

THE REGIONAL ECONOMIST

*A Quarterly Review
of Business and
Economic Conditions*

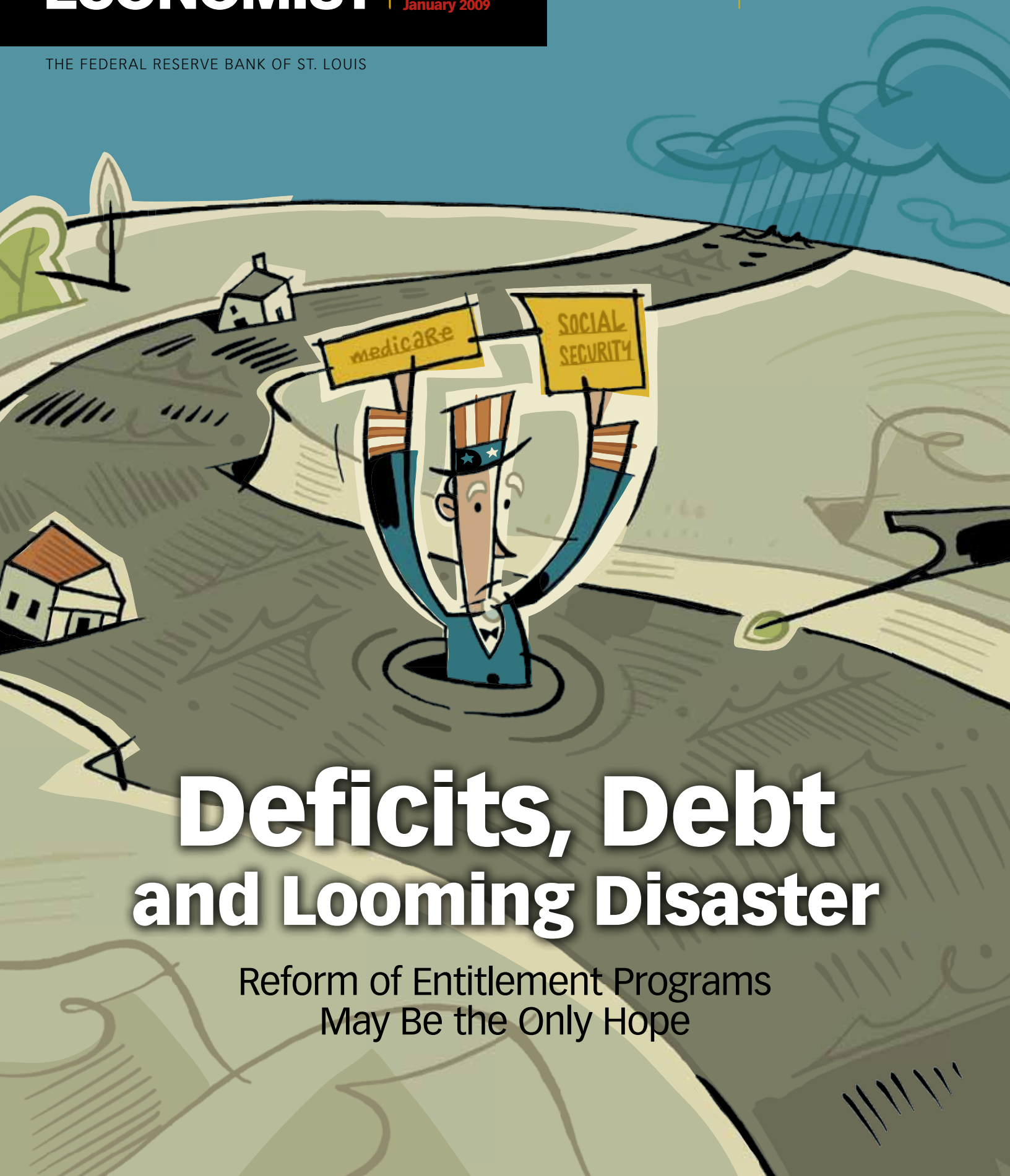
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January 2009

A Winning
Combination?
Economics and Sports

El Dorado Promise
Free College Education
Rejuvenates Arkansas Town

THE FEDERAL RESERVE BANK OF ST. LOUIS



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Deficits, Debt and Looming Disaster*By Michael Pakko*

With government deficits and debt at record highs, the long-term fiscal outlook for the U.S. requires serious attention. The fix will most likely have to include fundamental reforms of entitlement programs.

**THE REGIONAL ECONOMIST**

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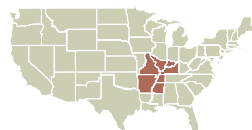
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The Eighth Federal Reserve District

includes all of Arkansas, eastern Missouri, southern Illinois and Indiana, western Kentucky and Tennessee, and northern Mississippi. The Eighth District offices are in Little Rock, Louisville, Memphis and St. Louis.



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Jim Bullard, President and CEO
Federal Reserve Bank of St. Louis

The Fed as Lender of Last Resort

Because our central bank has relied on the federal funds rate target for so long to guide the economy, many people think that the target rate is the only tool at the Fed's disposal. As we are seeing in the current financial crisis, the Fed has other options. Most visible so far have been the lending programs that have been created in the past year, along with established programs that have been modified.

Among the tools the Fed can use is the discount window, which has been around since the Fed was established in 1913. The window was the primary instrument for central banking operations for decades, just as open market operations (the buying and selling of U.S. Treasury and federal agency securities to achieve a desired quantity of reserves or the fed funds rate target) have dominated in modern times. Traditionally, the discount window has offered overnight lending for generally sound depository institutions to relieve short-term liquidity problems. Discount window loans must be fully secured.

Except in unusual circumstances, depository institutions rarely tapped into the discount window for fear they would be stigmatized as weak. But that attitude changed beginning last year as financial market turmoil intensified. The Fed not-so-subtly reminded depository institutions about the availability of the window, cut the window's interest rate (the discount or primary credit rate) and increased loan periods to a maximum of 90 days. The line at the window was soon long. Primary credit lending exceeded \$90 billion in November.

In December 2007, the Fed launched the Term Auction Facility to help meet depository institutions' need for liquidity. This facility auctions term funds against

collateral. Starting a bit more than a year ago, auctions have been held several times a month, with available amounts ranging from \$20 billion to many multiples of that. Borrowing via the TAF has been substantial, reaching a level of \$384.6 billion in November.

Last March, the Fed began two lending programs for primary dealers, those banks and securities broker-dealers with whom the Fed trades U.S. government securities to carry out open market operations. The Term Securities Lending Facility (TSLF)

"The lender of last resort function of the central bank is an important one during a financial crisis, and the Fed has been extraordinarily active during the current episode in fulfilling this function."




provides secured loans to primary dealers on a 28-day term. The Primary Dealer Credit Facility (PDCF) provides overnight loans. Among the collateral that the Fed accepts for these loans are mortgage-backed securities. Both facilities lend at an interest rate equal to the New York Fed's discount rate.

This past fall, the Fed introduced another set of lending programs. The Asset-Backed



Commercial Paper (ABCP) Money Market Mutual Fund Liquidity Facility (sometimes shortened to AMLF) extends collateralized loans (from the Boston Fed) to finance purchases of ABCP in an attempt to encourage secondary markets to lend long-term. A few weeks later, the Commercial Paper Funding Facility (CPFF) was introduced to help alleviate a shortage of term funding in the commercial paper market. With financing from the New York Fed, a special purpose vehicle (SPV) was set up to buy three-month unsecured and asset-backed paper.

This list is not exhaustive, and the Fed may devise other lending facilities in an attempt to mitigate the effects of financial market turmoil. But it is important to emphasize that all of the facilities mentioned above are separate from the well-publicized loans drawn up just for AIG, Bear Stearns and Citigroup. These firms received special and immediate handling because of fears that their collapse could have a systemic effect.

In all, the Fed has made more than \$2 trillion in loans so far during this crisis. No doubt, this is a staggering amount, but all of it is collateralized or secured. The lender of last resort function of the central bank is an important one during a financial crisis, and the Fed has been extraordinarily active during the current episode in fulfilling this function. 

Deficits, Debt and Looming Disaster

Reform of
Entitlement Programs
May Be the Only Hope

By Michael Pakko



The unofficial national debt clock squeezed in to accommodate the

For the fiscal year 2008, the federal government's deficit totaled \$455 billion, the largest ever for a single year. In the final days of the fiscal year, which ended Sept. 30, the total federal debt rose above \$10 trillion for the first time. Forecasts for 2009 anticipate an even larger deficit.¹ As a new president and Congress take office, government deficits and the public debt will undoubtedly be a factor in economic policy discussions, especially in light of ongoing financial uncertainty and economic weakness.

From an economic perspective, the size of the deficit and debt *per se* are not necessarily as important as the underlying policies of spending and taxation. By their very nature, deficits reflect an imbalance between expenditures and receipts. Such imbalances



PHOTO BY MARIO TAMA/GETTY IMAGES

in New York City is seen Oct. 9 with a makeshift “1” in the dollar sign box. The “1” had to be federal government’s mushrooming debt, which topped \$10 trillion at the end of the fiscal year.

need not be a concern and might, in fact, be desirable under some circumstances. And while rising government debt is often associated with direct economic costs, including higher interest rates and lower rates of private investment, evidence on the significance of these effects is mixed.

Nevertheless, when deficits are part of a fundamental structural imbalance in the long term, they signal a need for serious attention and reform. In a long-run fiscal analysis of U.S. federal government programs, this is demonstrably the case.

