm told that can be changed anytime, but to get started Second Life provides a small sample of selections. I chose "city-chic male," who sports a thick, curly head of hair and a goatee.

Second Life then asks if you want to join as a "Premium" resident, which gets you some land and more L$s for a small monthly or quarterly fee ($9.95 per month for the highest level). I decide to join with a free account, since this way I would enter the world penniless and have to climb my way out of poverty through good 'ol American pluck.

8:15 a.m.: After downloading a software application Deeter appears in what looks like a courtyard, a half dozen or so other people standing around him in circles painted on the virtual ground. This is the tutorial part of Second Life, where you learn how to walk, fly — yes, fly! — talk with other avatars, and pick up and wear items. Most of the time, the only view I have of my avatar is from behind. Despite my efforts, Deeter unfailingly bumps into walls, even in wide-open alleys. And it takes 10 minutes to figure out how to pick up a torch.

8:35 a.m.: A couple of knights give me a chain mail shirt. This puzzles me, since I was led to understand that Second Life wasn't one of those go-to-battle role-playing sites,

In Second Life, there is no deposit insurance, no oversight, and quite a bit of opacity in how the banks do business. If bankers wanted to take depositors' money and run, they could do so with little fear of repercussion — other than the hit to their reputations (which are very important in online worlds) that would make it difficult for them to conduct business as bankers in the future.

Linden Lab, the company that owns and operates Second Life, was forced to reconsider the freewheeling banking market in August 2007. Ginko Financial, a Second Life bank offering returns of 40 percent, suddenly declared itself unable to repay depositors 200 million Lindens, or about $750,000 at the time. The bank owner, whose identity remains unknown, did not say what caused the shutdown.

Many Second Lifers downplay the significance of the crash, saying that Ginko was an obvious fraud and aberration. All the same, Ginko's failure was just one of many reported banking troubles in Second Life. Bank runs were rampant. So in January, Linden Lab said it would prohibit "banks" or any other entity from offering interest on investments "without proof of an applicable government registration statement or financial institution charter." What this means is that now only real banks can gather deposits and make loans in Second Life. As of February, none did. (Among the obstacles to virtual banking are real-world money laundering laws that require banks to know their customers, which is difficult with anonymous avatars.)

"Usually, we don't step in the middle of Resident-to-Resident conduct," the company said. "But these 'banks' have brought unique and substantial risks to Second Life, and we feel it's our duty to step in. And Linden Lab isn't, and can't start acting as, a banking regulator."

Jazmine's Quest

In so much as Second Life banks resemble real-world banks operating in nearly regulation-free environments, the opportunities for economic research may be vast. Altig frames the question: "The big thing is, are these banks institutions that we can map into something we recognize in the real world and can therefore draw conclusions based on things we see happening in Second Life?"

That's what Courtney Nosal — or Jazmine — is trying to find out. Plugging in the term "bank" to Second Life's search engine, she tracked down more than 100 residents who, at one point or another, claimed to be bankers in the virtual world. Most were not quite banks as we know them on "earth." They mostly exchanged U.S. dollars (or other world currencies) for Linden dollars. Some would take their depositors' Linden dollars, convert them to U.S. dollars, and invest them in real projects or stocks, hoping to make good on their promised interest rates.

Nosal contacted them with messages sent through her avatar, identifying herself as a Fed researcher:

but no matter. Then it's off to change my appearance. I decide to give myself an enormous rear end and tiny head. Plus a square chin.

8:45 a.m.: After learning how to use the search box, I am awarded the ceremonial "Key to Second Life." I type in "bank" in the search engine and teleport myself to a likely suspect — SL Cap Exchange. About a half dozen avatars are wandering about, several speaking to each other in what looks like German. (Their dialogue appears in script over their computerized bodies.)

8:50 a.m.: The exchange has an ATM but I realize I have no Lindens to deposit. I teleport myself to the help island and say to nobody in particular, "How can I make some money?" A friendly guide sidles up to me and replies, "Search for jobs." So I type "jobs" into the search box, and a list of hundreds of opportunities appears.

9 a.m.: I'm on Job Island, I think. A wall of flashing billboards captures my attention. "Click Here for Free L$s" says one sign, so I do. After a moment, I'm wearing a digital sign that says "Click Me for L$s." Supposedly I will get Lindens if I can persuade others to click me. It's unclear why anyone would want to do so (and in fact, nobody does during the next hour). While I'm trying to figure out what to do next, a stunning redhead approaches me and says "Hi." Terrified, I scurry away. Second Life, bah! This is just like my real life.

9:05 a.m.: "Use These Machines for Free L$s" beckons a row of ATMs. Clicking on them, a Web page appears with a list of surveys and offers that I can complete in exchange for Lindens. At this point, I'm no longer really in a virtual world, just the regular online world, where commerce dominates. Dozens of sponsors — ranging from Red Lobster to XM Satellite Radio — ask for a little personal information in exchange for Linden dollars. I pick one, enter as little information as possible, and then L$15 materializes on my person.

9:15 a.m.: Back at the SL Capital Exchange, I deposit L$10 in the ATM, and then pull up a page of business prospects. I choose "hoorenbeek," ticker HBK, a "quality clothing and accessories" firm, and invest L$4.20, for four shares. That's a total investment of 1.6 U.S. cents. Mission accomplished. Now, I can just wait for my riches.

— DOUG CAMPBELL

Jazmine Sciarri says: Hi, I'm from the Federal Reserve and we are very interested in the current banking atmosphere in SL. I'm interviewing all of the bank CEOs, and your participation would be highly appreciated.

Jazmine received dozens of replies. In follow-up messages, she revealed her real name and outlined the Fed's reasons for conducting the study. She queried about deposit levels, interest rates, and bankers' preferences on regulations. The goal at this early stage was to delineate Second Life's banking industry. A fairly robust industry might allow for the sort of experimentation that Altig envisions.

Early returns suggest that experimentation may have to wait. Since the de facto ban on banking, the number of self-identified bankers in Second Life has dwindled to about 10, Nosal learned. A representative sampling of her findings:

- BCX Bank — still operating, no deposits
- SLIB Bank — no longer taking deposits, most clients are shareholders
- Ginko — no response.

Among the bankers who endure, a clear sentiment prevails — they want regulation as a way to weed out scam artists and knowledgeable bankers. During runs, many bank CEOs ended up paying depositors out of their own pockets. "Most of them lost count of how many runs there have been," Nosal says. "People have lost faith in the banking system because there were so many banks that were just scams."

It's a fundamental economic question: What is the minimal rule of law needed to create and sustain a thriving community? Can you do it without regulation? To Altig, the early evidence from Second Life confirms what economists generally agree upon today. "Some amount of regulation appears to be necessary to stabilize the banking system," he says.

Fuzzy Line

Skeptics have a number of reasons to question the value of virtual worlds for economic research. There is the problem of selection bias — a majority of online gamers are young and male. Then there is the evidence that people in virtual worlds behave differently than they would in the real world; they take more risks, for example. In real life, a person likely wouldn't plunge a dagger into another person's heart, but in virtual worlds, a warlock wouldn't think twice about it.

But these are hardly insurmountable hurdles. Economists are accustomed to adjusting for selection bias and tweaking their models to fit the expected behavior of agents. Castronova, whose work helped call attention to the research value of virtual worlds, is optimistic that much more can be learned.

"Some people look at virtual worlds as space that is 'other,' and others see it as an extension of reality," Castronova says. "I believe it can be both. If you change the rules of the game, change the institutional structures where people live, their behavior will be different. ... Does that mean our theories of economic and social behavior are wrong? No. They just manifest themselves differently in different environments." And in fact, the different ways that behaviors manifest themselves is what economists are hoping to see — because perhaps they can learn what is causing those different behaviors by pulling different virtual-world levers.

Yet the research value of virtual worlds like Second Life may already be in jeopardy. As the line between the real world and the virtual world blurs, so, too, does the rationale for conducting virtual world experiments in the first place. The worth of virtual-world experimentation is the ability to control the institutions, be they those involved in the payments system or central banks. The results from those sort of experiments should be quite clean. But if Second Life ends up with nothing more than real-world, brick-and-mortar banks setting up digital ATMs, then how different is that from existing Internet offerings?

Perhaps Second Life will evolve into nothing more than a fancy Web browser. And at that point, the services in Second Life wouldn't really be any different than those that are already provided in the real world. "We have lots of real-world data, so if all we get out of Second Life is more real-world data, it's not as significant," Altig says.

Which is not to say that economic research with virtual worlds is dead before it even started. The Atlanta Fed's effort is still in its infancy. Nosal didn't begin her Second Life work until January, though Altig has been thinking about the effort for a couple of years now, back to the days when he worked for the Cleveland Fed.

At the least, virtual worlds may provide ample data for economists to mull over. Analysts at the Cleveland Fed — some of Altig's former colleagues are hoping that Nosal can gather enough data through surveys of Second Life users to produce meaningful research. In theory, they could study much more than banks for real-world lessons about the economy. But they started with banks because they seemed at first like they might bear a close resemblance to real-world banks.

"I think that something will come of this. Whether it will be a marginal addition to our knowledge base or something more substantial is a wide-open question," Altig says. "But it's a question worth asking and exploring." **RF**

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WANTED: Brains to Train

Firms court and school a new breed of skilled worker

BY BETTY JOYCE NASH

Jared Sherrow powered up his future even before he graduated from high school. Sherrow opted for a new earn-and-learn deal that is schooling him for a career at Santee Cooper, the state-owned electric and water utility in South Carolina.

"I really wasn't interested in going to a four-year college," he says. "I was interested in going to tech, but I didn't know what I wanted to do." Santee Cooper recruited Sherrow in 2007 to replenish its dwindling supply of plant technicians.

And Santee Cooper's job crunch reverberates through other industries, too, where trained and intelligent technicians appear endangered. Utilities and high-tech industrial firms worry about who'll run and fix the machines, weld the seams, and fit the pipes. The South Carolina Employment Security Commission projects that by 2014, jobs for plumbers, pipefitters, steamfitters, and avionics technicians will grow by 20 percent.

More than half of the nation's aging utility workers will be eligible to retire over the next decade, and that leaves firms like Santee Cooper scrambling to lure high school students like Sherrow.

Image Problem

Tech experts partly blame media for the dearth of skilled labor. Few pipefitters or engineering technicians show up on TV, they say, and so students aren't lining up for those jobs. Ambitious parents inadvertently add to the problem as they press students to earn a bachelor's degree instead of a technical one. Some blame that on manufacturing phobia.

This skilled labor gap may reflect beliefs of previous generations, say educators and corporate recruiters. As low-skilled manufacturing enterprises (like textiles) dwindled in South Carolina, parents and guidance counselors channeled students to four-year colleges. While soft-skilled liberal arts majors can't qualify for technical jobs, their flexible skills might allow them to weather a manufacturing layoff better than a technician. Employers, notes labor economist Orgul Ozturk, read the college degree as a signal of a general ability to learn.

Fallout from the labor shortage occupies Chris Lang day in and day out in her work as dean for industrial and engineering technology at Trident Technical College in Charleston. Certainly there is that fear of manufacturing losses, she says. More than likely, though, students are uninformed about alternative careers. Firms get frustrated because they can't hire enough people, she says. Sometimes they can't even muster up enough students willing to train or apprentice to be machinists or pipefitters, to name two examples.

Wages, Lang insists, are not the problem.

"In South Carolina, students who graduate from technical programs often make more than people who have graduated from college," she says, adding that the focus on the four-year degree has been at the expense of careers in skilled trades. "If they [students] are never told about these possibilities, they are just not going to know. "I think a lot of it is the perception," Lang says. If the parents don't work in a factory themselves, "they look down on that job."

Instructor Ron Yancey of Cheraw, S.C., left, trains Northeastern Technical College students on specialized machine tools used in products like cell phones, computers, and other electronic components.

PHOTOGRAPHY: ADVANCEMENT OFFICE, NORTHEASTERN TECHNICAL COLLEGE

Maybe the message is hitting home: Automotive, machinist, heating and air-conditioning technician enrollments bumped up at Trident in the fall of 2007.

These jobs are not those of previous decades, but ones that require more brain power, say people who work in tech schools, like Cushman Phillips. He directs training at Orangeburg-Calhoun Tech in Orangeburg, S.C. "In today's world, a computer-controlled system with thousands of parts that all talk to each other — the people who maintain and troubleshoot those are in high demand," he says. These are not jobs you can train a monkey to do, he notes, because they require a good head and a capable pair of hands.

Stocking the Pond

Santee Cooper stocks its own pond. Recruiting efforts, says senior employee relations representative Wendy Cruce, will overcome what she calls a "generational mindset."

In 2007, the utility cranked up "Power Associates," the competitive work and study scholarship Jared Sherrow received. Technical education, they tell parents of qualified students, can forge careers with Santee Cooper.

"I think a lot of students and parents don't realize the value in these technical careers," Cruce says. "When Jared finishes his program, there's a good chance he will be earning a lot more than his high school friends right off the bat."

Expansion and retirements have created chronic job openings at Santee Cooper. But these jobs have changed over the past 30 years. Auxiliary operators used to be trained on the job. Not anymore — it's too technical.

"They are on the floor, as well as the unit operators who monitor everything on computers," Cruce says. Those positions, incidentally, bring in $40,000 to $50,000 annually — to start. By contrast, a teacher (with a bachelor's degree) starts at about

Plugging Holes in the Labor Market

Markets may manage the supply and demand of labor over the long haul, but hiring decisions don't happen in a vacuum, so short-term labor imbalances may linger.

"These days, with the economy and jobs and technology changing so quickly, getting enough workers trained is hard," says Orgul Ozturk, who is from Turkey. She teaches economics at the University of South Carolina. "If the global world was truly global, there would be no such shortage, at least not as severe," she says. "Most countries, like Turkey, have an excess of skilled labor."

Immigration could move workers into vacant jobs if policy allowed — there's a worldwide labor surplus in less developed countries. But U.S. immigration policies currently restrict a worldwide matchup of jobs to workers, although special visas exist in some fields. (See the fall 2002 issue of *Region Focus*.)

Imperfect information about opportunities impedes the flow of labor to some occupations. Many students seem unaware of or uninterested in these opportunities, and it's hard to say why. People who seek qualified candidates or study the problem suspect it may have something to do with the obsession with the four-year degree, information asymmetries, and even inadequate high school math and science preparation.

But increasing the quantity and quality of specialized labor over the long term is a tricky proposition, with accurate labor forecasts difficult to come by. Even the Bureau of Labor Statistics projects out to only 2016, with caveats about the changing economy.

That's because firms can alter, fairly quickly, the way they do business. This rapid change makes forecasting tough, according to Harvard University labor economist Richard Freeman. "Projections of future demands for skills lack the reliability to guide policies on skill development," he writes in a 2006 National Bureau of Economic Research paper. The paper examines claims that the pending baby boomers' exit from the work force combined with the slow growth of U.S. labor will create a mega-gap. He also addresses whether public policies might sync supply with demand.

Historically, changes in technology or industrial output affected labor demand more than demographics, he writes. Economic forecasters shouldn't expect demand in those jobs vacated by boomers to create a labor shortage in those occupations. For instance, Freeman points out that in the 1950s and 1960s, analysts failed to "foresee the changing labor force behavior of women in response to improved employment opportunities and wages."

For boomers, excess labor meant worse earnings and employment compared to older workers. Another example comes from the high-tech boom, which opened jobs in the computer field only to be offshored to qualified overseas workers. Although U.S. firms might want to hire U.S. workers, they could go out of business if they do because willing workers abroad would do the same work for less.

While labor gaps can and will occur, the dramatic shortages attributed to the mass retirements of a generation are overplayed. "The employment and earnings of young workers depends more on macroeconomic conditions, wage setting institutions, and technological developments than on demography."

Freeman concludes that the market should be left alone to raise wages, if necessary, rather than for government to adopt policies that may keep labor costs low.

— BETTY JOYCE NASH

$30,000. And in a state where per-capita personal income ranks 47th at about $29,700, it's a shame for good-paying jobs for young people to go begging.

Santee Cooper snared Sherrow, and over the summer of 2007, he helped troubleshoot machine problems, and earned an hourly wage of $10. During the school year, he attends classes Mondays through Thursdays at Trident Technical College, and on Fridays (and weekends if there's an outage), he works at the plant. He's learned, among other skills, to read blueprints. Santee Cooper foots the bills and after two years in school, he'll work full-time if his grades and job performance hold.

Sixteen students applied to the program and four were selected in 2007. This year, Santee Cooper will take twice as many. The hardest sell, Cruce says, is parents who cherish the notion of that four-year degree. While Cruces sees plenty of liberal arts resumes, she says, "we simply can't hire them."

Sherrow spreads the word. "I have told younger kids I know that they need to put in for it because you learn, you get an education, and your foot in the door to a good company."

Monitoring the Gap

It's not just power plants that need people. Lang, the Trident Tech dean, says welding is hot. Two Charleston-area defense contractors "snap them up like crazy." And that's left construction and metalworking firms high and dry. Those and other companies also need machine tool operators, industrial electrical techs and "people who are multicrafted."

Two area firms, Alcoa and Bosch, offer full-fledged apprenticeships. Alcoa operates a smelting plant that employs 600 people. (An internal study by Alcoa indicated 65 percent of its work force would be eligible to retire over the next decade.) Even if technology and productivity gains eliminate some of these positions, it would still require a lot of people to make up the difference.

The apprentice program responds to this need. These apprenticeships vary in length, and date from a 1930s-era program, and are registered with state labor departments. Alcoa students work a 40-hour week and then attend class for specific training. To sweeten incentives for these efforts, South Carolina legislators in 2007 approved a $1,000 annual tax deduction for every new apprentice that participating employers enroll.

Louie Roberts, technical training specialist at Robert Bosch, said finding local talent for the firm's manufacturing operations proved difficult from the start, in 1974. "The attractiveness of the manufacturing sector is not as prevalent for the generations following the baby boomers," he says. Bosch counts on signing bonuses and on-site training as well as its apprenticeships.

Running Rabbits

It's one thing for a firm to recruit and train its own people, and another for the state to train workers. After all, who knows which specialty will pay off?

South Carolina has a growing aerospace industry as well as automotive plants and suppliers, among others. Ready S.C. trained 6,726 people last year. Ready S.C. is a project of the South Carolina Technical College System (SCTCS). Relocating firms contract with the state for training. The state foots the bill, but firms promise jobs at competitive wages and benefits.

Automotive tech students at Piedmont Technical College build a replica of a 1965 Cobra muscle car as a class project. Proceeds from the student-built car will be donated for scholarships.

PHOTOGRAPH: PIEDMONT TECHNICAL COLLEGE

Forecasting demand in the labor market is a murky business. But staying ahead of labor trends remains essential. "We also work closely with the work by the research universities in the state to see where research may take us to forecast these future opportunities for South Carolina," says Barry Russell, president of SCTCS. For instance, hydrogen fuel cell research may yield developments.

"We don't have the resources to run every rabbit we see, but in this case we have enough confidence for this to be developed in South Carolina that we have several colleges right now that develop curriculum modules," he says.

Santee Cooper, Alcoa, and Bosch are polishing the image of the trained worker. And the community colleges hammer away at the skilled labor shortage too. "I can tell you South Carolina is working to make sure that gap is as narrow as we can make it," Russell says. South Carolina, since 2005, has required schools to expose students to technical careers in addition to college options. Even in high school, students declare a major, a first step toward a career.

Jared Sherrow's decision was a no-brainer. "They said they were going to pay for me to go to school, and start me off making good money." **RF**

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Is revenue sharing the best way to keep major league baseball competitive?

BY ERNIE SICILIANO

The Baltimore Orioles spent just over $95 million in payroll for the 2007 season. Their American League Eastern Division rivals, the Boston Red Sox, spent over $143 million.

So, most observers were not surprised when the Red Sox finished the season 27 games ahead of the Orioles. The Red Sox seemed to have simply bought better players.

The issue of inequality in baseball has attracted a wave of attention, much like the issue of income inequality in American politics. In baseball, the concern is that higher-revenue teams will continue to monopolize all the talent, resulting in a situation where only the same few teams are competitive year after year.

Andrew Zimbalist, a sports economist at Smith College, has discovered that, since 1995, a team's payroll has indeed had a growing influence on a team's success on the field at a time when revenue distribution has became further skewed. As he notes, in 1989 the gap between the highest-revenue and lowest-revenue teams was $30 million. By 1999 it had ballooned to $163 million.

Television contracts have something to do with the revenue disparity. For example, the New York Yankees own 37 percent of the YES Network, which broadcasts their games. Last year, revenues at YES were $340.5 million. "When the Yankees win, there are more people in the New York media market who can spend more money," Zimbalist says. Indeed, over a quarter of all official baseball merchandise sold is Yankees gear.

What this means for the game of baseball — and how to remedy this situation — is something that sports economists see differently than the head honchos of major league baseball.

Is Equality a Good Thing for the Game of Baseball?

If the outcome of a season is essentially predicted by payroll, fans might quickly lose interest in watching the games. That's the worry of Major League Baseball (MLB) executives. A July 2000 report issued by a panel headed by baseball commissioner Bud Selig; former Federal Reserve Bank Chairman Paul Volcker; economist and current Yale University President Richard Levin; and columnist George Will, concluded that "the prosperity of some clubs is having perverse effects that pose a threat to the game's long-term vitality."

Many economists who study the game seem to agree that a sporting league's vitality is dependent on at least a minimal level of competitive balance. But they differ in how much is necessary to spur fan interest.

"Uncertainty at some level is necessary for a sports league," Zimbalist said. "You want to have a situation where fans in as many markets have a chance to compete."

However, to expect all 30 major league baseball teams to have a real chance may not be realistic or profitable for the league, says economist Raymond Sauer of Clemson University who blogs at TheSportsEconomist.com. He calls the barometer of competitive balance "overrated" in terms of explaining a league's financial success. For example, the English Premier League — the top soccer league in England — generated profits for the 2007-2008 season that were double the previous season. But the 20-team EPL is dominated by just four teams: Manchester United, Chelsea, Arsenal, and Blackburn Rovers. These "Big Four" are the only teams in the Premier League's history to have won a league championship.

In the United States, parity advocates frequently cite the National Football League as one that has drawn fans by offering a high degree of competitive balance. By most conventional metrics, NFL teams are more competitive with each other and football is more popular than any other American sport. The NFL typically generates more revenue than major league baseball. The MLB's commission report specifically cited the NFL as a successful model.

One way the NFL has accomplished competitive balance is by maintaining a strict revenue-sharing policy that has managed to eliminate the disparities created by differing market sizes. The league signs its television contracts as a league and distributes the revenue equally to all teams. The MLB, on the other hand, allows teams to set up their contracts individually. This means that large market teams, like the Yankees, are able to exploit their growing television market without sharing all the revenue they generate.

Sharing the Wealth

The 1997 collective bargaining agreement was baseball's first attempt at

revenue sharing. The agreement mandated that all teams pool a certain percentage (currently 31 percent) of local revenues, including television money. The pool then gets divided among all teams, but the largest chunk — about 48 percent — is given to the smallest-market teams. A team with a large television deal like the Yankees would share their revenue with a less profitable team like the Kansas City Royals. Ideally, the Royals would then be able to spend as much money on payroll as the Yankees.

But economists are skeptical that revenue sharing produces such a scenario. "It doesn't equalize spending," Sauer says of revenue sharing. "It depresses spending."

When a team's management signs a player, they estimate his salary based on how much additional revenue the team expects to gain from him. For example, a player signed to a $5 million contract is expected to bring in $5 million worth of revenue in terms of television ratings, higher attendance, and merchandise sales.

But if that revenue is shared across all 30 teams, individual owners do not receive all $5 million of the generated revenue. Consequently, teams are less inclined to spend on talent. This might create competitive balance, but only if the high-payroll teams reduced spending. However, because revenue sharing affects the behavior of all 30 teams, every team reduces spending. In other words, the rich teams spend less but so do the poor teams and the gap in payroll remains the same.

Empirical studies specifically on baseball's most recent revenue-sharing provisions have found little connection between increased revenue sharing and enhanced competitiveness in the league. In 2006, University of Georgia economist Joel Maxcy found that the most talented players were more likely to sign with the richest quarter of baseball teams. His findings suggest that progressive revenue sharing does create an incentive for low-revenue teams to divest their talent.

Maxcy's findings bring to light a classic case of moral hazard. What incentive do low-revenue teams have to spend money on talent when they could lose every game and still collect a healthy check from the league's high-revenue teams?

"It's almost like a scam," says California State University Bakersfield economist Dave Berri. "If you go buy a team in Kansas City and get money from revenue sharing ... you can just keep the money."

Anecdotally, there are instances of this disincentive mechanism at work. The most flagrant example occurred in 2006, when the Florida Marlins cut their payroll from $60 million to $15 million, despite receiving $30 million in revenue-sharing money.

A Better Solution: The "Luxury Tax"

One thing that Sauer and other economists agree would work better is a luxury tax on a team's payroll. Such a tax would be progressive in that it affects only rich teams that spend wildly. It only affects big market teams, Sauer says. "That's going to cause [revenue] allocation away from big teams."

Many economists think this system is preferable because it addresses the real problem that the MLB is trying to address — hefty payrolls that sap competition — instead of focusing on the revenue generated by any specific team. In addition, a luxury tax would not influence the spending habits of the poorer teams the way revenue sharing does. Thus, payrolls should become more equal over time.

The luxury tax first entered the baseball's union agreements in 1996. The agreement has recently been amended so that the teams which repeatedly spend more than a certain threshold are subject to progressively higher tax rates. For example, in 2007, a team that passed the $148 million payroll threshold for the first time was taxed at only 22.5 percent, while those who passed it a third time, like the Red Sox and Yankees, paid 40 percent.

In fact, the Red Sox and Yankees seem content to continually spend gobs of money and pay the luxury tax. For them, the tax is merely an impediment to spend more, not a ban. The more those two teams spend, the more revenue baseball collects.

For Sauer, that's the ideal situation. "That's where you want to put your tax burden," he says.

This proposal doesn't solve the moral hazard problem of lower-revenue teams sitting on their revenue-sharing money, however. To remedy that, Sauer says baseball should rely on something else favored by economists: competition.

With any form of revenue sharing, he says, "you take away from teams that are in demand and give it to teams that aren't producing, [and] they just sit on the money," he says. He prefers the idea of sending underperforming teams down to the minor leagues at the end of every season, and calling up the best minor league teams to replace them the next season.