Government Accounting

The top panel of Figure 1 shows two measures of the federal deficit. The blue line is the official measure reported by the

government—\$455 billion for fiscal 2008. The red line tracks the change in the total outstanding national debt from year to year. By this measure, the deficit exceeded \$1 trillion in 2008.² Note that the reported unified budget showed a surplus in 1998 through 2001; however, the change in the national debt has recorded red ink in every fiscal year since 1969. The difference between these two measures primarily reflects the treatment of the Social Security trust funds.³

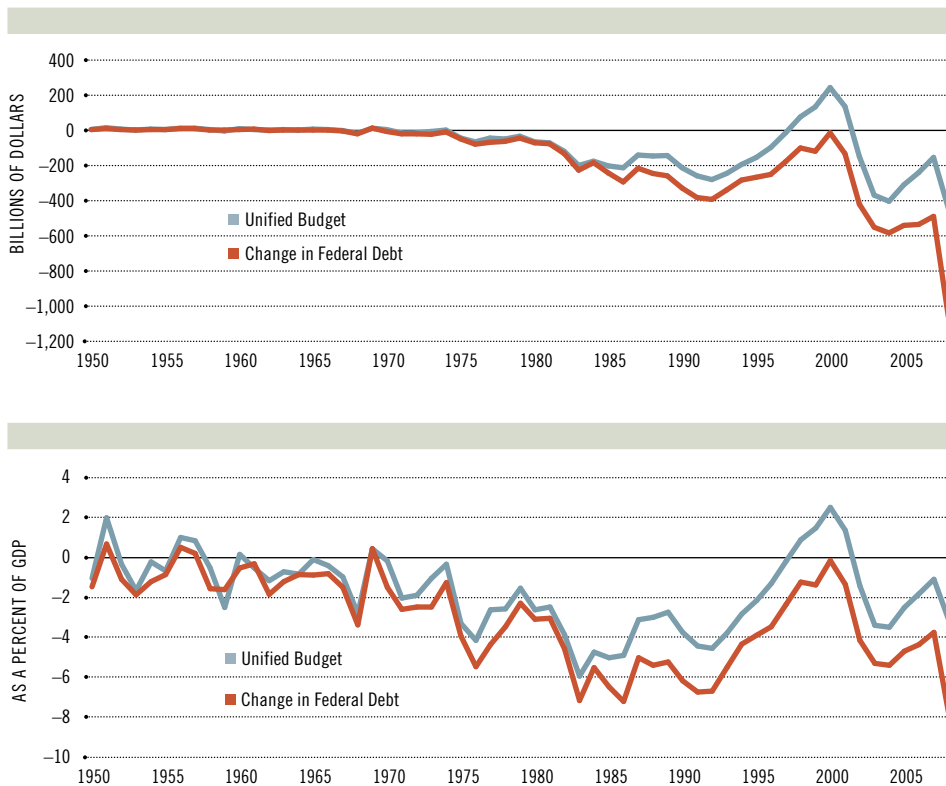
By conventional accounting standards, the deficit is equal to the difference between total government spending and total revenues received, over a particular period of time. The debt equals the sum of previously accumulated deficits (or surpluses), plus interest accrued. When it comes to government, however, the

accounting is slightly more complicated.

The spending and taxing policies of the federal government are classified into “on-budget” and “off-budget” categories. Those activities that are considered off-budget include the Postal Service fund and, more important, Social Security. The officially reported deficit is a “unified budget,” which includes the revenues and expenditures of these off-budget activities. Because the Social Security trust funds are currently running large surpluses, their inclusion has the effect of lowering the reported deficit. For example, in 2008 the on-budget deficit was \$638 billion, while the off-budget surplus was \$183 billion (due primarily to the Social Security trust fund). As a result, the unified budget deficit was \$455 billion.

FIGURE 1

Federal Surplus/Deficit, 1950-2008



SOURCE: Economic Report of the President and Monthly Treasury Statement

The unified budget deficit/surplus figures represent the consolidated on-budget and off-budget balances as officially reported. The change in federal debt is the change in gross federal debt from one year to the next (with sign reversed).

A similar dichotomy applies to the measurement of the national debt: Total public debt stood at \$10 trillion at the end of fiscal 2008, but debt “held by the public” was \$5.8 trillion. The difference is attributable to \$4.2 trillion held in government trust funds and other intragovernmental accounts, of which \$2.4 trillion was held by the Social Security trust funds.

As long as the balances in the Social Security trust funds are increasing, the on-budget deficit is partly offset by off-budget surpluses. When Social Security benefit payments begin exceeding revenues—which latest estimates suggest will begin in 2017—the off-budget components will add to the overall unified budget shortfall. (It will be interesting to see if the federal government continues to report the unified budget figures when this is the case.)

When the trust funds begin to be drawn down, the government will be faced with the

need to borrow from the public in order to pay the obligations of the debt currently held in the trust funds. This will result in an increase in the debt held by the public, with no change in the total outstanding debt. In this sense, the total debt might better represent the long-term obligations of current government programs. In fact, as will be discussed later, a proper accounting of the long-term obligations of federal entitlement programs is far greater than the value of government IOUs in the Social Security trust funds.

Relative Size Matters

Although both the deficit and debt for fiscal 2008 were the largest on record in dollar terms, putting these figures in proper perspective is important: A more appropriate evaluation compares the deficit and the debt with national income. In the same sense that the manageability of a household’s debt depends on income (the ability of the household to make payments), evaluating the size of the government’s debt should be gauged against the size of the national economy.

When expressed as a percent of GDP, as shown in the lower panel of Figure 1, recent deficits have not been exceptionally large. In fact, official deficits in the mid-1980s were nearly twice as large as the 3.2 percent of GDP recorded for 2008. Even using the alternative measure, last year’s change in the national debt amounted to 7.6 percent of GDP—only slightly greater than the 7.3 percent of GDP registered in 1986.⁴

Similarly, the \$10 trillion national debt represents 69.5 percent of GDP—only slightly higher than the previous peak of 67.3 percent of GDP that was reached in 1996. Netting out intragovernmental holdings, debt held by the public in 2008 represented 40.3 percent of GDP, well below a previous peak of 49.4 percent in 1993.⁵

U.S. government debt is also not particularly large compared with that of other countries. In 2007, France’s government debt amounted to approximately 70 percent of GDP, Italy’s debt-to-GDP ratio was nearly 120 percent and Japan’s was over 170 percent.

Put in perspective, current deficits and debt levels are high, but not

Fear Not Foreign Ownership of U.S. Debt

Over the past decade, the borrowing needs of the U.S. Treasury have been met increasingly by purchases of debt from abroad. At the end of fiscal year 1998, foreign holdings of Treasury securities totaled about \$1.2 trillion, amounting to approximately 37 percent of all debt held by the public. By 2008, the dollar value of foreign-owned debt had risen to nearly \$2.9 trillion, comprising almost 50 percent of outstanding publicly held debt.

Not surprisingly, the largest foreign holders of U.S. debt are countries that run persistent trade surpluses with the U.S. Japan had long been the largest holder of Treasury debt, with its holdings rising from \$276 billion in 1998 to \$573 billion by the end of fiscal year 2008. Reflecting the increasing presence of China in the global economy (and its large current account surplus), Chinese investors have been closing in on the Japanese as the largest financiers of the U.S. debt and have recently overtaken Japan as the largest foreign holders of Treasury securities. Chinese holdings of Treasury debt, which were \$46 billion in 1998, skyrocketed to \$587 billion by the end of fiscal year 2008.

The increasing share of debt ownership by foreigners has raised concerns about the prospect that foreign governments might use financial leverage as a creditor against the U.S. and its foreign policy. For example, it has been suggested that if China were to dump its holdings of Treasury debt, the resulting market disruption would likely lead to higher U.S. interest rates and a collapse of the dollar on foreign exchange markets.

However, a recent analysis by the Congressional Research Service suggests that such a sudden and disruptive strategy is unlikely to be successful.⁹ Even the largest foreign holdings of U.S. government debt are smaller than the daily volume of trade in Treasury securities. If such a strategy did disrupt the markets, the resulting decline in the value of U.S. Treasury securities would generate substantial losses to all debt holders, including those in the country attempting to use their debt holdings as political leverage. Moreover, trade linkages between the U.S. and creditor nations add to the self-destructive scenario of potential economic blackmail.

The more grave risk is that investors in U.S. Treasury debt, foreign or domestic, would lose faith in the ability of the U.S. government to meet its obligations in the face of unsustainable, long-run structural deficits.



MAJOR FOREIGN HOLDERS OF TREASURY SECURITIES

AS OF SEPTEMBER 2008

	\$ Billions	Percent of Debt Held by the Public
China	587.0	10.1
Japan	573.2	9.8
United Kingdom	338.3	5.8
Caribbean Banking Centers ¹	185.3	3.2
Oil Exporters ²	182.1	3.1
Brazil	141.9	2.4
All Other	852.9	14.6
Total	2,860.7	49.0

SOURCE: U.S. Treasury (Treasury Bulletin, Table OFS-1)

¹ Caribbean banking centers include Bahamas, Bermuda, Cayman Islands, Netherlands Antilles, Panama and British Virgin Islands.

² Oil exporters include Ecuador, Venezuela, Indonesia, Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, the United Arab Emirates, Algeria, Gabon, Libya and Nigeria.

unprecedented. Should this red ink be a cause for concern?

Economic Impact of Deficits

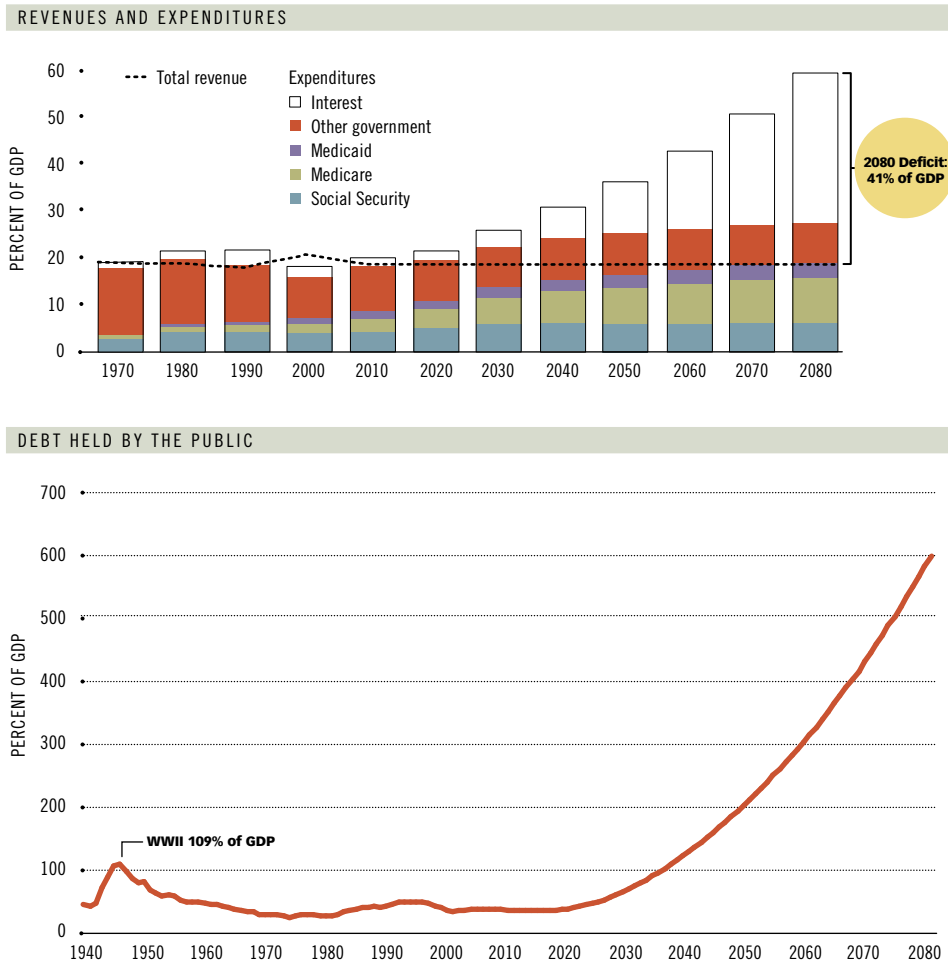
In principle, deficits can serve a useful role by providing the ability to smooth the path of distortionary taxes over time, particularly over the business cycle. Longer-term deficits can be justifiable if they finance long-term expenditures (as with an individual who finances the purchase of a home) or if they are expected to pay off in higher national income in the future (as an investment). In a growing economy, even a permanently

increasing deficit (if it is not increasing too fast) is sustainable in the long run.

It is often argued that government deficits, particularly longer-term deficits, impose a direct economic cost. A conventional Keynesian analysis of this effect begins from the fundamental national income accounting relationship that total domestic investment is equal to national savings, which includes the total of saving (or dissaving) by consumers, business and government. When the government runs a deficit, the borrowing needed to finance the shortfall diverts the private savings

FIGURE 2

Budget Projections, 1970-2080



SOURCE: GAO, "A Citizen's Guide to the 2007 Financial Report of the United States Government"

These projections use Medicare and Social Security data from their respective trustees' reports. Medicaid is assumed to grow at the same rate as Medicare. Discretionary spending from the war is phased out after 2010, with remaining discretionary spending assumed to expand at the same rate as GDP. The data do not account for any spending expected to be associated with the Emergency Economic Stabilization Act of 2008.

that would otherwise flow into investment. One of the expected manifestations of this "crowding out" effect is that government deficits, by increasing the competition for loanable funds, put upward pressure on interest rates.

This need not be the case, however. A theoretical construct that often serves as a baseline for evaluating the effect of deficits is known as "Ricardian equivalence." In a closed economy with rational, forward-looking consumers, Ricardian equivalence suggests that deficits may have no effect at all. For instance, suppose the government were to implement a lump-sum tax cut,

financing the resulting budget shortfall by borrowing from the public, with the resulting debt to be repaid in the future with a tax increase. Rational consumers would be expected to increase their savings in anticipation of higher future taxes, which would be needed to pay off the debt. The increase in government dissaving would be met by an increase in private sector saving, leaving overall national savings unchanged. With no change in the balance between national savings and investment demand, there would be no upward pressure on interest rates.

The conditions under which Ricardian equivalence holds—even from a theoretical perspective—are quite restrictive; so, it is unlikely to be a literal description of the impact of deficit financing on the economy. Nevertheless, it serves as a baseline for evaluating the relevance of crowding out effects that might be present if, for example, consumers are myopic about their own future tax burden or fail to consider the welfare of future generations, or if credit-market imperfections prevent them from responding optimally to government deficits.

In this regard, the economic relevance of crowding out—and its consequent effect on interest rates—is an empirical matter. As the deficit has increased in both size and public prominence over the past quarter-century, there has been a deluge of research on the subject. One review of the literature in 2004 by William Gale and Peter Orszag reported on a total of 66 previous analyses of the topic. Of these, 33 found significant effects of budget deficits, while 33 found insignificant or mixed effects. Gale and Orszag went on to conduct their own analysis, finding significant non-Ricardian effects: They suggest that a deficit increase amounting to 1 percent of GDP lowers national savings by 0.5 to 0.8 percent and that expected future deficits raise long-term interest rates by 25 to 35 basis points.

These findings have been controversial, however. In fact, another paper circulating at the same time by Eric Engen and Glenn Hubbard suggested that the debt, rather than the deficit, was the appropriate measure to consider. They found that a 1 percent increase in the debt-to-GDP

ratio led to an increase in interest rates of only four to five basis points.

Recent experience has renewed skepticism about the effect of government deficits on interest rates. As the U.S. government deficit and debt have risen sharply over the past few years, long-term interest rates remained abnormally low relative to short-term rates. One factor that has evidently contributed to this phenomenon—not explicitly considered under the conventional Keynesian view or in the Ricardian-equivalence analysis—is the effect of savings coming into this country from abroad. The increasing demand for borrowing by the U.S. Treasury in recent years has been met with a substantial foreign inflow. (See sidebar on Page 7.) Even if U.S. residents are non-Ricardian in their behavior, the demand for U.S. Treasury securities by foreigners is likely to have mitigated upward pressure on interest rates that might otherwise have been observed.

A Demographic Time Bomb

While the immediate impacts of government deficits and debt are a matter of some controversy, most economists agree that the long-term fiscal outlook for the U.S. requires serious attention. The retirement of the Baby Boom generation and a slowing rate of growth in the labor force will create a demographic time bomb in which entitlement growth threatens to swamp available resources.


As mentioned earlier, the Social Security trust funds are projected to begin running down in 2017. By 2041, they are expected to be depleted.⁶ One way of measuring the long-run shortfall is to estimate the present value of unfunded obligations, that is, to estimate how much money would be needed, in today's dollars, to pay for future promises in excess of expected tax revenues. In the case of Social Security, the U.S. Treasury estimates that paying promised benefits through the year 2081 would require \$6.8 trillion, in addition to taxes collected under current law.⁷

The situation is even more dire when we consider health-care costs. The unfunded obligations of Medicare parts A and B amount to a present value of \$25.7 trillion. Medicare Part D (prescription drug coverage) adds another \$8.4 trillion. All told, the shortfall for government social insurance

programs comes to a present value of \$40.9 trillion. This is the government's official estimate—some private sector economists suggest that the total burden is even greater. Economist Lawrence Kotlikoff has recently estimated the total unfunded liabilities of current federal programs at \$70 trillion.⁸

Figure 2 displays recent forecasts from the Government Accountability Office, illustrating the budget implications of these trends. The upper panel shows accelerating deficits over the next seven decades. Assuming revenues held constant at the historical average of 18 percent, these projections show the deficit rising to over 40 percent of GDP by 2080. The lower panel of Figure 2 shows the implications for the federal debt: an exponential rate of increase that reaches over 600 percent of GDP by 2080. This would far exceed any level of government borrowing in history.

These projections are unlikely to actually occur. The trends are unsustainable. Long before reaching such unprecedented level of borrowing, there would surely be a crisis of confidence among U.S. creditors, both domestic and foreign.

Current measures of the federal deficit and the national debt, as dismal as they might appear, fail to reflect full consequences of current-law fiscal policy. The unfunded future liabilities of government entitlement programs imply rising deficits and a ballooning public debt far larger than today's shortfalls. And debates about the immediate economic impact of government deficits on private savings and interest rates, while of academic interest, fail to address the full importance of these long-run consequences. Fundamental reform of entitlement programs is critical for putting U.S. fiscal policy on a long-run sustainable path. 

Michael Pakko is an economist at the Federal Reserve Bank of St. Louis. For more on his work, see <http://research.stlouisfed.org/econ/pakko/index.html>. Luke Shimek provided research assistance.

ENDNOTES

- ¹ In its "Mid-Session Review" in July 2008, the Office of Management and Budget projected a deficit of \$482 billion for fiscal year 2009, which ends Sept. 30, 2009. Implementation of the Emergency Economic Stabilization Act is likely to add an additional several hundred billion dollars to the Treasury's upcoming borrowing needs.
- ² The change in national debt for 2008 includes \$300 billion in the new Supplementary Financing Program Account. Through this program, the Treasury issues additional debt, depositing the proceeds into its account with the Federal Reserve. Because the Treasury records this as an increase in cash on-hand, it should more accurately be subtracted from the total change in debt. With this adjustment, the change in the national debt for 2008 would be just over \$700 billion.
- ³ There are two Social Security trust funds, Old Age and Survivor Insurance (OASI) and Disability Insurance (DI). At the end of fiscal year 2008, they stood at \$2.15 trillion and \$216 billion, respectively.
- ⁴ Adjusting for the \$300 billion described in endnote 2, the increase in the national debt for 2008 was 5.4 percent of GDP.
- ⁵ After adjusting for the \$300 billion held in the Supplementary Financing Program Account, the total federal debt represented 68.2 percent of GDP, while debt held by the public amounted to 38.7 percent.
- ⁶ See Social Security Administration.
- ⁷ Treasury Department, 2007 Financial Report of the United States Government.
- ⁸ See Kotlikoff (2006 and 2008).
- ⁹ See Morrison and Labonte.