"Every other country in the world does that," Sauer said. For example, in the EPL of soccer, the bottom four teams get "relegated" to a lesser division if they finish the season with a poor record. Perhaps that's just the sort of competition that baseball needs too. **RF**

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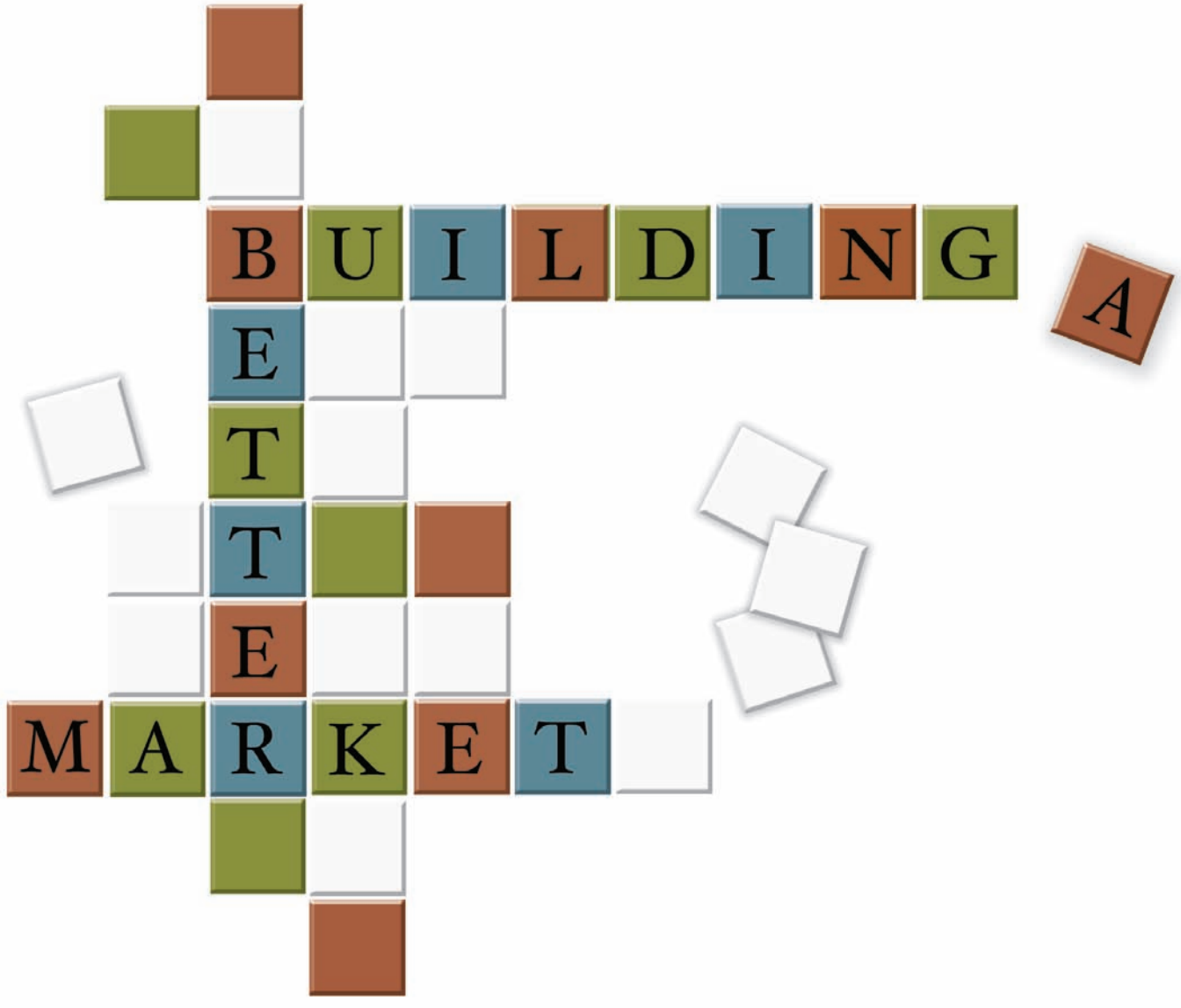

The theory of mechanism design teaches us how the right financial contracts and intermediaries can give borrowers and lenders a helping hand

BY VANESSA SUMO

In his influential 1937 article, "The Nature of the Firm," economics Nobel Prize winner Ronald Coase asked why firms exist. Firms typically combine different activities such as production, marketing, inventory, or human resources management under one roof. But these activities could also be produced independently by subcontractors, for instance. Transactions between these different units could take place in markets, and price movements would ensure that resources are allocated efficiently. So, why do we need firms? Why do some transactions take place within firms and others between firms or people in markets?

Coase's answer was that there may be certain limitations to relying entirely on the market's invisible hand. Such constraints might make the price tag of obtaining a commodity or service higher than its actual cost. For instance, there can be significant costs to searching and bargaining with each supplier. But certain costs may be avoided if the supply of inputs, especially services, can be guaranteed over a longer period. By bringing various activities under one roof, a firm may be able to substantially reduce these transactions costs. Thus, the size of the firm partly depends on how large these costs are.

The theory of mechanism design — which has received much attention since three of its pioneers (Leonid Hurwicz, Eric Maskin, and Roger Myerson) won last year's Nobel Prize in economics — provides a framework for thinking more generally about how such frictions affect the way a

market, a firm, or any other mechanism works in allocating the economy's resources. A market is a particular type of mechanism, where the amount of a commodity traded and its price are determined by a large number of buyers and sellers without any intervention. Unfettered markets often perform best, because the price signal that comes out of these interactions ensures that no resources are wasted.

However, when one party in a transaction has more information than the other, the invisible hand may not work as well as it should. Problems associated with such information frictions are particularly acute in the market for providers and users of funds, and this is one of the many fields where applications of mechanism design theory have made significant contributions.

Say an investor decides to provide funds to an entrepreneur, and he in turn promises to pay the investor some portion of a project's output. The tricky part is that the investor may not always be able to observe what the entrepreneur is doing, nor can he be sure that the entrepreneur will be truthful in reporting the project's earnings. As such, a substantial amount of effort will have to be spent in trying to overcome this information asymmetry.

But there could be a better way. Mechanism design gives us the tools to design the rules of the game in such a way that it minimizes the costs of limited information, while recognizing that people are always looking out for their own self-interest, a basic constraint of any type of mechanism. This could lead to the emergence of particular contracts and institutions such as financial intermediaries. In the end, the result may not have been guided by the invisible hand, but given the information constraints we face everyday, it is certainly an outcome that makes everyone better off.

Debt as the Optimal Contract

Financial markets offer a rich and complex array of instruments to finance business activities. Broadly speaking, however, one can divide the means to provide funds into two categories: debt, which is an amount of money owed in the form of bank loans or bonds; and equity, which are ownership rights to a firm in the form of shares.

Economists Franco Modigliani and Merton Miller, both Nobel Prize winners, are well-known for showing that the market value of a firm is unaffected by the way a company chooses to fund its operations. "The cream plus the skim milk would bring the same price as the whole milk," explained Miller in *Financial Innovations and Market Volatility*, a book that was published in 1991. For instance, a company may prefer to issue more debt if the cost of borrowing through issuing bonds is lower than the required return on issuing stocks. However, as the amount of leverage increases, the return on equity demanded by investors will go up as well, because the company is now perceived to be a riskier bet. Thus, the overall cost of capital of the new debt and equity mix turns out to be the same. A company's choice of a capital structure should be irrelevant.

But while the logic of Miller and Modigliani's proposition is certainly true, there is something about the real world that weakens this insight. Companies and financial markets do seem to care about a company's mix of debt and equity. The choice of financing matters.

This has prompted some economists to think about how entering one type of contract could affect a borrower's behavior, particularly when he has more information about his project than the person financing it. The theory of mechanism design is helpful in answering this question.

In certain situations, the optimal contract design will look like a debt contract, according to economist Robert Townsend of the University of Chicago. To understand his 1979 analysis, one can think of an entrepreneur who has an idea for a project but doesn't have enough funds to start the business. The entrepreneur predicts that the endeavor will generate a certain stream of income. In order to finance this project, he can offer investors a contract that pays a portion of its earnings. The difficult part is that investors will not be able to observe how well the business is doing as accurately as the entrepreneur can. Thus, investors will naturally want to verify the entrepreneur's output because they will be reluctant to finance the project otherwise.

But auditing entails an extra expense, and if the investor incurs this cost then he will likely demand a higher return on his investment. So, while the entrepreneur may be able to secure the funds he needs, the cost of undertaking the project will become more expensive than if there were some other way for investors to avoid what Townsend calls "costly state verification." One way to do this is to design a contract that helps the investor avoid auditing the project to the fullest extent possible but will still be willing to finance the project.

What would such a contract look like? Townsend finds that it resembles what we commonly know as debt. In return for providing funds, an entrepreneur agrees to pay the investor a fixed amount of money, which includes some return on his investment. Because he's receiving a flat sum, the investor does not need to verify the entrepreneur's output under all circumstances, as he would have if his pay depended on a share of the entrepreneur's earnings. However, if the entrepreneur cannot meet this payment — that is, if the project becomes insolvent—then the investor will go in, audit the project, and take whatever is left.

In this mechanism, it is always in the entrepreneur's best interest to tell the truth about what he's earned because he knows that if he pretends to have a lower output, the investor will be forced to audit him. Townsend

suggests this contract is optimal because the investor doesn't need to evaluate the entrepreneur all the time, nor does he have to worry too much about getting less than he bargained for. The entrepreneur is actually much happier too. Because the investor saves on the costs of verification, the entrepreneur can obtain funds for his project at a lower price.

When Equity is Better than Debt

An entrepreneur may have two reasons why he would want to raise funds from an outsider. First, he may not have enough money to fund the project himself. Second, he probably doesn't like uncertainty (most people don't) and would prefer to share the risk of running the business. If all parties had equal information — that is, if an outsider could see perfectly at all times what the entrepreneur is doing — then the best thing that the entrepreneur can do is offload all of the risk of the project. He could sell all the ownership shares of the business to as many people as possible, eliminate his risk entirely, and simply receive a fixed salary. Investors would happily buy these shares because they could perfectly observe the project's results.

The problem again is that, in the real world, the entrepreneur will typically have better information than his investors. This prevents the entrepreneur from shedding all of the risk of the project, because investors know that he will have an incentive to lie about his results. Thus, in order to encourage investors to finance his project, an entrepreneur will have to assume some of the risk by owning part of the business. How much risk-sharing would be stipulated in the contract depends on how strong the entrepreneur's incentives are to fudge the books, according to a 1989 analysis by a pair of economists at the Richmond Fed, President Jeff Lacker and John Weinberg. "That split between inside and outside ownership is determined by the cost of manipulating information," Weinberg says.

Manipulating information, or "falsification," can exist in a number of forms. In sharecropping, a landowner lets a tenant farm his land in exchange for a share of the crops, giving the tenant an opportunity to hide some of the crop before the landowner comes to collect his share. In medieval Venice, risky long-distance trade voyages were financed by investors on land, allowing the traveling merchant to unload valuable goods at another location. The opportunity to falsify results is present in modern contractual settings as well, such as when a manager might be tempted to cook the company accounts.

But falsification comes at a cost. "Falsifying records that are made available to the public, if nothing else, results in the cost of keeping two sets of records," wrote Lacker and Weinberg. Even the sheer effort of planning the logistics of hiding stolen goods can be costly, as it might be for someone who has to remain discrete after diverting company funds. In a world where falsification is tempting but costly, investors would only be willing to finance the entrepreneur's project if the risk of the project can be shared between them. Thus, the optimal contract is an equity contract.

The cheaper it is to cheat, the larger the share of the risk that the entrepreneur will need to hold. So, ownership shares in an equity contract would be based on how costly it is to falsify results. A larger share held by the entrepreneur will discourage him from diverting a chunk of the project's output because his total income depends not only on his "unofficial" spoils but also on his "official" share of the output. While he may be more tempted to cheat when falsification is easy, he would have to weigh this decision against the larger loss of income from reporting a low official output.

So what is the best contract between borrowers and lenders: debt or equity? In Townsend's model, debt is the optimal contract because the output cannot be publicly observed, so the investors have to take a costly action to verify the entrepreneur's results. In Lacker and Weinberg's analysis, the output is publicly observed but can be altered by the entrepreneur. It is the entrepreneur who takes the costly action to falsify results, such that the investors require entrepreneurs to share some of the risk of the project. "You might speculate that if the information structure is yet more complicated where there are aspects of both costly verification and costly falsification, you might have a combination of debt and equity," Weinberg explains.

That might illustrate the real world more accurately. Companies do seem to hold a mix of both types of contracts. But the question of how to divide up the company's cash flows between its lenders and shareholders is only one aspect of the company's choice of a capital structure. Another important consideration has to do with more complicated concerns of what the chosen mix of debt and equity implies for the right to govern or make decisions in an organization. Indeed, the distinction between debt and equity encompasses all these issues and continues to be a topic of active research interest among financial economists.

The Rise of the Intermediary

Borrowers and lenders can turn to a financial intermediary, such as a bank, whenever they have a hard time finding each other. A lender puts money in a bank, which will use these funds to finance an entrepreneur's project. Without an intermediary, the lender would need to figure out whether a borrower is creditworthy. If many lenders are involved, perhaps to spread the risk of financing a big project, then each lender would have to perform the same task of monitoring the entrepreneur. This is clearly a wasteful duplication of effort. Thus, an intermediary that makes it its business to know what the entrepreneur is doing may be the best arrangement for everybody.

Intermediaries have the law of large numbers on their side, according to a 1984 analysis by economist Douglas Diamond of the Graduate School of Business at the University of Chicago, and visiting scholar at the Richmond Fed. Not all borrowers are alike. Lending to a large number of borrowers drives down the uncertainty of the investment return. Thus, the presence of intermediaries not only minimizes the cost of monitoring but it also reduces the costs of signaling to the lender that it can be trusted. If the lender has to make a decision between entrusting his funds to an entrepreneur or through an intermediary, he will choose the intermediary because diversification assures him of getting his money back.

But intermediaries also play an important role in addressing the problem of adverse selection — what happens when borrowers with low-grade projects are inadvertently chosen over those with high-quality projects because a project's true quality may be known only to the entrepreneur. Intermediaries guide the allocation of resources by making sure that good projects get funding first. Intermediaries can achieve this by designing so-called "incentive compatible" contracts, according to a 1986 paper by economist John Boyd of the University of Minnesota and Nobel Prize winner Edward C. Prescott of Arizona State University and the Minneapolis Fed.

Incentive compatible contracts are at the heart of mechanism design theory. Entrepreneurs can be offered contracts based on the project's quality and realized returns. The contract for good projects is designed so that entrepreneurs with bad projects have no incentive to pretend they have good projects. Faking it would be more costly to this entrepreneur. He may be better off simply investing his money in someone else's project through an intermediary.

With the intermediary at the center of the transaction offering the right menu of contracts, the result is an effective separation of good and bad projects. This outcome is efficient in that the economy's resources are put to the best use possible. The intermediary does not have to waste time and money checking on those who are pretending to have projects that are better than they really are.

Another paper by Lacker and Weinberg published in 1993 likewise finds that an intermediary is essential to an arrangement that allows funds to be distributed to potential users in the best possible way. Similar to Boyd and Prescott, they conclude that the optimal result would be hard to achieve in a bond market where borrowers issue bonds directly to lenders. While an intermediary can offer a menu of loan contracts at different prices, which is a key element in separating project types, competition in bond markets would force those prices to converge. This would lead to a less desirable outcome since the bad projects would crowd out the good ones. "A [bond market] would lead to setting that threshold too low so people with less productive projects actually get funding," explains Weinberg. "An intermediary can actually set the threshold higher and screen off those less productive projects."

All of these contributions have increased economists' understanding of how market outcomes can be improved whenever the lack of information prevents markets from achieving the most desirable result. A market mechanism can find the equilibrium where supply equals demand. However, as in bond markets, the market outcome doesn't differentiate between good and bad types. And being able to distinguish between types is important for efficiency, which is the ultimate objective of a well-functioning economic mechanism.