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A Winning Combination? Economic Theory Meets Sports

By Kristie M. Engemann and Michael T. Owyang



Unlike researchers in the natural sciences, economists often lack the ability to conduct laboratory or controlled experiments to test theories or make inference. In recent years, economists have begun to study “natural experiments”—naturally occurring events that provide a researcher with a basis to analyze outcomes within a clearly defined setting. One such artificial laboratory that economists have discovered is sports. Economists have used data from sports to examine such diverse issues as (1) risk behavior, (2) market efficiency, (3) market power and (4) discrimination.

Risk Behavior: Does Maximization Predict Coaches' Decisions?

A basic assumption in economic models is that, in competitive markets, firms maximize profits. In the sports world, such maximiza-

tion might be seen as a coach maximizing his team's chance of winning. Economist David Romer tested whether coaches make the optimal choice in a fourth-down situation in the National Football League (NFL). He argued that this analysis should be similar to the firm maximization model because winning is highly valued, coaches have pressure to win due to the competitive nature of the job and teams can learn from past experiences. Romer studied all of the regular-season NFL games during the 1998, 1999 and 2000

seasons, but used only the first quarter of the games in his analysis; later in the game, teams may change their strategy based on the score. Therefore, the first quarter should yield the best insight as to whether teams maximize their chances of winning. Romer analyzed the expected payoff from going for a first down on the fourth down at every point on the field versus kicking the ball (punting or a field goal attempt). His analysis compared the expected values of the outcome of a play, as well as the expected value of leaving the opponent with the ball at that spot on the field.

After taking all results into account, he estimated that teams are better off going for a first down than punting if they have fewer than four yards to go in their half of the field; if they have fewer than 6.5 yards to go on the other team's 45-yard line; and

if they have fewer than 9.8 yards to go on the other team's 33-yard line, at which point teams are within typical field-goal range. After the other team's 21-yard line, the value of going for it frequently outweighs the expected value of kicking a field goal, and at the 5-yard line, the team is always better off going for the first down or touchdown.

How did Romer's predictions compare with actual plays in the NFL games? In situations where teams were expected to be better off kicking the ball on fourth

down, they went for a first down less than 1 percent of the time. However, when teams were expected to be better off going for a first down, they kicked the ball almost 90 percent of the time. Romer estimated that if a team optimized in these situations throughout the whole game, it would win one more game every three seasons.

Romer surmised that coaches' previous experiences might cause more conservative decisions than one would predict using standard assumptions about optimizing behavior. Alternatively, a coach's objective might be more complicated than simply choosing plays that would result in the highest expected outcome. For instance, he might view activities that decrease the chance of winning (e.g., a failed first-down attempt) more negatively than he views a successful activity positively, which could stem from fan or owner preferences.

Risk Behavior: Does Game Theory Predict Player Behavior?

What happens when only two players are involved rather than entire teams? Economists Pierre-André Chiappori, Steven Levitt and Timothy Groseclose tested whether kickers and goalies used mixed strategies (i.e., chose strategies at random) to optimize their chances of being successful during penalty kicks in soccer. Even though soccer is a team sport, the penalty kicks involve just those two players and thus allow for a test of economic game theory. For each penalty kick, the kicker should maximize his chance of scoring, while the goalie should maximize his chance of preventing a score.

The authors studied all penalty kicks over a two-year period in the elite French league and over a three-year period in the elite Italian league. For each penalty kick, they had

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Romer studied all of the regular-season NFL games during the 1998, 1999 and 2000

the names of the kicker and the goalie, the direction the kicker kicked (right, left or center) and which foot he used, and the direction the goalie jumped (right, left or center). Due to the high speed of the ball, each player must decide which direction to kick/jump before the other player makes a move.

The authors contended that a goalie's strategy should depend on the kicker's past kicks, but a kicker's strategy should be independent of the goalie. In the authors' sample, when both players chose the kicker's natural side (which is the left side in most cases because the kickers usually kick with their right foot), the kicker scored 64 percent of the time, and when both chose the kicker's non-natural side, the kicker scored about 44 percent of the time. When the goalie jumped to the wrong side, the kicker scored 94 percent of the time when he kicked to his natural side and 89 percent of the time when he kicked to his non-natural side. Obvious from these data is that kickers are substantially more successful when kicking to their natural side.

The authors showed that, over their sample of 459 penalty kicks, the players used mixed strategies that one would expect in order to maximize behavior. Indeed, a kicker went to the center more often than the goalie did (17 percent versus 2 percent), and a kicker went to his natural side less often than the goalie did (45 percent versus 57 percent). Both players were more likely to go to the kicker's natural side than his non-natural side, and the case where they simultaneously went to the kicker's natural side was the most common (25 percent), followed by the goalie jumping to the kicker's natural side but the kicker going to the opposite (21 percent).

Based on all of these results, Chiappori, Levitt and Groseclose could not rule out that soccer players successfully optimize their behavior during penalty kicks.

Do Markets Work?

Many aspects of the sports labor market have been analyzed. The competitive environment of sports provides a setting in which one would expect merit-based outcomes to prevail.

Along this line, researchers Edward Fee, Charles Hadlock and Joshua Pierce studied promotions among coaches in the NFL.

The authors assessed whether promotions within teams were based on different criteria than promotions from outside. The researchers focused on promotions of offensive and defensive coordinators (level 2 coaches) to head coaches (level 1 coaches).

Examining data for NFL coaches from 1970 to 2001, the authors used a team's winning percentage as a measure of team performance. The authors used points scored for offensive coordinators and points allowed for defensive coordinators as a measure of individual performance. In assessing promotions of level 2 coaches to head coach on another team, the hiring decision depended on individual performance rather than team performance. In contrast, both team performance and individual performance mattered for promotion to head coach on the same team. A strong team performance actually decreased the likelihood of such a promotion, mostly because teams with winning records were less likely to replace their head coach. After controlling for the team, the highest individual performers were more likely to be promoted. However, the two effects essentially canceled each other out, leaving virtually no effect of individual performance on internal promotions.

Fee, Hadlock and Pierce likened this situation to top management at firms.¹ For senior management excluding CEOs, strong performers are more likely to obtain the position of CEO at a different firm rather than their own firm due to "slot constraints." The authors' findings do not support the theory that internal promotions serve as incentives for the best performers, at least not for top-level positions.

Market Power and the Labor Market

A sports league can be viewed as a monopsony—there is one buyer but many sellers of a product (players' services, in this case). A sports league, such as Major League Baseball (MLB), has market power because it can pay players less than their contribution to the team generates in revenue. However, the league cannot exercise as much market power for players who are eligible for salary arbitration or free agency.²



ANNUAL AND TOTAL COMPENSATION DIFFERENCES FOR MLB GROUPS

COMPARISON GROUP IS PLAYERS WITH LESS THAN THREE YEARS OF SERVICE				
	Nonpitchers		Pitchers	
	Whites	Nonwhites	Whites	Nonwhites
Annual compensation (% difference)				
Players with:				
3 or 4 years of service	36	43	36	28
5 years of service	48	44	28	53
Free agency	44	35	4	31
Total compensation (% difference)				
Players with:				
3 or 4 years of service	36	36	34	27
5 years of service	62	56	54	76
Free agency	68	59	51	66

SOURCE: Kahn (1993).

To study the effect of free agency and salary arbitration on salary and contract length, economist Lawrence Kahn looked at all players from 1987 to 1990. He obtained data on each player's salary, contract, total compensation, performance statistics and local demographics (e.g., population and per capita income of the team's metropolitan statistical area) and performed separate analyses on nonpitchers and pitchers. Compared to players with less than three years of service, free agents earned about five times more each year and players with five years of service earned between five and six times more each year during this time period.

The table shows the results of Kahn's analysis after controlling for performance statistics, years of experience, etc. The top panel shows that players with arbitration and free agency earned higher annual salaries than players with fewer than three years of service. A notable exception is white pitchers who were free agents—they earned roughly the same amount as those with fewer than three years of service. However, free agents were the only group with consistently longer contract length, which would affect total compensation (bottom panel) perhaps more than annual salary alone.

Kahn argued that his results are in line with free agents' willingness to accept a lower annual salary for the insurance that comes with longer contracts. He also argued that the significant effect of free agency on contract length shows that teams are willing to sign longer contracts only at

the possibility of losing a player, thus avoiding a "bidding war" with other teams.

Discrimination in Pay

Many economists have studied discrimination in the labor market, including the sports labor market. Researchers Kahn and Peter Sherer examined pay differentials between white and black players in the National Basketball Association (NBA) during the 1985-86 season. In 1985-86, about 75 percent of players were black, and, on average, black players earned almost 3 percent more than white players. In fact, the only three players during that season who earned more than \$2 million were black (Magic Johnson, Moses Malone and Kareem Abdul-Jabbar). Also, white players tended to play in cities with lower population, a higher white share of population and higher home-game attendance.

Kahn and Sherer reached a different conclusion regarding pay differentials after controlling for players' performance statistics (e.g., points, minutes per game and number of seasons played), team characteristics (winning percentage and home attendance) and some local demographics (total population and the percentage black, and per capita income). White players earned about 20 percent more than black players, all else equal, in the mid-1980s. In addition, the authors found that a white player with the same performance level as a black player would bring in a total of 8,000 to 13,000 more fans at home games, which they estimated was an extra \$80,000 to \$130,000 in revenue. The authors argued that their results reflect customer discrimination (rather than employer or co-worker discrimination) because fans appeared to be willing to pay a premium to watch white players.

Economist Barton Hamilton studied whether this "white premium" continued into the 1990s by examining salaries during the 1994-95 NBA season. For this season, the average black player earned about 17 percent more than the average white player, and nine of the 10 highest-paid players were black. Like Kahn and Sherer, Hamilton controlled for players' performance, team characteristics and local demographics to determine the true impact of race on a player's salary. Unlike

the previous authors, he found no significant pay differential between the average white and black player. However, among the stars and the superstars (i.e., those players in the top 25 percent and top 10 percent of the salary distribution, respectively), whites earned about 18 percent more than blacks. Because the stars are the most visible players on a team, Hamilton argued that this pay differential continued to reflect customer discrimination.

Discrimination in Play

Economists Joseph Price and Justin Wolfers performed a different evaluation of discrimination in the NBA. They estimated the amount of racial bias from referees when calling fouls on players of the opposite race, which can influence the on-court performance of the players. They examined every NBA game from the 1991-92 to the 2003-04 seasons and obtained statistics for each player and the race of the (randomly assigned) three referees for every game. The economists were able to compare the number of personal fouls a player received depending on the racial composition of the officiating crew.


About one-third of the referees during this time period were black, and black players accounted for over 80 percent of total minutes played. At first glance, the data showed that black players had more playing time and fewer fouls per 48 minutes played (the “foul rate”) than white players. Moreover, players had slightly lower foul rates when the officiating crew was of the same race, on average. A more in-depth analysis with controls for various characteristics (e.g., player position, height, weight, all-star status) showed that the foul rate for black players increased by about 4 percent when all three referees were white rather than black. As a consequence, playing time and points scored decreased slightly. Overall, the authors found that 62 percent of the black referees appeared to have a pro-black bias (by calling fewer fouls on black players), while 78 percent of the white referees appeared to have a pro-white bias (by calling more fouls on black players).

With these impacts on individual players, the authors tested the effect that this apparent referee bias had on the most important



outcome: winning. During the sample period, the margin of victory was one point in 4 percent of the games; thus, the seemingly small referee bias could have a large effect on the overall outcome. Indeed, Price and Wolfers argued that changing the racial composition of the referees to match that of the players on the team would lead to an increase in winning percentage for the team with more time played by black players from 48.6 percent to 50.5 percent.³

Not Just Fun and Games

Because economists do not generally have the opportunity to conduct laboratory experiments, sports provide an excellent opportunity to test theories, ranging from the existence of discrimination in the labor market to whether firms or individuals optimize their behavior to achieve a certain goal. With the high level of data availability that sports provides, undoubtedly there will be more natural experiments to analyze. 

Kristie Engemann is a research analyst, and Michael Owyang is an economist, both at the Federal Reserve Bank of St. Louis. For more on Owyang's work, see <http://research.stlouisfed.org/econ/owyang/index.html>.

ENDNOTES

- ¹ However, head coaches have a higher average turnover rate (22 percent) than CEOs (10 percent).
- ² In the MLB, players are not eligible for free agency, which allows them to negotiate a contract with multiple teams, until they have six years of major league service. Players with three, four or five years of major league service are eligible for salary arbitration. Under salary arbitration, the player and the team each submit a final offer, and an arbitrator must choose one of them. See Kahn (1993).
- ³ One conclusion that Price and Wolfers drew is that a potential bias by the referees for their own race exists. They argued that because NBA referees are heavily scrutinized after each of their games, it is most likely an unconscious bias.

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If Fed Becomes Super Regulator, Politicians Would Be Its Kryptonite

By Sharon K. Blei

Drawing upon long-dormant emergency powers as lender of last resort, the Federal Reserve has taken unprecedented steps to shore up the financial system. If, as a result of these precedents, the Federal Reserve's role as a regulator is expanded, the central bank will probably face new challenges in executing its traditional responsibilities and preserving its independence against political pressure. Thus, changes in the role of the Federal Reserve should be carefully considered, bearing in mind the importance of its role in monetary policy and the payment system—and the importance of protecting these functions from political and financial pressures.

The Fed Responds to Crisis

The challenges presented by the subprime meltdown and the subsequent strain in global financial markets have dramatically reshaped the financial landscape in the U.S. Since the onset of the crisis in August 2007, the country has witnessed a series of prominent bank failures: Countrywide, IndyMac and Washington Mutual (by far the largest commercial bank failure in American history); the demise of America's five major investment banks; the bailout of mega-insurer American International Group (AIG); and the decline of mortgage titans Fannie Mae and Freddie Mac. Faced with these extraordinary developments, the Federal Reserve—to which all eyes were turned for rescue—took upon itself the mission of managing and containing the crisis.

Assuming responsibility not only for those banks under its supervision, but for the financial system as a whole, the central bank drew upon long-dormant emergency powers and took bold steps: It enhanced financial institutions' access to liquidity by deploying an array of new short-term liquidity facilities;

expanded reciprocal currency arrangements with foreign central banks; engineered and backed JP Morgan's takeover of ailing investment bank Bear Stearns; agreed to lend to Fannie Mae and Freddie Mac; provided an emergency credit line to AIG; and worked out with the U.S. Treasury an ambitious \$700 billion emergency rescue package for the American financial services industry.

Thus, the Federal Reserve, established nearly a century ago as lender of last resort to tackle financial panics, emerged in a new, broader guise—that of the nation's financial system savior.

A Systemwide Regulator?

Why has the Federal Reserve assumed this extended role? The reasons appear to be multiple. First, the Federal Reserve is the lender of last resort and has a monopoly over the supply of liquidity to the financial system. This role provides the central bank with both the tools and the expertise for managing and containing systemic disruptions. Second, the Federal Reserve plays a key role in providing payment services and overseeing the payment system, the integrity of which is essential to financial stability. The Federal Reserve also enjoys an unmatched reputation for technical skill and nonpartisanship, the ability to wield moral suasion and a unique "primus inter pares" (first among equals) status among federal regulators, placing it in the prime position for leading national rescue efforts. In the global arena, its close relationship with foreign central banks and its high international acclaim enable the Federal Reserve to coordinate multinational endeavors to shore up crumbling financial markets. Faced with the dramatic developments in the financial system, the Federal Reserve answered a call

no other federal agency was better-suited—or willing—to answer.

To date, regulators of financial institutions in the U.S. have been mandated to focus on the prudential issues, namely, business conduct and financial conditions of individual institutions. The recent financial shakeout vividly demonstrates the need for a system-wide, "macro-prudential" approach to financial regulation. Unlike micro-prudential regulation, which focuses on the financial condition of single institutions, the system-wide approach's field of vision is the financial system as a whole, focusing on common exposures, linkages and interdependencies among financial institutions.

It has been suggested that a systemwide regulator, entrusted with the responsibility for maintaining financial system stability, should be able to either collect or access the information required for the evaluation of the systemic risks associated with certain industry-wide practices, common exposures or default by a financial institution, and should be able to wield both the authority and the tools to intervene when needed. In the eyes of many, the Federal Reserve is the natural candidate for the role. A "blueprint" for regulatory overhaul released by the U.S. Department of the Treasury last March (the Paulson plan) recommends mandating the Federal Reserve as "market stability regulator."¹

Whether formalized or not, the Federal Reserve's extended role in financial oversight, alongside its long-existing roles in maintaining price stability and promoting economic performance, raises important challenges. One such challenge is the potential conflict between micro- and macro-prudential regulatory objectives. Micro-prudential regulation is pro-cyclical by nature—both

because capital requirements and accounting rules enhance the pro-cyclicality already inherent in credit markets and also because prudential regulators tend to be stricter in times of economic weakness and laxer during expansion. The systemwide approach to regulation, on the other hand, aims to stabilize systemic shocks to financial markets and is, therefore, counter-cyclical by definition. Regulatory measures that are desirable from a micro-prudential point of view may seem, therefore, detrimental from a systemic standpoint. (For example, taking corrective action against a financial institution might be well-justified as far as prudential regulation goes, yet undesirable from a system-wide perspective, since doing so may further deteriorate that institution's financial condition and increase the risk it poses to the system.)

Acquiring the information essential to executing the role of systemwide regulator—namely, real-time data about a vast array of financial institutions, their financial condition, structure and the contractual linkages between them—presents additional challenges. First, there are the technical difficulties and non-negligible costs associated with collecting and processing such complex data—both to supervisors and institutions. Then, there's the need for close collaboration with other regulators (public, private and even foreign), who may not be willing to cooperate.

Whither Independence?

Another major concern is that broader responsibilities over the financial system might subject the Federal Reserve to excessive political pressure and, thereby, compromise its independence in the conduct of monetary policy. Independence against narrow political and commercial pressures, that is, being relatively immune to the danger of “captivity” by interested parties, is crucial to the Federal Reserve's monetary policy role. Politicians have always sought influence on the Federal Reserve, especially at times of economic turmoil; they have pressured it to favor certain sectors or industries or to lower interest rates.


An extended role in financial regulation could arouse an even greater appetite for influence among politicians. In addition, such a role entails using taxpayer money and affecting the allocation of credit in the economy and, thus, would inevitably lend

fiscal and political nuances to the central bank's actions; that, in turn, would spur demands for greater transparency and closer congressional scrutiny.

Testifying before the Congress' Joint Economic Committee last May, former Federal Reserve Chairman Paul Volcker remarked that broadening the Federal Reserve's authorities beyond the supervision of commercial banks and their bank holding companies would be “a way of destroying the Federal Reserve in the long run because it does need independence.” Volcker further wondered whether “such a large responsibility [should] be vested in a single organization, and should that organization reasonably be in the Federal Reserve without risking dilution of its independence and central bank monetary responsibilities?”²

Volcker's query broaches yet another challenge facing the Federal Reserve, that of balancing its re-interpreted role in the financial arena with its monetary responsibility. Monetary policy instruments—the interest rate, reserve requirements, short-term liquidity facilities and the discount window—can potentially affect both price and financial system stability, yet in opposite directions. Whereas tight monetary policy may combat inflationary pressure, it may also reduce the availability of credit and may jeopardize borrowers' creditworthiness, thus, potentially weakening the credit market. Hence, in the short run, there may be tradeoffs between achieving the goal of price stability and maintaining a healthy credit market. Having played the role of banking supervisor since its establishment in 1913, the Federal Reserve is no stranger to this tradeoff.