But economists are still hard at work trying to figure out all the consequences of information frictions. "Even to the extent of knowing what we mean by equilibrium in a setting with adverse selection is a harder question to answer than it is in the simpler case of symmetric information," says Weinberg. Fortunately, the theory mechanism design has enriched the way economists think about these problems. **RF**

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INTERVIEW

Christopher Ruhm

Editor's Note: *This is an abbreviated version of RF's conversation with Christopher Ruhm. For the full interview, go to our Web site: www.richmondfed.org/publications*

Christopher Ruhm readily admits that when he was a graduate student under future Nobel laureate George Akerlof, at the University of California-Berkeley, his research centered on the conventional fare of labor economics. But once he started dabbling in health economics, he realized that studying how people enjoy time *away* from work can actually shed light on a variety of issues.

Today, Ruhm is known for his research on what might broadly be called "work/life balance." Encompassing both labor and health economics, his work has explored provocative questions, like whether economic growth really makes us healthier. Other elements of his research look at the implications of family leave policies for both parents and children. Much of his recent work has involved tracking the academic, health, and behavioral benefits of attending preschool.

Dr. Ruhm is currently the Jefferson-Pilot Excellence Professor of Economics at the University of North Carolina at Greensboro. His research has appeared in many of the major economic journals such as the *American Economic Review*, the *Quarterly Journal of Economics*, and the *Journal of Economic Perspectives*. The work for which he is best known has graced the pages of the *Journal of Health Economics* and the *Economics of Education Review.* He has also appeared in journals that are far from the stomping grounds of many economists, like the *International Journal of Epidemiology*. In addition, he has taught economics at Boston University and served as a senior staff economist on the President's Council of Economic Advisers from 1996 to 1997.

***Region Focus* senior editor Stephen Slivinski interviewed Ruhm at his Greensboro office on Feb. 7, 2008.**

RF: How does attending preschool influence the early educational outcomes of children?

Ruhm: My work on the effects of preschool, almost all of it co-authored with Jane Waldfogel [of Columbia University] and Katherine Magnuson [of the University of Wisconsin-Madison], looks specifically at the effects on children of attending preschool or types of center-based day care programs a year prior to entering kindergarten.

There are a couple of results that are pretty clear. The first is that — after controlling for lots of factors — there seem to be benefits to attending preschool if you look at academic performance, particularly in kindergarten. They're not huge, but there are certainly significant benefits on cognitive test scores for children who attended preschool. But if you then look at what happens after kindergarten, there it gets a little bit more complicated. You see a portion of that initial advantage fade by first grade. So, there's a benefit but part of it is short-lasting.

A second consideration is how advantaged the child is, in terms of family income or their parents' education, when they start school. It seems that preschool gives a bigger boost to poorer or otherwise less advantaged kids.

PHOTOGRAPHY: CHRIS ENGLISH/UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

Christopher Ruhm

➤ Present Position

Jefferson-Pilot Excellence Professor in Economics, University of North Carolina at Greensboro

➤ Previous Faculty Appointments

Assistant Professor of Economics, Boston University (1984-1991)

➤ Government Experience

Senior Staff Economist, Council of Economic Advisers (1996-1997)

➤ Education

B.A., University of California-Davis (1978); Ph.D., University of California-Berkeley (1984)

➤ Selected Publications

"Health Outcomes: Economic Determinants" in *The New Palgrave Dictionary of Economics*; "Are Recessions Good For Your Health?" in the *Quarterly Journal of Economics*; "The Economic Consequences of Parental Leave Mandates: Lessons from Europe" in the *Quarterly Journal of Economics*

➤ Offices

Board of Trustees, Southern Economic Association; Associate Editor, Southern Economic Journal; Research Associate, National Bureau of Economic Research

RF: Economists can usually tell us a great deal about how and why we work. But what can economic analysis also tell us about how we balance work and other aspects of our lives?

Ruhm: To start, it's worth considering what economics can't teach us about that. I don't think that economic analysis can tell us how we balance work and family in the broadest sense. That said, economic factors certainly influence it very strongly. One thing that seems true to me is if you were to compare most European countries to the United States, you discover there are just different attitudes and ways of thinking about a lot of these issues. For example, if you look at survey data, Americans who are employed are more likely to say they want to work more hours than to say they want to work fewer hours, even though we have much less vacation time than Europeans. I think there's a very large cultural component that is mostly outside the scope of economic analysis.

What economics can say more about is how people are going to respond if you have a certain environment and you change the incentives. For instance, we can analyze how people will respond to a new law mandating a worker's right to a certain amount of family leave. Or if we were to see a change in the availability or cost of high-quality child care, we know, at least in theory, the direction of the change in behavior and we'll probably get it right. Then we can look at the data and quantify how big those responses are.

RF: Tell us about your research into what sorts of economic effects you find abroad in relation to mandated parental leave policies.

Ruhm: My work on parental leave policies has led to a lot of my other work on health topics. How I got into it was a fluke. I was doing work on advance-notice provisions — the mandate [passed in 1988] that requires firms to tell their workers in advance if management is planning a mass layoff. That issue got me interested in mandated benefits more generally, and what happens when the government tells a firm it has to do something.

When I got interested in the role of parental leave mandates, there weren't many in the United States. There were some states that had mandates and, of course, later the Family and Medical Leave Act was passed as a federal mandate. But even with all that, the entitlements to parental leave are quite weak in the United States relative to other countries. So, what I did was go to European data because those countries had a long tradition with parental leave mandates.

At the time, there was no time-series data that integrated what types of policies were in place in different countries. So, with the help of Jackqueline Teague, a graduate student working with me, I started to construct this sort of dataset.

Then I looked at the effects of labor market outcomes for women. Men were the control group in this research, because at the time men almost never took parental leave. What I found was that in the presence of parental leave requirements, women were more likely to be employed. There are a lot of reasons why you would expect that to be true. The most obvious one is the notion of job protection. If you don't have to quit your job to take leave, careers outside of the home become more attractive to women.

It's not entirely obvious, however, that it had to work that way. You can imagine the opposite outcome. Employers might have been encouraged to discriminate against women because women are more likely to actually take the leave, for instance. But there was pretty strong evidence that you did find increased employment-to-population ratios for mothers — a larger percentage of mothers became employed. Yet, I also found that if the leaves got sufficiently long, there was some possible negative effect on wages. In some European countries, you're talking about leave lengths that can equal a few years.

RF: What sorts of child health measures correlate with parental leave policies?

Ruhm: When I use the term parental leave, I'm using it to broadly encompass all kinds of provisions, including maternity leave — the initial period only available to mothers — and broader forms of family leave, which in principle could be available to either parent.

I used the same dataset and I looked at health outcomes for children, mainly infant mortality rates — deaths in the first year. I also looked at neonatal fatalities, which is death of the baby in the first 30 days, versus post-neonatal fatalities, which is death in the rest of the first year. Then I extended the analysis out to age 5.

The results were quite striking and consistent with what I would have expected. In the first 30 days, you didn't see much of a reduction in infant mortality, most likely because neonatal deaths are unrelated to how much leave the parents are taking after the birth. It has more to do with what type of hospital care you're getting or whether the baby is born with a congenital defect of some kind. But in the post-neonatal period and after that, you see reductions in infant mortality correlated with parental leave mandates.

> When the economy weakens, people smoke less, they are less likely to drink heavily, and they tend to exercise more.

RF: If you assume employees would prefer to work at a company that offers paid family leave benefits, you might also think that the labor market would be competitive enough to incentivize employers to offer those benefits. What barriers exist to the voluntary adoption of family leave options by private firms?

Ruhm: That's a really important issue. The basic question is: When should we or should we not have mandates on employers? The standard argument is that, if I as a worker value parental leave benefits, employers are free to offer that. Presumably, it's also somewhat costly. So if my employer provides leave, it might reduce my wages somewhat. But if the value of the benefit to me of leave is higher than the corresponding wage reduction, I'll take the job and private labor markets will give the desired outcome. Some people believe that is true. There are a couple of issues with that, though. One is that, administratively, it may not be possible to reduce a worker's wage if there's institutional rigidity of any kind — union contracts or internal personnel arrangements — and so wages may not be sufficiently flexible.

A second issue is asymmetric information. Let's say an employer wants to offer a generous leave benefit package while his competitor does not. The problem is that the employer doesn't know whether a specific worker will take advantage of the benefit. The employee himself does know (or at least has better information on the likelihood of this than the employer), so you will have the individuals who are more likely to use the benefit flocking to the employers who offer it. That bids up the cost of doing business quite dramatically, and the employer will eventually stop offering the benefit because it places them at a competitive disadvantage.

The other really important point when considering parental leave policies is that we often tend to think about putting mandates on employers. Of course, we have one with the Family and Medical Leave Act, which requires many employers to provide a period of unpaid leave. And when people talk about instituting paid family leave, it's almost always discussed in the context of the employers bearing the full cost of providing it.

It's worth noting that if you look at other nations, particularly European countries, that is almost never the way it's arranged. In virtually all European countries, the cost is borne by the government. Now, it may be paid for through some kind of payroll tax that supports social welfare programs of all kinds, not just paid parental leave benefits. But the cost of offering the paid leave is not directly imposed on employers. You can think of it as sort of an insurance policy and the cost is being spread widely. Now that doesn't mean a system like that is costless to employers. For instance, it may cause some degree of disruption to your business.

Of course, there are legitimate arguments to be made for the U.S. system. Americans tend to prefer smaller government, and more comprehensive social insurance implies a bigger role for government. But I think it is fair to say that if you wanted to create a system that would generate the most employer opposition, the mandate system is it. It also results in the weakest level of benefits. I'll note it's not so different than health insurance these days. The United States is the only country I know of where the primary burden of health insurance is placed on employers. If we're interested in greater social insurance, to help families, to balance these competing needs without imposing excessive costs on employers, the current U.S. model is a pretty expensive way to provide it.

RF: One of your articles is provocatively titled, "Are Recessions Good for Your Health?" Discuss the relationships you've discovered between economic growth and health.

Ruhm: Many years ago I did quite a lot of work examining the consequences of job turnover and labor displacement. One of the things you would read a lot about at the time was that when the economy stagnates, lots of bad things would happen. Wages don't go up and housing values fall. Then you'd also see other things reported such as how more marriages break up, crime increases, and health deteriorates. That seemed plausible, so I read a bunch of studies that had been done and realized they weren't using state-of-the-art methods. They were written by epidemiologists and social psychologists but did seem to include plausible mechanisms: When the economy goes bad, for instance, people get stressed out and stress is bad for your health. In addition, stress leads to people drinking more and smoking more and they engage in all this risky behavior as a consequence. I doubted the specific estimates, but not the overall direction of the effect. I wanted to come up with a better way to confirm the results and ended up finding something different.

In these early studies by others, there was a tendency to look at long time-series of aggregate data. They'd look at the

United States or Britain from the 1930s to the 1970s and look to see, when the economy got better, whether the health measures — hospital admissions or mortality rates — were improving or deteriorating. The studies tended to find that when the economy improved, health seemed to get better. But lots of things were going on at once during that period. For example, at roughly the same time the Great Depression ended, there were improvements in nutrition and in the availability of antibiotics.

So I looked at each state in the United States as a laboratory. I studied changes within states relative to what was going on in other states. The advantage to this method is that if there is a change in, say, medical technology, it is likely to affect workers in all states. But the Virginia economy might be improving at the same time the Texas economy is worsening. You can use the fact that there was independent variation in macroeconomic conditions across states to estimate the effects on health.

My first analysis of mortality rates was not at all what I expected. When times were good, mortality rates were increasing and when times were bad they were decreasing. When I first got the results, I didn't particularly believe them. I expanded the analysis in a variety of ways to see if the results would change, but they didn't.

What ultimately convinced me of the result is one of those things that I always tell my students to do first. I made a picture that overlaid the national mortality rates and unemployment rates — after de-trending them and normalizing them so the scales matched — and when I did all that, I found they were almost a mirror image. It was at that point I really believed my results.

This says something about how economists actually conduct research versus how we say we do. I tell my students what we should do is look hard at our data before we do any fancy statistical or econometric analysis. But it's not unusual to do some of that other work and get results you don't understand until you look really hard at the data.

The reasons for mortality increasing when the economy strengthens vary by cause of death. If you look at motor vehicle fatalities, they go up pretty dramatically when the economy improves. That's not so surprising. People drive more when times are good. But it's also true that deaths from heart disease or flu and pneumonia go up when the economy improves and down when the economy deteriorates. Across a wide variety of health measures I was finding the same result.

There were a couple of exceptions. Cancer was unrelated to economic trends. Since we were looking at relatively short-term changes, it's no surprise that we would see this result. Whereas, for something like heart attacks, we do notice that short-term macroeconomic changes can have a big effect.

Another exception was suicides. They went down when the economy improved, and up when it deteriorated. That's consistent with a long line of work on suicides. That also suggests to me, since suicide has a mental health component, it might be the case that economic patterns I had identified mainly refer to physical health measures. That led me to conclude that when the economy tanks, people are healthier but they may not necessarily be happier.

RF: What sorts of mechanisms do you think drive the health trends you studied?

Ruhm: In my research, I also look at behaviors, like drinking, smoking, and exercise. All of these trends exhibit a consistent pattern. When the economy weakens, people smoke less, they are less likely to drink heavily, and they tend to exercise more.

If you look at drinking, you notice that heavy drinkers become light drinkers when the economy deteriorates. Yet light drinkers don't abstain from drinking. For smoking, you see the same result. People also shift from being sedentary to being somewhat active, but not very active. We also don't see a big change in the number of people who are overweight, but we do see a reduction in severe obesity.

RF: How does your work fit in with the classical model of economic man in which people are assumed to be rational? Is it rational to engage in behavior that jeopardizes your health when the economy is booming?

Ruhm: What I'm finding is that, on average, when there is a short-term weakening of the economy — not a permanent one — people get a little bit healthier. I think these results are mostly consistent with the classic economic model.

Let's say I offer you, for the next year, a tripling of your hourly wage. It would just be for one year, and you can work as many hours as you want. Most people are going to rationally say they are going to work a lot while they can get the high wages. But while they are working really hard, they may be doing some other things that aren't great for their health. They won't have time to exercise, or they're going out and eating really fatty meals. That's at least a partly rational response.

If, however, I say I'm going to triple your wage forever, then you're not going to respond in the same way. Maybe you're going to work a little bit more and maybe you won't. But you're certainly not going to pack all that work into one year. And to the extent that you do work more hours, you're probably going to make more time for your family and to tend to your health. Maybe you'll join the health club down the street. Maybe you'll learn how to eat better. I think the crucial distinction is between the short-run and the long-run incentives.

Also, while these results represent a predictable response to changes in economic incentives, that does not mean people don't make mistakes. For instance, many individuals may not fully account for the negative health effects of the extra work they undertake when receiving a temporary wage increase, or when economic conditions temporarily improve. So the responses reflect the efforts by individuals to optimize but they may ultimately not be fully rational. **RF**

Rice to Riches

BY BETTY JOYCE NASH

South Carolina nourished a wealth-generating rice industry until Asian competition and mechanization killed its comparative advantage

"The Meadows are very proper for Rice, Rape-seed, Lin-seed, etc., and may many of them be made to overflow at pleasure with a small charge."

— a 1666 pamphlet advertising Carolina, a territory granted by Charles II in 1663 to his Lords Proprietors

Campbell Coxe grows a pretty serious rice crop, one of a precious few located east of the Mississippi. He cultivates Carolina Gold, a nutty-tasting heirloom rice, on 200 acres along the Great Pee Dee River in South Carolina.

Between the late 17th and late 19th centuries, this crop gilded lowcountry South Carolina's fortunes, as the colony led North American rice production. In fact, rice couldn't be ferried to northern European markets fast enough. Plentiful slave know-how and labor, tide-flooded fields, and savvy trade lobbying abroad created South Carolina's comparative advantage in rice production. Its prosperity was unequaled in the New World.

"In no time in history has the state been as wealthy financially, socially, politically. In that era, South Carolina ruled. It's never happened before and never happened again," notes Coxe, who is an ardent student of his pet crop's history.

But by the late 1800s, world trade and transportation (the Suez Canal opened in 1869) brought in cheaper South Asian rice. India, Java, and Burma usurped the European market. South Carolina lost its edge as the low-cost producer. This cycle would repeat in the 20th century for South Carolina — only this time, the textile industry would go.

When the commercial rice industry eroded, so did the backbone of the economy.

Rice cultivation relied on coerced labor. Slaves built massive banks, and then flooded those fields so the rice seed could germinate. Later, they drained the fields and hoed the weeds from the young rice plants.

PHOTOGRAPHY: LIBRARY OF CONGRESS, LC-USZ62-26232

First Crops

Where the first rice seed in South Carolina originated remains an educated guess. However, the rice story may begin with the earliest slaves, who cultivated the cereal for their own use.

Early European and English settlers from the West Indies, especially Barbados, sought land in Carolina soon after the English founded Charles Town in 1670, and brought slaves with them. But the settlers knew next to nothing about rice, according to historian Judith Carney, author of *Black Rice*. Many West Africans from the rice-growing regions of Senegal, Gambia, and Sierra Leone were among slaves shipped to South Carolina.

"The slaves that were brought to South Carolina were brought for one reason only," Coxe says. "They [planters] wanted them to already have ideas about how to increase production; they paid a premium for these people who already knew how to grow rice."

Early settlers planted rice first on dry land, then swamplands, but by the mid-1700s, planters were using the lowcountry's tidal rivers — the "great rice rivers" — to naturally inundate fields.

Elizabeth Allston Pringle took over her father's Cherokee plantation shortly before the turn of the 20th century. Her diary survives to describe firsthand her fields:

The rice-field banks are about three feet above the level of the river at high water, and each field has a very small flood-gate (called a trunk), which opens and closes to let the water in and out; but when a gale or freshet comes, all the trunk doors have to be

raised so as not to strain the banks, and the water in the fields rises to the level of the river outside.

Fast-forward to the present: Glenn Roberts develops concepts for historic properties, and founded Anson Mills (to grind heirloom grains) as well as the Carolina Gold Rice Foundation. He cultivates rice using the "trunk and dyke" system today on 300 acres. He grows for gourmets, including Alice Waters. "Our tidal trunks and dykes are indigenous," Roberts says. Recent archeological discoveries indicate that some of the cultivation technologies, including the cypress "trunks" that controlled the flooding, and evidence of planting techniques (with the heel of the foot), may be West African in origin.

Slaves did the backbreaking work of rice cultivation. They hand-built the massive banks that lined rice fields. They planted, then flooded the fields for germination, and later drained and weeded by hand, duties that large-scale planters couldn't have managed without them. Few but the coerced would have been willing to stand up to that workload.

Within two years of the colony's founding, more than one-quarter of the population were slaves. By 1770, the proportion of black slaves to the white population had jumped to 78 percent. But on the eve of the Civil War, in 1860, the percentage of black slaves in this lowcountry plantation landscape had fallen to 65 percent.

The rice industry depended on slave labor, with slaves working under an incentive "task" system: Once a slave completed an assigned job, he or she could pursue personal activities. This may have increased productivity. The lowcountry's wave of economic productivity grew out of its institutions, including slavery.

Creating an Industry

By the early 1700s the planters had gathered enough local knowledge and the necessary capital to "transform the land into a platform that would allow them to basically have the best market opportunity," says Peter Coclanis. He wrote *The Shadow of a Dream*, a book about the economic life of the South Carolina lowcountry from 1670 to 1920. "Lots of African crops came over and not all became as important as rice. They [planters] created marketing channels and established links, created a real industry out of a crop."

South Carolina settlers had earned money through trade, particularly with the Caribbean islands, Barbados specifically. South Carolinians traded salted pork, grain, and other crops (as well as Indian slaves) for rum, sugar, and molasses from the Caribbean.

Early settlers also engaged in extractive industries like lumber and naval stores (tar and pitch). Indigo supplemented rice for some 40 years during the rice heyday, but precious few farmers planted indigo and processing machinery was scarce.

"Rice was the king of the kingdom," Coclanis says. And the rice industry came about as a conscious market choice among the European and British capitalists who settled the colony. Growers exported rice as early as the 1690s, and the real rice economy picked up steam after the 1720s.

Institutions also leveraged rice production, directly and indirectly. The Crown took over the colony in 1730, and subsequently passed the Land Act of 1731, which registered land and secured titles. Coclanis points out that it was only after 1731 that reliable mortgage capital markets emerged, benefiting planters.

Fiscal policies, too, boosted the rice economy. Government-issued currency aided production in stressful times. So did low taxes and spending on overhead such as law and order. Those elements "seem in retrospect almost ideally suited to foster growth and productivity in an export-oriented, slave-labor staple colony," Coclanis writes.

By November 1747 through November 1748, more than half — 55 percent — of South Carolina's export value lay in rice. Just before the Revolution, the colony was exporting more than 66 million pounds. In 1774, the Charleston district's total wealth per capita (free, not slave) was nearly 180 pounds sterling, compared with 38 pounds in New England and 44 pounds in the Mid-Atlantic colonies, according to Alice Hanson Jones in *Wealth of a Nation to Be*.

The best markets lay in northern Europe, and as long as transportation was affordable, South Carolina rice dominated: It was the most efficient producer in the West, and rice built the lowcountry plantations, many of which exist today.

Mechanization and Competition

But even before the Civil War cut off rice's slave labor, rice had slid into decline. Transportation improvements opened European trade routes with Asia, pushing South Carolina farther from its best rice markets. South Carolina exported 77 percent of its rice crop to northern Europe from 1730 to 1739, but only 49 percent by 1850 to 1859.

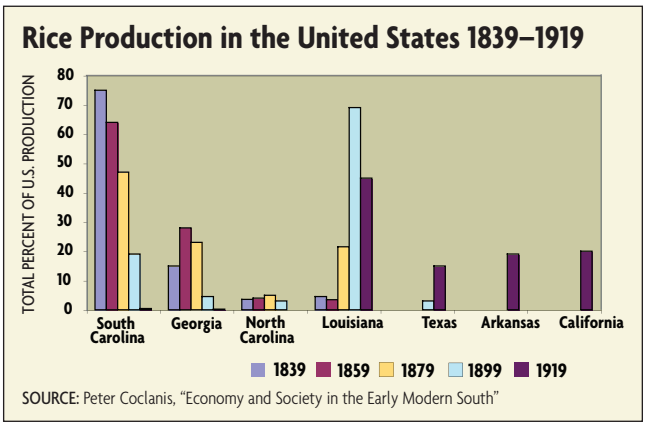
The rice dynasty had begun to erode well before many of the planters noticed. An array of forces led to its demise, and those intensified with the Civil War and the decline of slavery.

Steam shipping cut cost and time, and the Suez Canal brought Europe closer to Asia. In addition to the resulting global competition, changes wrought by the Industrial Revolution contributed to the shift in rice production to Western states. The internal combustion engine that had revolutionized agriculture paved the way for machinery that simply was useless in the pluff mud fields of South Carolina's lowcountry. And the state's upcountry farms didn't have the rivers that could provide power to pump the water necessary to grow rice.

While some of the more farsighted planters had worried about Asia early on, Coclanis says, it surprised many.

"It's kind of like an early example of globalization and how it affects areas differently," Coclanis says. After the Civil War, the American rice industry moved westward to Louisiana, Texas, Arkansas, and, later, to California. There, rather than compete with cheap Asian labor,

growers adopted machinery and technology. Arkansas, for example, today has a high technology rice industry. (The United States typically ranks among the top three rice exporters.)



Economic Development Redux

The cycle of boom and bust is older than the rice dream. It goes to show what a tricky proposition economic development can be, Coclanis says. Early settlers made choices about what they could grow that would bring prosperity. "They were right in their assessment, given the limitations of topography, that rice was the best bet," he says. "But they rolled the dice on rice and put their marbles on rice. And it did not factor into their minds that market conditions could change." In the end, there was no internal demand to pick up the slack when the export market collapsed.

Variations on this theme continue today. Coclanis consults with Southeast Asian countries about the development of their economies. He sees parallels between the fallen South Carolina rice complex and the plight of those countries. Problems in Burma, which also became overdependent on exports, serve as an example. "The whole area that became the rice exporting, production area hardly settled till the British came and ... encouraged the Burmese to move from the upper to the low-country area."

The Rice Niche

While the old rice empire is gone for good, specialty rice has gained ground. Campbell Coxe notes that in the Western rice-growing states, "they probably sweep up more than we grow here."

Still, he aims to make his rice pay. He used to send his crop out to Arkansas for milling, but has since built his own mill, even though "everybody thought we were crazy." And he's trying to convince other farmers that there's a growing gourmet market out there for specialty rice. He gloats a little bit when customers in Korea and Japan order his rice, which, by the way, they can on the Internet at $8.47 for two pounds. And he feels pretty good about preserving the heirloom Carolina Gold rice for future generations, he and the half dozen or so others in the state who grow it to collect the seed. Some people grow rice to attract waterfowl for hunters; some just like to revisit the history.

"We do think it's historically beneficial — if nothing else to show people the great history behind the rice," Coxe says. "This one grain made South Carolina the richest colony in the New World. **RF**

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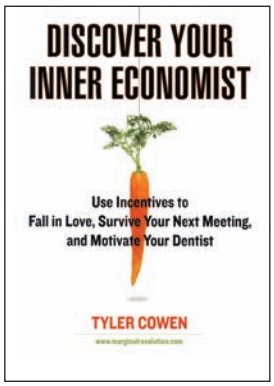
POLICY UPDATE • *continued from page 8*

instead of the more expensive auction for funds. But the discount rate does not place a hard ceiling on the auction rate. In fact, in the first auction in April, the stop-out rate exceeded the discount rate.

Early results suggested the auction program may have been effective. The LIBOR-OIS spread, for example, has narrowed. When the two rates are closer together, credit and liquidity pressures are usually lower. However, this spread widened again in the first quarter of this year.

The auctions have been conducted on a biweekly basis through February, all were oversubscribed as bidding institutions asked for more funds overall than was offered. Though the identities of both bidding and winning banks are not made public, the total amount of borrowed funds going to each Federal Reserve district is reported. As of Feb. 27, for example, banks in the Fifth District had $813 million of the $60 billion total outstanding in the auction credit program.

The Term Auction Facility program was introduced as a temporary effort. Fed officials have been largely positive, saying it seems to have injected liquidity into the market when it was needed the most. The Fed has said it would seek public comment before deciding whether to make the program permanent. **RF**



BOOK REVIEW

Self-Help Economics

DISCOVER YOUR INNER ECONOMIST: USE INCENTIVES TO FALL IN LOVE, SURVIVE YOUR NEXT MEETING, AND MOTIVATE YOUR DENTIST

BY TYLER COWEN
NEW YORK, N.Y.: DUTTON, 2007, 234 PAGES

REVIEWED BY BETTY JOYCE NASH

Self-help books typically fill psychology or religion or parenting shelves, but here's one in an unexpected aisle: economics. It promises that life improves as one cultivates economic intuition, one's "inner economist."

Quite a claim. A quick look at *Discover Your Inner Economist*'s chapter headings will clue in the reader to the book's ambitions: For instance, Chapter Two, "How to Control the World, the Basics" and Chapter Three, "How to Control the World, Knowing When to Stop." That's a relief.

The point of economics, author/economist/polymath Tyler Cowen observes, is to make the world a better place. And it can start with enhanced opportunities and, heck, just more mindful shopping. People need only apply reliable economic tools to discern underlying patterns.

Cowen is professor of economics at George Mason University, and much more. He writes restaurant reviews for his online ethnic dining guide to the Washington, D.C., area, and eclectic entries at MarginalRevolution.com, a widely read economics blog he co-authors. Cowen also writes for the popular press on a wide variety of subjects as well as on scholarly topics for economics journals. One of his books is about Mexican amate painters and their foray into the global marketplace.

Cowen admits at the get-go: "Economists cannot solve all of our problems, but contemplating the complexity of human motivation will help us make better decisions." Human motivation largely relies on incentives, so Cowen suggests that one start by instructing his inner economist about a basic human need, a sense of control that underpins responses to incentives. If you've ever tried (in vain as I have) to motivate adolescents to do chores for money, then this is the book for you. Why, oh why, might teenagers work diligently for others, but drag their feet for parents?

The inner economist, according to Cowen, knows that money isn't always the best motivator. The trick lies in calculating if, when, and how much money matters. To explain, he describes his experience in trying to get his daughter to clean dirty dishes. Using money to bribe, er, entice, offspring to wash the dishes probably won't work.