Further Thoughts

If the Federal Reserve is given a systemwide role in financial regulation, the many challenges it might present to the central bank would call for reassessment of its different functions and objectives and for careful planning. Sound conceptual and structural regulatory foundations, successful implementation of a financial stability mandate and continuous adaptation to the ever-changing financial environment would pave the way to a safer economic future. 

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ENDNOTES

¹ See the Treasury Department.

² See Volcker.

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El Dorado Hopes "the Promise" Brings Back the Golden Days

PHOTO OF OIL PUMP BY SUSAN C. THOMSON. PHOTOS OF GRADUATES AND DEMING FROM THE DIAMOND AGENCY.

By Susan C. Thomson

El Dorado, Ark., and the area around it are naturally rich in pine forests, salt water and oil. Now, the town is seeking to capitalize on a new resource—education. In January 2007, Murphy Oil Corp., the community's signature employer, announced that it was setting aside \$50 million to endow the El Dorado Promise, a program that offers grants to graduates of El Dorado High School so that they can attend college.

"That started the ball rolling," Mayor Mike Dumas says. "That changed the whole attitude of the community."

He and other leaders in El Dorado (rhymes with "tornado") credit the Promise for energizing townspeople to approve later that year a one-cent sales tax for economic development and the town's first school tax increase in 31 years.

They voted "yes" though times were hard for many. The local unemployment rate was hovering about two points above the national average. Luther Lewis, chief executive at the Medical Center of South Arkansas, says bad

debt was rising at the hospital and more patients were qualifying for Medicaid.

The town's once-bedrock manufacturing industry was eroding and taking its toll. In 2003, lighting manufacturer Prescolite Inc. pulled out of El Dorado, moving the work of its 270 employees to Mexico. Two years later, Cooper-Standard Automotive closed its local vehicle-parts plant and consolidated production in Auburn, Ind., eliminating another 400 jobs.

Don Wales, chief executive of the El Dorado Chamber of Commerce, says it had long been obvious that outsized employee fringe benefits made the Cooper-Standard plant uncompetitive. He puts the town's Pilgrim's Pride chicken-processing plant in that same precarious category, given its history of labor-management and productivity problems.

As chicken processing evolved into a big business, that plant grew accordingly—into a linchpin of the local economy. Now, it too is threatened. Late last summer—as part



El Dorado by the numbers

POPULATION

City of El Dorado	19,891 *
Union County.....	43,230 *

LABOR FORCE

City	8,714 **
County	19,365 **

UNEMPLOYMENT RATE

City	7.1 percent **
County	5.7 percent **

PER CAPITA INCOME

County	\$35,339 ***
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* U.S. Bureau of the Census, estimate 2007

** HAVER/BLS, October 2008

*** BEA/HAVER, 2006

TOP FIVE EMPLOYERS

Pilgrim's Pride Corp.	1,000 *
Medical Center of South Arkansas.....	650 **
Lion Oil Co.	600 **
Chemtura	500 **
Murphy Oil Corp.	445 **

* Estimated by the El Dorado Chamber of Commerce, October 2008

** Self-reported, October 2008

Left: Graduates from El Dorado High School show off their "Promise" scholarship papers last May. They were congratulated by Claiborne Deming, president of Murphy Oil Corp., which made those scholarships possible through its El Dorado Promise program. The oil pump, a freshly painted relic of the boom days, produces about a barrel a day from an old well alongside Highway 82.

Right: Twenty years ago, downtown was boarded up. Today, thanks in large part to oil entrepreneur Richard Mason and his wife, Vertis, downtown is a picture postcard version of what it looked like when El Dorado was nicknamed "Boomtown" in the early part of the 20th century.

of a drastic overhaul that was prompted by spiking feed and fuel costs, an oversupply of processed chickens and mounting corporate red ink—Pilgrim's Pride cut its El Dorado work force by 700.

With a payroll of 1,000 left, Pilgrim's Pride remains the largest local employer. But for how long? A spokesman declined to elaborate on the company's notice last spring that it was considering the plant for possible shut-down. Last month, the company filed for protection from its creditors under Chapter 11 of the U.S. Bankruptcy Code.

Fortunately, the natural-resource industries remain, of necessity, rooted in place. The forests feed a lumber industry that began just after the Civil War. After decades of industry consolidation, Deltic Timber Corp. and Anthony Forest Products Co., the largest surviving companies, are bucking a slow-down caused by the steep drop-off in U.S. home building. Aubra Anthony Jr., president of his family's company, takes the long view. Timber will come back, he says, "because of its increasing value not only for traditional building products and fiber for paper but also for the emerging biofuels industry and cellulosic ethanol."

El Dorado, just 14 miles north of the Louisiana border, lies over one of two commercially viable salt water reserves in the world, the Dead Sea being the other. Chemtura, the largest of three chemical plants in town, pumps that water, or brine, from the ground and uses the bromine it extracts from it to make products such as fire retardants and chemicals for use in oil drilling, water treatment and agriculture.

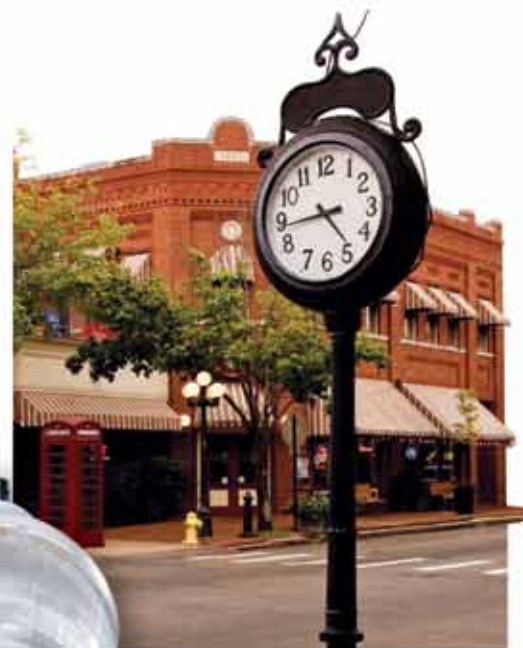
Plans are afoot for the leftover brine. Texas-based Tetra Technologies Inc. has broken ground nearby for a \$110 million plant that is expected to employ about 80 people when in full production at the end of this year. It will buy brine from Chemtura and process it into calcium chloride, whose uses include controlling pressure in oil and gas drilling, curing cement, processing food and melting ice and snow.

No commodity, though, has so driven and defined the town over the years as oil. Its discovery in the area in 1921 set off an explosion in population and wealth that lasted through that decade and earned El Dorado its enduring nickname—Boomtown.

A rough version of the original boomtown survives in a downtown that was largely boarded up 20 years ago. It is now a picture-postcard vision of rehabbed storefronts and old-time kiosks, clocks, streetlights and telephone booths. Oil entrepreneur Richard Mason and his wife, Vertis, spearheaded the transformation by investing their own money. Other investors followed, as did Main Street El Dorado, an organization that raises money for improvements downtown and that stages events there. The Downtown Business Association is also a big promoter these days.

Recently, oil has been enjoying what Rodney Landes, president of El Dorado's First Financial Bank, describes as a "mini-boom." As world oil prices soared in 2008, small operators found profits in reworking old fields for deeply embedded oil. In doing so, they put hundreds to work and provided "a significant boost" to the local economy, he says.

Most of the local oil—along with offshore and foreign crude—passes through the Lion Oil Co. refinery. An El Dorado fixture since the go-go 1920s, it turns out gasoline that is sold in Arkansas and 14 other states. The company has invested several million dollars to double its capacity over the past 20 years and plans to expand it again this year, Vice President Steven M. Cousins says.



PHOTOS BY SUSAN C. THOMSON

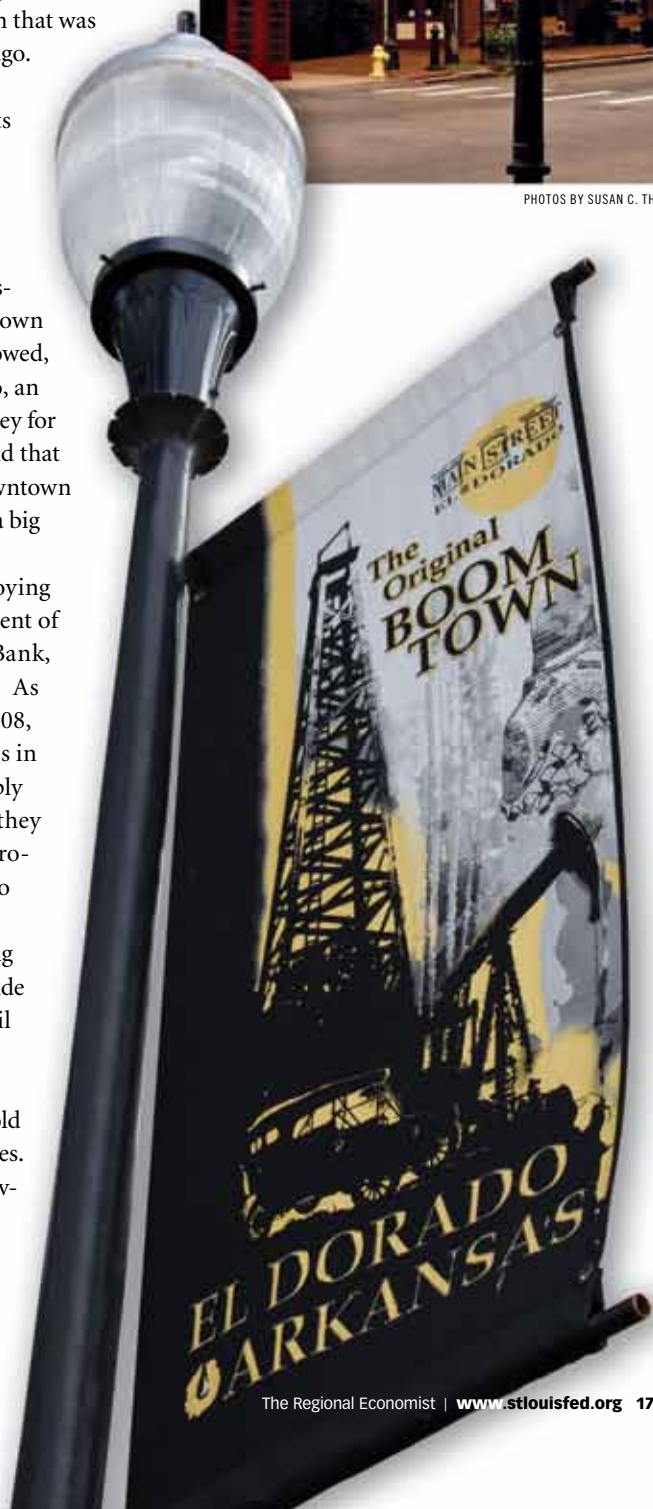




PHOTO BY SUSAN C. THOMSON

Above: At Anthony Forest Products, Jeazon Fuentes uses a hoist to move laminated beams that have been wrapped for shipping.

Right: The Lion Oil Co. refinery processes local oil, as well as offshore oil and foreign crude. The site will be expanded again this year.



PHOTO BY THE DIAMOND AGENCY

The school district, which had been losing between 80 and 100 students a year for the 20 years before the Promise, is already crediting it for an uptick in enrollment—149 more students in 2007 and 50 more in 2008.

By far, the community's biggest name in oil is Murphy. By virtue of its \$25 billion in annual revenue, *Fortune* magazine ranked the company the nation's 134th largest in 2008. Murphy Oil sells gasoline at Wal-Marts in 20 states and explores for oil and gas all over the world, though nowhere near El Dorado. Yet, loyal to its beginning in the region a century ago, the company maintains its headquarters here and is treasured as the city's largest white-collar employer.

Claiborne P. Deming, who retired as Murphy's president last month, says the Promise was motivated by the company's desire "to give kids an opportunity to go away and take advantage of their ability." As a plus, he adds, the company saw it as a potential lure to professionals, who are sometimes difficult for employers to attract to small, rural Southern towns.

Depending on how long they've been attending El Dorado public schools, graduates are promised up to the highest tuition at an Arkansas public university—\$3,252 a semester this year. They can spend the money at any two- or four-year, public or private, in-state or out-of-state college or university.

The offer was an instant hit. Of the high school's 271 graduates that first year, 224, or 83 percent, went to college, compared with the usual 60 percent. Results were similar in 2008. James Fouse, the school district official who directs the Promise, says it has expanded the college options of many students.

For others, it has provided their only opportunity. Senior Paul Lowery, for instance, is the oldest of three siblings. He always wanted to go to college but wasn't always sure he'd be able to—until the Promise. "I can go now," he beams. This fall, he expects to enroll at the University of Arkansas.

Deming says the Promise has given El Dorado "a nice sense of pulling together and moving forward." Landes envisions it as "a tie breaker" that can work in the city's favor in attracting new business.

Don Hale, president of the advertising agency that promotes El Dorado tourism, predicts the Promise will succeed in attracting both new businesses and residents.

The school district, which had been losing between 80 and 100 students a year for the 20 years before the Promise, is already crediting it for an uptick in enrollment—149 more students in 2007 and 50 more in 2008.

Soon, El Dorado taxpayers will start seeing physical evidence of their Promise-inspired largesse.

The new sales tax, which went into effect July 1, 2007, is expected to generate \$32-\$34 million before expiring in 2015. Some of the money is earmarked to develop a total of 1,800 undeveloped acres in two locations for prospective new businesses and to turn the 116,000-square-foot building Prescolite abandoned into a small-business development center.

With the biggest piece of the proceeds—about \$17-\$18 million—the city plans to build a conference center. At 51,000 square feet, it will be the largest meeting space in southern Arkansas and a magnet for out-of-town, as well as local, groups, Dumas says.

The additional school tax money will finance a \$45 million high school to replace the current one, built in the late 1960s.

Groundbreakings for both the new conference center and the new high school are scheduled for this spring. [Q](#)

Susan C. Thomson is a freelance writer.

Man the Lifeboats!

By Kevin L. Kliesen



Last year was an historic year for the U.S. economy. To begin with, crude oil, gasoline and commodity prices rose to record-high levels, causing inflation to accelerate rapidly. Over the first seven months of 2008, inflation was running at about a 6.25 percent annual rate. These higher prices reduced the purchasing power of households and narrowed profit margins of many firms, causing a drag on consumption and business fixed investment.

Since August 2008, oil prices have plunged and the near-term inflation outlook has improved considerably. In fact, the CPI declined at about an 8.25 percent annual rate between July and November. This development has led some economists to speculate about the possibility of deflation, which is defined as a falling aggregate price level (GDP price index). Thus far, however, most economists view the decline in the CPI as a reflection of (i) falling energy and commodity prices and (ii) the sharp slowing in actual and projected domestic and global economic growth. Most economists do not expect a fall in the GDP price index this year.

Falling prices of equities and houses were two developments in 2008 that reduced the wealth of the nation's households and created enormous uncertainty about the strength of the economy heading into 2009. The S&P 500 was down by nearly 50 percent at one point in 2008, while house prices had fallen nationally by about 13 percent from September 2007 to September 2008.

Financial stresses and their associated fallout took a toll on key industries last year. The housing industry faced its worst economic conditions since the 1981-82 recession; the downturn that began in early 2006 showed few signs of bottoming. The


demise of nontraditional mortgage financing was a key factor behind the sharp decline in home sales, which caused a surge in the number of unsold homes, thus putting downward pressure on house prices. Likewise, automotive manufacturers were also hit especially hard. In November, the CEOs of Chrysler, Ford and General Motors, faced with plummeting sales and bloated inventories, appealed to the U.S. Congress for government-backed loans.

On their balance sheets, a large number of banks and other financial institutions held securities whose underlying value was tied to houses purchased with these nontraditional mortgages. As house prices fell, defaults and foreclosures rose, and the value of these assets declined. In response, a large number of U.S. financial institutions either failed, were taken over or received considerable financial assistance from the Federal Reserve or the U.S. Treasury last year. The much broader market for credit derivatives, which many firms and investors use to hedge against financial default, also contributed to the turmoil.

In response to these developments, the Federal Reserve adopted a two-track strategy. First, the Federal Open Market Committee reduced its federal funds target rate, down to 1 percent by Oct. 29 and then to a range of 0 to 0.25 percent on Dec. 16. Second, the Federal Reserve implemented several new lending facilities designed to offset the reduction in credit availability faced by many financial and nonfinancial firms. The result was the largest year-to-year percentage increases in the nation's stock of high-powered money (monetary base) ever seen. Policymakers are confident

that this enormous injection will eventually spur increased lending and a rebound in economic growth.

Through it all, the nation's economy managed to grow at a moderate pace over the first half of 2008 (about 1.75 percent)—even though the National Bureau of Economic Research determined that the U.S. economy entered into a recession in December 2007. The United States also benefited from a strong world economy in recent years that was a boon for U.S. exporters. By late summer, though, it was clear that both the U.S. and most of the world's largest economies were either in a recession or were sliding into one. In the third quarter of 2008, the U.S. economy contracted at a 0.5 percent annual rate, and most forecasters expect an even larger decline in the fourth quarter. The consensus of most forecasters is that the U.S. economy will continue to contract over the first half of 2009, with only modest growth in the third and fourth quarters.

By the fourth quarter of 2009, the unemployment rate is projected to average about 8 percent. It is possible that this recession will be somewhat deeper and longer than the fairly mild recessions experienced in 1990-91 and 2001. It is too early to tell if the recession will be as severe as those seen in 1973-75 and 1981-82. 

Kevin L. Kliesen is an economist at the Federal Reserve Bank of St. Louis. Douglas C. Smith provided research assistance. For more on Kliesen's work, see <http://research.stlouisfed.org/econ/kliesen/index.html>.

Employment Growth Mixed Across Eighth District

By Craig P. Aubuchon, Subhayu Bandyopadhyay,
Rubén Hernández-Murillo and Christopher J. Martinek



Since 2001, the composition of jobs in the United States and the Eighth District has shifted. As employment in service-providing industries has grown, the number of manufacturing jobs has decreased. In October 2001, goods-producing industries accounted for 17.8 percent of the U.S. labor force. By October 2008, this figure was only 15.5 percent. Across the four largest Eighth District cities, this trend is also true; the share of goods-producing industries decreased from 17.1 percent to 14.8 percent over the same period. The District cities that have performed well in service-providing industries have also experienced the strongest overall job growth.

Eighth District Overview

From October 2007 to October 2008, Little Rock was the only large metropolitan statistical area (MSA) within the Eighth District to post a positive year-over-year rate of growth in employment. At a growth rate of 0.03 percent, Little Rock was also the only large MSA in the District to outperform the U.S., which experienced job losses of 0.8 percent. Louisville (–1.3), St. Louis (–0.9) and Memphis (–1.7) all posted lower year-over-year growth rates than the U.S. as a whole.

St. Louis and Louisville both have a higher proportion of goods-producing jobs than the U.S. and experienced large job losses in the manufacturing sector. Little Rock and Memphis have a higher proportion of jobs in the service sector than the U.S. Strong job growth in the education, information and

leisure/hospitality service sectors all helped lift Little Rock above the national average. Memphis, which had the highest share of service-sector jobs in the Eighth District, posted the lowest year-over-year growth rate, primarily because of job losses in the transportation and trucking industry, which make up 27 percent of the Memphis economy.