"The failure of the bribe reflects the complexity of human motivation," he explains. People are motivated by many factors, including money, but also internal rewards like satisfaction, or perhaps "wanting to do a good job for its own sake." In other words, internal motivation sometimes rules and a monetary payment can backfire. According to Cowen, explain to the offspring that the chore is expected for the good of the family, and the daughter may feel the need to cooperate and "meet expectations." But payment transforms the cooperation into a "market relationship."

A useful insight. And if that doesn't work, there's always praise. (It's amusing, though, to imagine a teenager's reaction when a parent praises him or her for a particularly stunning talent in dishwashing or vacuuming.) Again, while there may be a gender problem — boys perhaps being less cooperative than girls — with this particular example, it's hard to argue with the logic of thinking carefully about incentives based on peoples' need for control. Cowen puts it all together with some tips on when and when not to offer money: Money works best when "performance at a task is highly responsive to extra effort," like selling cars or for work that is tedious but requires attention to detail.

The book's final chapter examines the economics of giving, from Christmas gifts to United Way, to handing money to beggars on the streets of third-world countries. Look inward, Cowen advises. Are we giving to feel good *ourselves* or to do the world good? For instance, he suggests not buying in to the professional beggar, who works so hard to maintain his job. Give, if you must, to a street person who isn't working for your money — that way you're not encouraging those needy people who have not made a career out of chasing others' money. How about tipping? Wasteful beyond 15 percent. "If customers pay waiters more, employers will get away with paying them less. Waiters won't receive more money, but restaurant owners will, and at the expense of diners. Is that the kind of altruism we had in mind?"

Cowen riffs on some of his favorite topics throughout the book. Some of those hold a tenuous connection to nourishment of the inner economist, but that's OK because they're entertaining, such as his advice on how to get the most from an art gallery or how to look good at home, on a date, or even while being tortured. Alas, the inner economist's toolbox may be useless in this last case, as the captive, perhaps innocent and willing to sing, can't signal this to his captors — they won't believe him.

Sending signals is a concept seemingly ignored later on in his chapter advising people not to bother buying "fair trade" coffee because it may hurt other coffee farmers. Isn't that what buying is all about? Market signals? If I don't buy it, then how will the market know I prefer it? My inner economist may still be confused, but at least Cowen got her thinking. **RF**

District Economic Overview

BY MATTHEW MARTIN

Economic activity in the Fifth District grew at a somewhat slower pace in the third quarter as weakness in housing and retail sales offset some firming in manufacturing and continued strength in much of the service sector. Employment and income growth remained robust, though signs of some strains on household balance sheets emerged due in part to the pullback in housing market activity.

Healthy Labor Markets

Labor market conditions remained generally solid in the third quarter, though reports from the household survey were a bit weaker. Payroll employment in the Fifth District was up 1.7 percent over the past year, considerably more than the 1.0 percent increase the national economy experienced over the same time period. Most services-producing industries added jobs as did the construction industry on the goods-producing side.

On the other hand, manufacturing payrolls declined again, though the rate of job loss in that sector slowed in the third quarter. In addition, healthy employment growth accompanied solid income growth in the third quarter. Fifth District incomes were up 3.8 percent at an annualized rate — a slight uptick from last quarter's pace, but a touch below the national mark of 4.3 percent.

Data from the household employment survey was somewhat less positive, however. The Fifth District unemployment rate inched up to 4.3 percent, thanks to a concurrent rise in the number of unemployed persons and a decline in the size of the labor force. Nonetheless, the Fifth District third-quarter unemployment rate was lower than the national rate by 0.4 percentage point.

> Economic activity in the Fifth District grew at a somewhat slower pace in the third quarter.

Service Sector Steady

The Fifth District service sector remained the primary source of economic growth in the third quarter. Revenue growth at services firms remained healthy, though survey contacts indicated that the pace of expansion eased somewhat since our last report. On the employment front, the pace of hiring at services firms slowed — a result that was evident in spotty payroll employment growth in some key sectors. Professional and business services employment contracted in Virginia and South Carolina, for example, while financial activities employment declined in Maryland and West Virginia. By comparison, the retail sector was hard hit in the third quarter. Sales of big-ticket items were especially weak, including a further drop-off in furniture and automobile sales. Retail hiring in the District also tapered off, though wage growth was steady.

Real Estate Weakens

Residential real estate activity weakened further in the third quarter, characterized by lower levels of home building and sales activity. Permit issuance declined 20.8 percent compared to the previous year, with double-digit declines reported in all jurisdictions except the District of Columbia. Additionally, existing home sales fell in all jurisdictions, with the steepest declines in the northernmost parts of the Fifth District.

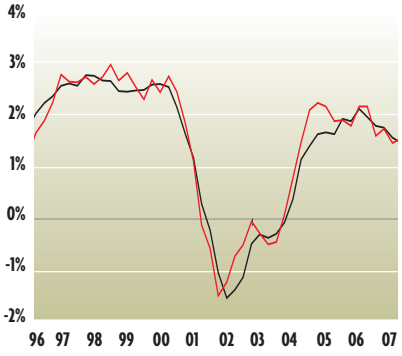
Declining sales activity coincided with increased home inventories and a further cooling of home price growth, with a few regions experiencing outright price declines. For example, the house price index fell 0.3 percent in Maryland in the third quarter, though prices in the state remained 2.6 percent higher than the same quarter a year earlier. Nonetheless, house prices inched higher elsewhere in the District, with North Carolina seeing the most rapid appreciation — 6.6 percent — over the past year.

On the commercial side, conditions were relatively brighter. Leasing activity slowed somewhat in the second half of the third quarter, but office vacancy rates remained near cyclical lows. Retail and industrial leasing activity also remained generally healthy. Though financing for new projects still appeared to be available, reports indicated little new commercial construction activity across the Fifth District.

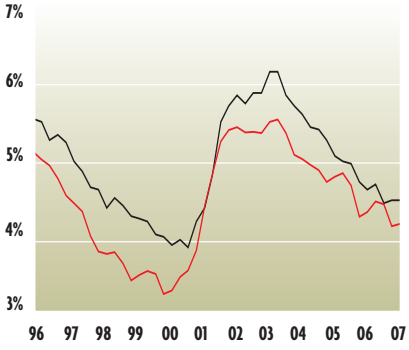
Economic Indicators

	3nd Qtr. 2007	2nd Qtr. 2007	Percent Change (Year Ago)
Nonfarm Employment (000)			
Fifth District	13,909	13,872	1.7
U.S.	137,758	137,500	1.0
Real Personal Income ($bil)			
Fifth District	946.9	938.6	3.8
U.S.	9,952.4	9,854.0	4.3
Building Permits (000)			
Fifth District	42.8	53.9	-20.8
U.S.	340.1	404.4	-22.3
Unemployment Rate (%)			
Fifth District	4.3%	4.2%	
U.S.	4.7%	4.5%	

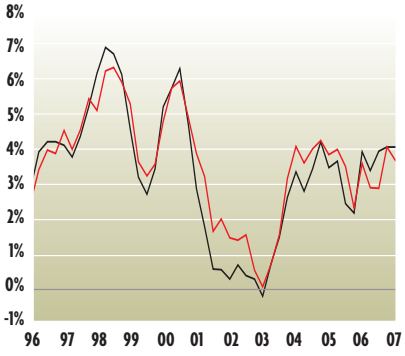
Nonfarm Employment
Change From Prior Year
First Quarter 1996 — Second Quarter 2007



Unemployment Rate
First Quarter 1996 — Second Quarter 2007

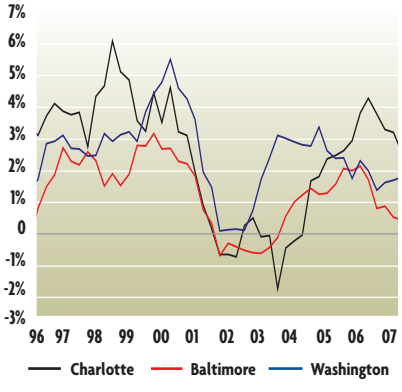


Real Personal Income
Change From Prior Year
First Quarter 1996 — Second Quarter 2007

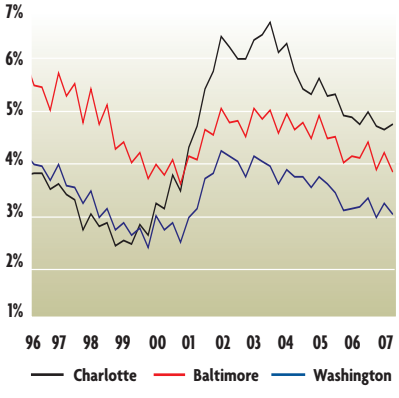


Fifth District — United States

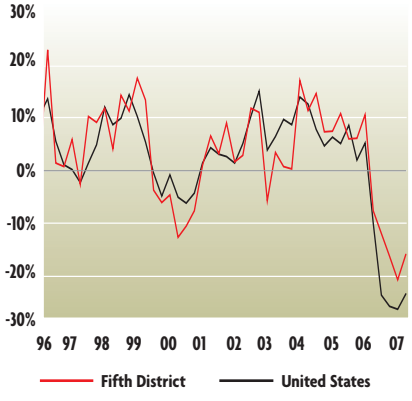
Nonfarm Employment Metropolitan Areas
Change From Prior Year
First Quarter 1996 — Second Quarter 2007



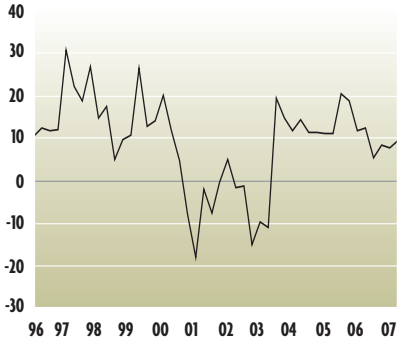
Unemployment Rate Metropolitan Areas
Change From Prior Year
First Quarter 1996 — Second Quarter 2007



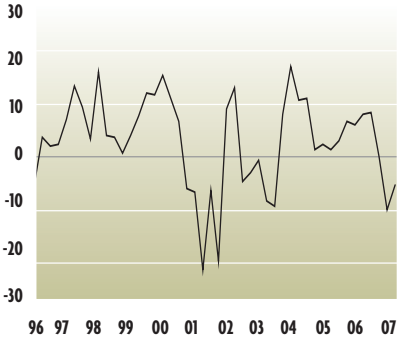
Building Permits
Change From Prior Year
First Quarter 1996 — Second Quarter 2007



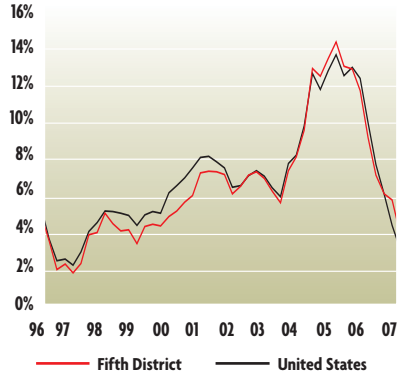
FRB—Richmond Services Revenues Index
First Quarter 1996 — Second Quarter 2007



FRB—Richmond Manufacturing Composite Index
First Quarter 1996 — Second Quarter 2007



House Prices
Change From Prior Year
First Quarter 1996 — Second Quarter 2007



NOTES:
1) 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.
2) Metropolitan area data, building permits, and house prices are not seasonally adjusted (nsa); 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: Office of Federal Housing Enterprise Oversight, http://www.ofheo.gov.

For more information, contact Matthew Martin at 704-358-2116 or e-mail Matthew.Martin @rich.frb.org.

State Economic Conditions

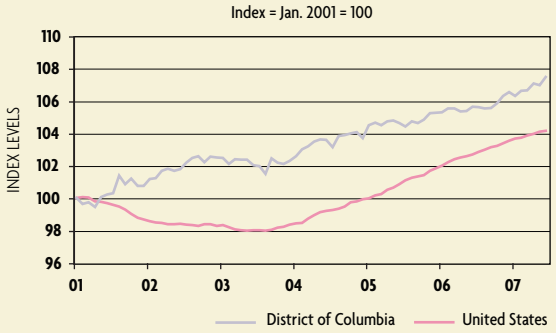
BY MATTHEW MARTIN

District of Columbia

The District of Columbia's economy remained on generally solid footing in the third quarter. Payroll employment growth and unemployment rates were steady, while the housing market — with a modest gain in residential permitting activity and an uptick in home prices — regained some stability. Steady income growth buttressed household balance sheets, though increases in mortgage delinquencies and foreclosures remained a concern.

Labor market conditions in the District of Columbia were generally healthy in the third quarter. Firms in the region added 2,000 jobs in the third quarter, a 1.9 percent increase over the previous quarter. Payroll growth in government employment and many services-producing sectors fueled the increase, while job losses in the information and financial activities sectors dampened growth. At 5.7 percent, the unemployment rate remained unchanged since the beginning of 2007, and was 0.1 percentage point lower than the third quarter of 2006.

U.S. and D.C. Employment Growth Since Jan. 2001



SOURCE: Nonfarm Payroll Employment, BLS/Haver Analytics

The District of Columbia's housing market showed some improvement. Its House Price Index rose 2.3 percent in the third quarter, following a decline of 0.3 percent in the second quarter. New residential construction also improved in the third quarter, with the District of Columbia posting the only quarterly gain in residential permit activity in the Fifth District. Still, other measures of real estate activity were less positive — the pace of existing home sales declined 11.5 percent in the third quarter.

Modest housing market improvements were balanced by increased delinquencies among mortgage borrowers. The percentage of mortgages more than 90 days past due continued to creep up in the third quarter. The rate of foreclosures also increased, though it remained below the peak rate posted in 2001. Although mortgage data revealed some problems, households remained in generally good financial condition overall. Real income growth advanced at a 3.9 percent annualized rate in the third quarter.

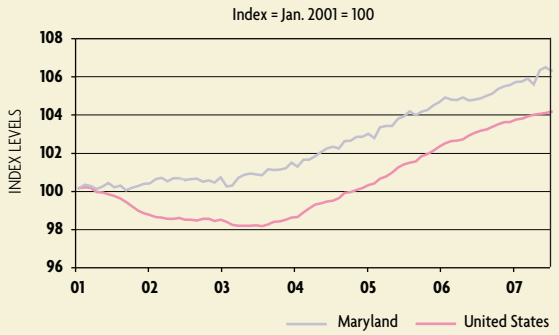
Maryland

Economic conditions in Maryland were mixed in the third quarter. The payroll survey continued to show positive employment growth and household incomes grew at a healthy clip. Still, Maryland's unemployment rate edged up slightly and the state experienced its first quarterly decline in home prices in nearly a decade.

Conflicting reports from the two employment surveys provided a mixed picture for the state's labor market. On the positive side, the payroll survey reported that Maryland added 6,800 jobs to its economy in the third quarter, for a 0.3 percent increase over the quarter and a 0.9 percent increase over the past 12 months. Gains were reported across the state's services-producing sectors, with the exception of a 0.8 percent (1,300 jobs) decline in financial activities employment. Other than the financial activities, the only other sector to experience net job losses was manufacturing, which lost 700 jobs over the quarter. The household survey, however, indicated that the unemployment rate inched up 0.1 percentage point in the third quarter to end at 3.6 percent — still the second-lowest unemployment rate among District jurisdictions. Reports on Maryland's household incomes were more encouraging, however: Household incomes increased at a 2.7 percent annualized rate in the third quarter, up sharply from the second quarter's tepid 0.3 percent pace.

Residential real estate activity contracted further, compounded by falling house prices and rising mortgage delinquencies. Retreating housing market activity showed few signs of slowing in the third quarter, with residential permitting activity down 25.5 percent over the quarter and 27.1 percent over the year. Existing home sales were also sharply lower, raising the market inventory of homes for sale to unusually high levels in markets across the state. In addition, Maryland saw a decline in home prices for the first time in almost 10 years. Its House Price Index indicated that Maryland home prices edged lower 0.3 percent during the third

U.S. and MD Employment Growth Since Jan. 2001



SOURCE: Nonfarm Payroll Employment, BLS/Haver Analytics

quarter, though home prices in the state remained slightly above year-ago levels.

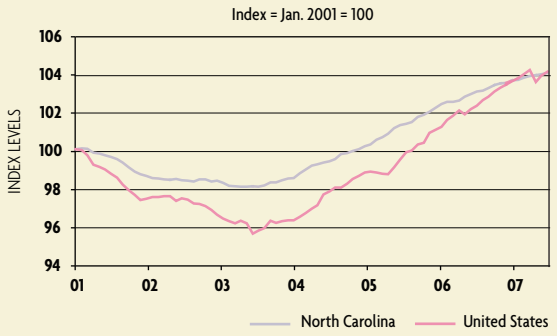
The contraction of the housing market was also felt in mortgage delinquencies and foreclosure rates. The percentage of mortgages more than 90 days past due — which had been at cyclically low levels recently — increased sharply in the third quarter to an even 1.0 percent. The foreclosure rate also increased. Nonetheless, both rates remained below peak rates reached several years earlier.

North Carolina

Economic conditions were mixed across North Carolina in the third quarter. Residential home building and home sales were down, but income and payroll employment grew at a healthy pace and unemployment rates remained steady.

Payroll employment in North Carolina grew in the third quarter as the state added 15,500 jobs, a 0.4 percent increase over the second quarter and a 2.3 percent increase over the past 12 months. The gains were spread across sectors. The professional and business services sector accounted for the largest gain (3,900 jobs) during the quarter, while only three sectors — manufacturing, construction, and financial activities — saw net job losses in the third quarter. Additionally, the state's unemployment rate remained steady at 4.7 percent in the third quarter — 0.2 percentage point higher than at the beginning of 2007, but 0.1 percentage point lower than the third quarter of 2006.

U.S. and NC Employment Growth Since Jan. 2001



SOURCE: Nonfarm Payroll Employment, BLS/Haver Analytics

Household financial conditions remained generally healthy bolstered by solid real income growth. North Carolina household incomes rose at an annualized 3.8 percent in the third quarter and were up 4.5 percent over the past 12 months, the latter ranking as the fastest pace among Fifth District jurisdictions. On the other hand, higher levels of personal bankruptcy and mortgage delinquency indicated financial difficulties in some segments of the state's population, although both measures remained below peak levels reached in the aftermath of the 2001 recession.

By any measure, residential real estate activity in North Carolina declined further in the third quarter. The number of permits issued was 16.7 percent lower than a year earlier as permit levels fell to their lowest mark since the second quarter of 2003. Previous declines in permit issuance had been concentrated in coastal areas and some of the smaller MSAs. However, that trend changed a bit in the third quarter as some of the larger MSAs, especially Charlotte, experienced substantial declines in permitting activity. In addition, existing home sales declined by 13.0 percent since the same quarter in 2006. House price growth across the state also slowed in the third quarter, though prices rose 6.6 percent over the past year.

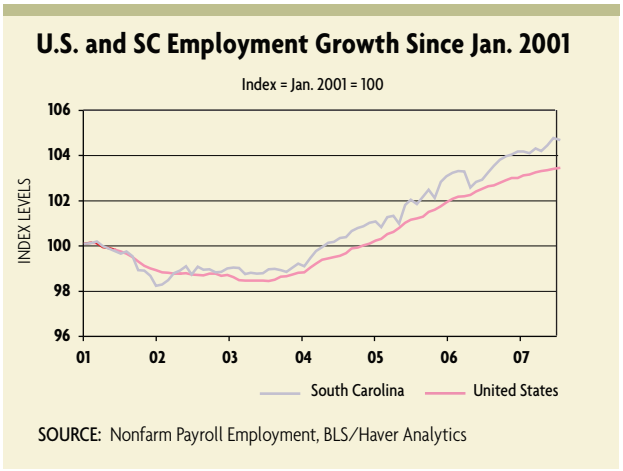
South Carolina

Recent readings on South Carolina's economy varied. Payroll employment expanded and incomes grew at a healthy clip, while the state's unemployment rate inched up and its housing markets weakened further.

South Carolina's labor markets produced some mixed signals in the third quarter. Payroll employment in the state grew 0.8 percent in the third quarter. The bulk of the gains came in the leisure and hospitality, and education and health services sectors, which accounted for nearly half of the 16,300 jobs added in the period. The government sector also posted solid employment gains, adding approximately 3,000 jobs in the quarter. The only sector to post net job losses was manufacturing — the sector lost an additional 400 jobs during the third quarter, marking its third consecutive quarterly decline. On the other hand, the state's unemployment rate edged higher 0.1 percentage point to finish the quarter at 5.8 percent — the highest jobless rate among Fifth District jurisdictions.

Reports on household financial conditions remained mostly positive. Real income growth accelerated in the third quarter, both in aggregate and per-capita terms. Annualized quarterly growth of 4.0 percent pushed the state's year-over-year growth rate back above 4.0 percent — the second-fastest growth rate among Fifth District jurisdictions. Personal bankruptcy filings also provided little evidence of financial strain on household balance sheets in the third quarter.

Modestly higher rates of mortgage delinquency and foreclosure reflected worsening conditions in the state's residential real estate markets. The share of all South Carolina-held mortgages that were at least 90 days delinquent moved higher in the third quarter. In fact, at 1.2 percent, the rate was near its recent peak from the second quarter of 2003, though it remained lower than the national rate of mortgage delinquency. In addition, home price growth in the state decelerated sharply in the third quarter to just 0.4 percent



at an annual rate. Coastal areas bore the brunt of slower price growth, with the Charleston MSA posting home price growth of just 0.7 percent in the third quarter on the heels of a slight price decline in the second quarter. Many of the inland markets fared a bit better, posting more modest declines in home sales and home building.

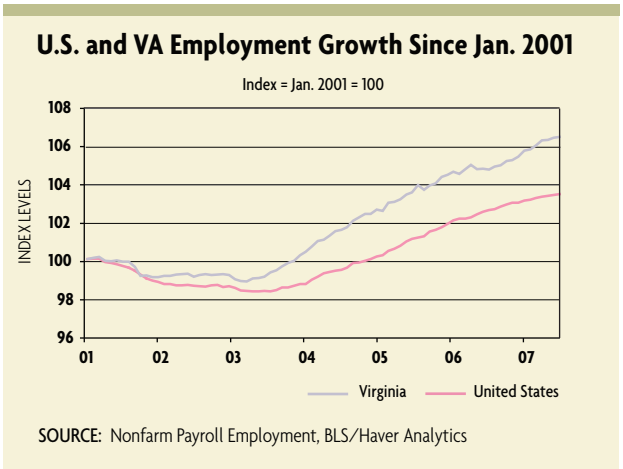
Virginia

Another stretch of solid employment growth underpinned the healthy Virginia economy in the third quarter. The state retained the lowest unemployment rate in the Fifth District by a wide margin, and experienced payroll growth across most sectors of the economy, including construction. In contrast, Virginia's housing markets continued to languish with falling home sales and sluggish home building activity weighing on growth.

Both the payroll and household surveys underscored healthy labor market conditions in the state. Virginia added 5,300 jobs to its economy in the third quarter, for a quarterly growth of 0.1 percent and a year-over-year growth of 0.9 percent. On the other hand, Virginia's goods-producing sectors experienced declines in employment. Construction lost 2,900 jobs for its sixth consecutive quarter of payroll declines, while District factories cut 2,200 jobs for its 11th consecutive quarter of declines. Payroll performance on the services side was mixed. Job losses in financial services and information sectors were more than compensated for by gains in trade, professional and business services, education and health services, and leisure and hospitality. The government sector also posted employment growth in the third quarter. News from the household survey was also generally positive despite a small uptick in the state's jobless rate. Virginia's unemployment rate inched up 0.1 percentage point to 3.1 percent — a rate that matched the state's mark from a year-ago and was the lowest rate among Fifth District jurisdictions.

Turning to housing, Virginia's decline in residential real estate activity continued in the third quarter. Residential permit issuance in the state declined sharply again, falling 22.7 percent since the second quarter. Additionally, existing home sales fell 12.6 percent in the third quarter, pushing the months' supply of homes above 10 months in some markets. The decline in homes sales contributed to a notable deceleration in home price appreciation in the third quarter. Existing home prices in Virginia rose just 0.3 percent at an annual rate, down from a peak annualized growth rate of 28.5 percent three years ago. Nonetheless, prices remained 2.9 percent higher than a year earlier, which is larger than the 2.2 percent increase experienced nationally over the same time period.

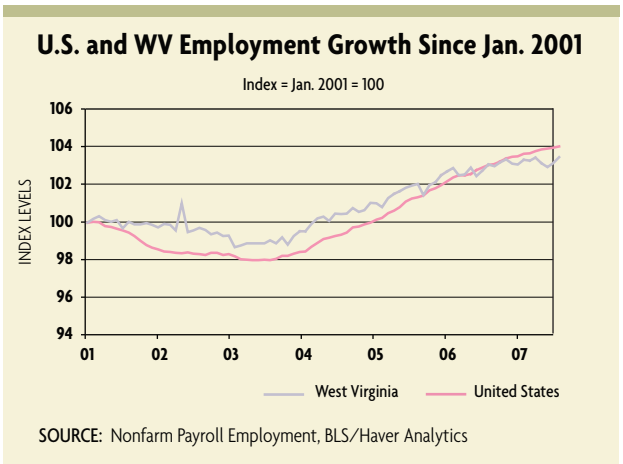
After a prolonged period of remaining relatively flat, mortgage delinquency and foreclosure rates began to rise across the state in the third quarter. The percentage of all mortgages past due by 90 days or more rose to 0.88 percent, which was low compared to the national rate, but double the figure posted a year earlier. The foreclosure rate also increased. Still, both marks were below recent peaks from earlier in the decade.



West Virginia

Economic conditions in West Virginia softened a bit in the third quarter, with little change in employment and further weakness in the state's housing markets. The state did see some encouraging indicators, however, including the resumption of positive income growth and relatively steady home price appreciation.

Labor market conditions deteriorated somewhat in the third quarter, characterized by weak job growth and higher unemployment. Employment gains in natural resources and mining, trade, transportation and utilities, education and health services, and leisure and hospitality were more than offset by losses in the construction, manufacturing, and government payrolls.



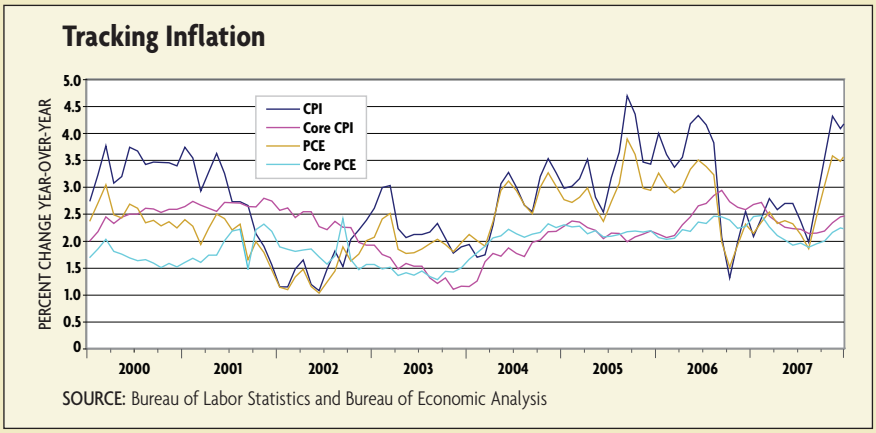
In addition, West Virginia's unemployment rate edged higher by 0.2 percentage point to 4.7 percent, though it remained a touch below the state's mark — 4.9 percent — from the third quarter of 2006.

On the real estate front, housing market activity declined further across the state in the third quarter. Permit issuance fell 15.4 percent during the three-month period and the pace of existing home sales in the state slowed 15.8 percent. Moreover, the state experienced a deceleration in year-over-year home price growth, but the decline was relatively modest in comparison to other Fifth District jurisdictions.

The financial condition of West Virginia households was supported by positive income growth. Household incomes grew 3.0 percent in the third quarter on the heels of a small decline in the second quarter. Additionally, the number of personal bankruptcies declined slightly. However, the state's already elevated rate of home foreclosures inched higher in the third quarter, highlighting mortgage problems among some segments of the populace.

Behind the Numbers: Which Price Index?

When the press talks about inflation, it usually cites the Consumer Price Index, or CPI. This statistic measures the average price of a basket of goods and services regularly bought by a typical American family. Core CPI, by contrast, usually excludes food and energy on the premise that prices for these items tend to be volatile and lack persistence, and thus may not reflect the true source of inflation — too much new money chasing too few goods. As the graphic shows, the subtraction of food and energy makes core inflation much less volatile than "headline inflation."



The Bureau of Labor Statistics releases the CPI data each month. The result is based on a massive collection process, encompassing 87 urban areas across the nation, with prices on approximately 80,000 items gathered from supermarkets, hospitals, stores, and gas stations, among many other establishments.

Economic policymakers, including those at the Federal Reserve, also closely monitor the Personal Consumption Expenditures (PCE) price index. The PCE is published by the Bureau of Economic Analysis. Its most frequently cited version uses a chain index, a formula that more accurately reflects the tendency of consumers to substitute away from items with fast-rising prices. (However, the PCE index isn't the result of individual data collection; the index is mostly based on the same item prices in the CPI.) Also, the PCE applies different weights than the CPI to items in its basket, captures some items not included in the CPI (but excludes others), and follows different seasonal adjustment patterns.

There is a large body of economic research on the accuracy of the various price indices. In the end, careful analysts take the time to understand the differences between the indices in determining the relative importance of changes in any of them. Roy Webb, a senior economist with the Richmond Fed, says that in general, both the CPI and the PCE indexes do a good job. "Any index is going to have the same problems that the CPI and PCE do," Webb says. "I could make a good policy recommendation based on either the CPI or the PCE."

— DOUG CAMPBELL

State Data, Q3:07

	DC	MD	NC	SC	VA	WV
Nonfarm Employment (000's)	**699.9**	**2,625.3**	**4,096.6**	**1,934.3**	**3,794.3**	**758.6**
Q/Q Percent Change	0.3	0.6	-0.1	0.5	0.4	-0.1
Y/Y Percent Change	1.8	1.5	1.7	1.9	1.8	0.4
Manufacturing Employment (000's)	**1.6**	**133.8**	**543.0**	**243.6**	**287.4**	**59.4**
Q/Q Percent Change	-4.1	-0.3	-0.7	-0.5	0.2	-0.3
Y/Y Percent Change	-7.8	-1.7	-1.9	-2.9	-0.2	-2.3
Professional Business Services Employment (000's)	**160.1**	**402.8**	**491.2**	**217.9**	**646.8**	**61.4**
Q/Q Percent Change	0.2	0.3	0.6	-0.1	-0.1	0.8
Y/Y Percent Change	4.2	2.0	3.2	-0.1	2.9	2.7
Government Employment (000's)	**235.1**	**480.6**	**672.3**	**336.8**	**685.4**	**142.9**
Q/Q Percent Change	0.5	2.0	-2.1	1.1	0.7	-1.2
Y/Y Percent Change	0.7	1.7	0.0	2.5	1.4	-1.1
Civilian Labor Force (000's)	**315.4**	**2,994.3**	**4,526.5**	**2,145.2**	**4,053.3**	**815.9**
Q/Q Percent Change	-1.4	-0.1	-0.1	-0.2	0.1	0.2
Y/Y Percent Change	0.1	-0.8	1.1	0.8	1.0	0.6
Unemployment Rate (%)	**5.7**	**3.9**	**4.9**	**5.7**	**3.0**	**4.8**
Q2:07	5.6	3.7	4.8	5..6	3.0	4.4
Q3:06	6.0	4.0	4.9	6.5	3.1	5.2
Real Personal Income ($Mil)	**30,194.7**	**221,332.1**	**260,813.7**	**116,291.0**	**272,608.5**	**45,629.4**
Q/Q Percent Change	1.0	0.7	0.9	1.0	1.0	0.8
Y/Y Percent Change	3.7	3.4	4.5	4.2	3.6	2.6
Building Permits	**527**	**4,680**	**19,872**	**8,430**	**8,352**	**979**
Q/Q Percent Change	5.2	-25.5	-14.0	-29.8	-22.7	-15.4
Y/Y Percent Change	167.5	-27.1	-16.7	-29.9	-19.4	-18.8
House Price Index (1980=100)	**681.1**	**542.8**	**344.9**	**317.3**	**481.2**	**234.8**
Q/Q Percent Change	2.3	-0.3	0.9	0.1	0.1	1.4
Y/Y Percent Change	5.7	2.6	6.6	4.9	2.9	3.8
Sales of Existing Housing Units (000's)	**9.2**	**78.0**	**202.8**	**101.6**	**108.4**	**25.6**
Q/Q Percent Change	-11.5	-15.9	-12.3	-13.0	-12.6	-15.8
Y/Y Percent Change	-11.5	-28.6	-13.0	-10.6	-19.1	-19.0

NOTES:
Nonfarm Payroll Employment, thousands of jobs, seasonally adjusted (SA) except in MSA's; Bureau of Labor Statistics (BLS)/Haver Analytics, Manufacturing Employment, thousands of jobs, SA in all but DC and SC; BLS/Haver Analytics, Professional/Business Services Employment, thousands of jobs, SA in all but SC; BLS/Haver Analytics, Government Employment, thousands of jobs, SA; BLS/Haver Analytics, Civilian Labor Force, thousands of persons, SA; BLS/Haver Analytics, Unemployment Rate, percent, SA except in MSA's; BLS/Haver Analytics, Building Permits, number of permits, NSA; U.S. Census Bureau/Haver Analytics, Sales of Existing Housing Units, thousands of units, SA; National Association of Realtors®

Metropolitan Area Data, Q3:07

	Washington, DC MSA	Baltimore, MD MSA	Charlotte, NC MSA
Nonfarm Employment (000's)	**2,429.5**	**1,313.3**	**839.5**
Q/Q Percent Change	-0.3	-0.1	-0.5
Y/Y Percent Change	1.5	0.7	0.0
Unemployment Rate (%)	**3.1**	**4.1**	**4.9**
Q2:07	3.0	3.8	4.7
Q3:06	3.3	4.4	4.9
Building Permits	**4,530**	**1,741**	**4,826**
Q/Q Percent Change	-38.0	5.9	-23.5
Y/Y Percent Change	-30.5	-2.5	-25.1

	Raleigh, NC MSA	Charleston, SC MSA	Columbia, SC MSA
Nonfarm Employment (000's)	**499.9**	**295.0**	**362.8**
Q/Q Percent Change	0.2	0.1	-0.8
Y/Y Percent Change	2.4	3.0	1.1
Unemployment Rate (%)	**3.7**	**4.7**	**5.2**
Q2:07	3.7	4.2	4.7
Q3:06	3.8	5.5	5.9
Building Permits	**4,541**	**1,601**	**1,372**
Q/Q Percent Change	7.8	-27.1	-40.7
Y/Y Percent Change	25.7	-19.3	-24.7

	Norfolk, VA MSA	Richmond, VA MSA	Charleston, WV MSA
Nonfarm Employment (000)	783.9	635.1	151.6
Q/Q Percent Change	0.0	-0.5	-0.2
Y/Y Percent Change	1.8	1.1	0.8
Unemployment Rate (%)	3.2	3.1	4.1
Q2:07	3.1	3.0	4.1
Q3:06	3.5	3.3	4.5
Building Permits	**1,357**	**1,559**	**75**
Q/Q Percent Change	-13.8	-27.0	7.1
Y/Y Percent Change	-15.2	-14.9	8.7

For more information, contact Matthew Martin at 704-358-2116 or e-mail Matthew.Martin@rich.frb.org.

Opinion

In Defense of Failure

BY STEPHEN SLIVINSKI

Failure gets a bad rap these days. Nobody prefers it to success, of course, but people tend to underestimate the importance of failure.

It's not hard to understand why. Failure isn't often fun to watch. When we look at a shuttered storefront, we can't help but feel bad for the newly unemployed workers. When we see a foreclosed house, we sympathize with the family that had to move. It's human nature. We may not like to accept the idea that failure is a necessary component of economic change.

But this often clouds our ability to envision a future when the capital that was poured into the failing business will be put to even better use. A future in which those unemployed workers instead become newly employed workers who build new avenues to prosperity. Or where the family that couldn't afford the larger house finds themselves in a more affordable one, which frees their income to pursue other investments and activities.

That might be small consolation to some. Perhaps it's even too close to the attitude of Voltaire's famous character, Dr. Pangloss, whose blind optimism limits him to seeing only the good in everything. After all, we should prefer a society in which contract law prohibits the sort of failure that is caused by fraudulent practices and duplicity. Luckily, that is indeed the world we inhabit. But maybe what motivates us to have an adverse reaction to failure generally might also be what helps markets work in the long run too — if we let it.

Take the recent attention paid to the mortgage markets. While the media's reporting on the subject seems to suggest that we're in a "crisis" of staggering proportions, most borrowers of all varieties are making their mortgage payments on time. The question hinges on what to do about those who are in danger of losing their homes to foreclosure. Such a question is best answered by the lenders and the borrowers themselves. They, after all, have the strongest incentives and best information with which to discover whether the best solution really is foreclosure or not.

We assume the same is true of other purchases and investments. We probably wouldn't hear reports of a car financing "crisis" if people bought SUVs and Hummers that they soon discovered they couldn't afford. In fact, there is such a thing as subprime car loans, yet media attention to them is scant. Why should the purchase of homes be treated differently?

The easy answer is that homes are different — it's where people live, not just an investment, and people spend much more money on their homes than on their cars. Besides, someone bringing his car back to the dealership is not a dramatic news story; a person sleeping in his car because he lost his home is. Yet industry analysts frequently point out that foreclosure is often a more costly option to the lenders than simply working out a solution with the borrowers, like a new payment schedule. If that isn't feasible, however, it's hard to make a case to keep that capital locked up in that investment.

Markets do indeed have a way of aligning the incentives of two parties who are both self-interested and willing to enter into a contract or investment arrangement with one another. But not every investment pays off. Markets are, at their core, a discovery process. Ask any successful entrepreneur how many times he failed before he found his big idea and you'll probably get many stories of heartbreak.

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Yet, acknowledging that failure is an important component of eventual success is a hard argument to make when failure is staring you in the face. And it's often at this point that public policy decisions are made. Public policy should not impede the ability of a business or an investor to succeed. But policy should also not impede or encourage their failure either by protecting them from competition or insulating them from a bad decision. Unfortunately, the very understandable inclination of government to come to the aid of those against whom market trends have turned can also place the government in between those people and the consequences of their choices.

The same human instinct that naturally repels us from wanting to face failure helps explain other policies too. Trade barriers, for instance, are sometimes popular in part because supporters claim that they will avoid today the unsightly demise of yesterday's industries, including perhaps one in which you work.

The 19th century French journalist, Frederic Bastiat, wrote about the political impetus to focus on what is seen every day. But that doesn't make for good policy. He noted that good policy is instead based on recognizing what is *not* seen immediately with your own eyes.

Bad policies opt to remedy the discomfort of what is seen today at the expense of what is not seen immediately — a more efficient and vibrant economy of tomorrow. Impeding the learning and discovery process that results from our mistakes should be counted as one of those unseen costs too. **RF**

Next Issue

Is *Homo Economicus* Extinct?

The burgeoning field of "behavioral economics" has called into question the existence of *Homo economicus*, the species of human that makes rational choices in a market setting. Meanwhile, the field of "experimental economics" has shown that, in a laboratory setting, even uninformed traders can arrive at a result that looks very much like what the economics textbooks say it should. Is it too soon to declare *Homo economicus* extinct?

Economics for the Real World

In the 1980s, economics departments were said to be "graduating a generation of idiot savants, brilliant at esoteric mathematics yet innocent of actual economic life." That critique resonates even in 2008. Department chairs from some of the Fifth District's leading economics programs suggest that their schools are creating innovative approaches to provide richer training for new economists. Today, graduate economics departments in particular are searching for ways to help students become as good at real-world problem solving as they are at math.

Economics Blogs

Economists can help people interpret current economic events by authoring "web logs," commonly referred to as "blogs." From airline delays to the mortgage market to gas prices, these virtual economics classes can change how readers digest common and controversial topics. Even professional economists find blogs a useful way to expand the audience for their research.

The Return of Nuclear Power

After years of aversion by many, nuclear power seems to be making a comeback. Some of this boost comes from the prospect of using nuclear power as part of a strategy to limit carbon emissions in the United States. Some power companies are even expressing that they are no longer interested in building coal-burning plants in the foreseeable future. This trend has the potential to lead to big changes in the energy industry in the Fifth District.

Interview

We talk with Charles Holt of the University of Virginia, a pioneer in the field of experimental economics and auction design.

Federal Reserve

An excerpt from Richmond Fed economist Robert Hetzel's new book on the history of monetary policy in the United States.

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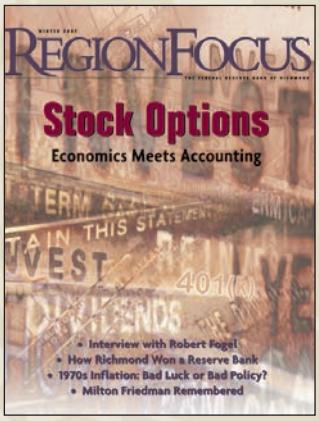
Highlighting Business Activity in the Fifth District

WINTER 2007, VOL. 11, NO. 1



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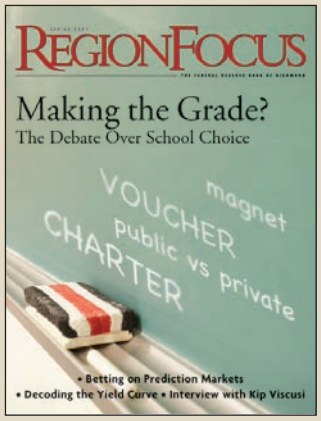
SPRING 2007, VOL. 11, NO. 2



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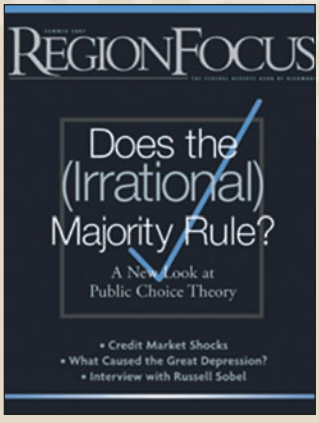

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Democracy and Other Failures

Federal Reserve
The Great Depression

Interview
Russell Sobel
West Virginia University

FALL 2007, VOL. 11, NO. 4

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Downtown is Dead. Long LiveDowntown!

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Before the Fed

Interview
Susan Athey
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