For the Eighth District as a whole, the education sector performed the best, although still behind the U.S. as a whole. Manufacturing and financial services experienced the largest year-over-year declines in job growth, with every District MSA reporting negative growth.

Little Rock Zone

Little Rock has posted a positive year-over-year growth rate each year since 2003; this growth rate has been above the U.S. year-over-year growth rate since 2006. Underlying Little Rock's employment growth have been job gains in several service industries.

From October 2007 to October 2008, Little Rock experienced positive job growth in leisure/hospitality services (3.4), information services (1.0), resources/mining/construction (3.0), education (1.7) and government (1.1). Little Rock was also the only branch city in the Eighth District to experience job growth in the resources/mining/construction and leisure/hospitality sectors.

As a state capital, Little Rock employs almost one-fifth (19.8 percent) of its labor force in the government sector, higher than the U.S. (16.4 percent) and higher than

the rest of the Eighth District (13 percent). Year-over-year growth of 1.1 percent in the government sector helped to offset job losses in the manufacturing, trade/transportation and financial-services sectors.

Within the Little Rock Zone, the Texarkana, Ark., area (2.1 percent) and Fayetteville-Springdale-Rogers, Ark., area (0.8 percent) both posted positive year-over-year growth. Growth in Fort Smith, Ark., declined by 0.1.

Louisville Zone

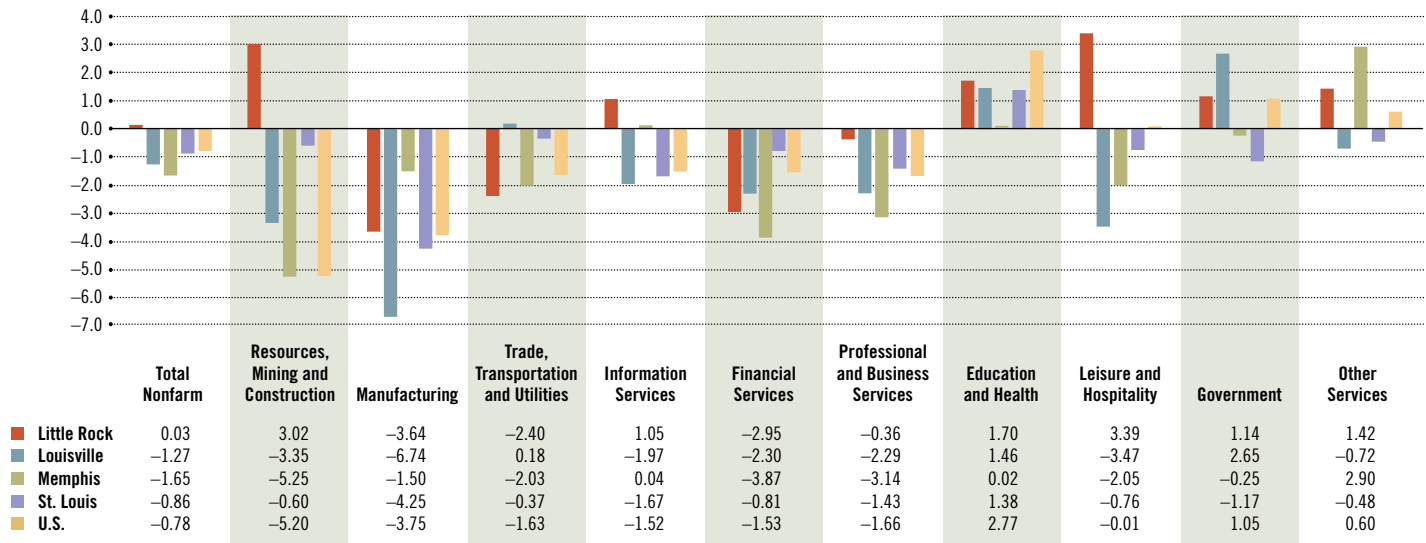
The Louisville metro area employs 17 percent of its work force in goods-producing industries, the highest proportion of the four branch metro areas in the District. The Louisville area experienced a 1.3 percent decline in year-over-year growth through October 2008, largely due to a 6.7 percent drop in manufacturing. Within that sector, durable goods and transportation equipment experienced sharp job losses. Jobs in the durable-goods manufacturing sector were down 10 percent since October 2007; jobs in the transportation-equipment manufacturing sector were down 29.5 percent over the same period.

Louisville also experienced higher job losses than the U.S. as a whole in information services (–2.0 percent), financial services (–2.3 percent), business services (–2.3 percent) and leisure/hospitality services (–3.5 percent).

Smaller metro areas in the Louisville Zone that also had a decline in employment

Employment Growth

OCTOBER 2007 TO OCTOBER 2008—PERCENT CHANGE



included Clarksville, Tenn. (-1.1 percent); Evansville, Ind. (-0.4 percent); and Bowling Green, Ky. (-0.4 percent).

Memphis Zone

Memphis experienced the largest year-over-year decline in nonfarm employment among branch cities, losing 1.7 percent of its jobs since October 2007. Memphis lost jobs in nearly every employment sector, but a third of the losses were concentrated in the trade/transportation/utilities sector, which lost 3,600 jobs since the previous year. Memphis also had significant job losses in the construction (-5.3 percent), business services (-3.1 percent) and financial services (-3.9 percent) sectors. Job growth remained unchanged for information services (0.04 percent) and education (0.02 percent).

Jackson, Miss., a smaller MSA in the Memphis Zone, experienced a zero percent change in year-over-year employment.

St. Louis Zone

The St. Louis Zone mirrors the U.S. in its proportion of goods-producing jobs and service-sector jobs, with 15.6 and 84.4 percent, respectively. St. Louis experienced similar year-over-year growth rates as the U.S. for total employment and in several sectors. Nonfarm payroll employment declined by 0.9 percent from October 2007 to October 2008, slightly below the U.S. experience.

Job losses were similar to national losses in manufacturing (-4.3 percent), information services (-1.7 percent), financial services (-0.8 percent) and business services (-1.4 percent). St. Louis employment benefited from 1.4 percent growth in education services. Education was the only sector in St. Louis to add jobs since October 2007. In contrast to the U.S. economy, St. Louis lost jobs in the government services sector.

Within the St. Louis Zone, the smaller MSAs of Columbia, Mo., and Springfield, Mo., had job growth of 0.1 and 0.3 percent, respectively. Job growth declined by 0.2 percent in Jefferson City, Mo.

Conclusion

Between January and October 2008, the U.S. shed nearly 1 percent of total nonfarm jobs. Goods-producing industries such as manufacturing were the hardest hit. Both Louisville and St. Louis, with relatively large proportions of their work forces involved in manufacturing, had significant losses. In contrast, regions with the strongest-performing service industries fared the best. Indeed, Little Rock was the only zone that had positive year-over-year growth through October 2008.

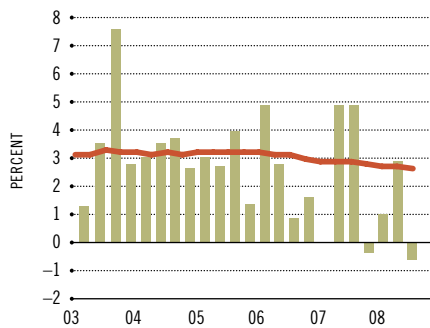
One apparent trend is that declining economic activity has reversed previous gains in service-sector employment that once covered job losses in the manufacturing sector. For

instance, the large share of transportation jobs in Memphis has reduced overall employment in the local economy because there are fewer goods to move. Employment in financial services has declined in all four branch cities of the Eighth District. Excluding Little Rock, the professional and business, and leisure/hospitality services sectors have gotten smaller in each branch city. ⁹

Subhayu Bandyopadhyay and Rubén Hernández-Murillo are economists at the Federal Reserve Bank of St. Louis. For more on their work, see <http://research.stlouisfed.org/econ/bandyopadhyay/index.html> and <http://research.stlouisfed.org/econ/hernandez/index.html>. Craig P. Aubuchon and Christopher J. Martinek are research associates at the Bank.

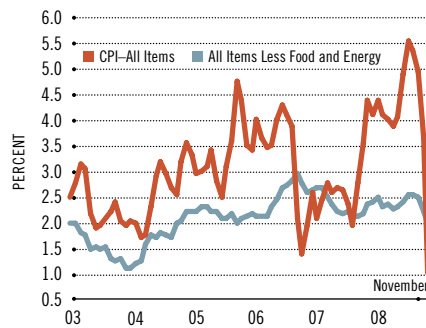
Eleven more charts are available on the web version of this issue. Among the topics they cover are agriculture, commercial banking, housing permits, income and jobs. Much of the data is specific to the Eighth District. To go directly to these charts, use this URL: www.stlouisfed.org/publications/re/2009/a/pdf/1-09-data.pdf.

REAL GDP GROWTH



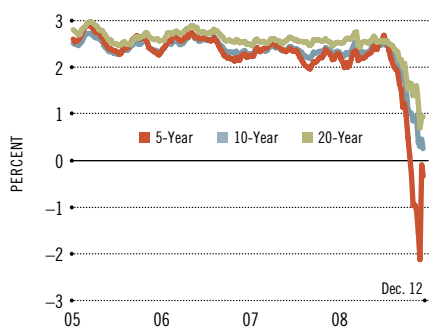
NOTE: Each bar is a one-quarter growth rate (annualized); the red line is the 10-year growth rate.

CONSUMER PRICE INDEX



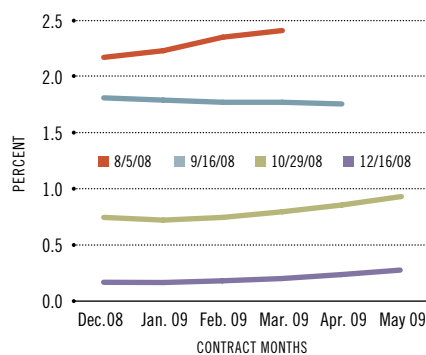
NOTE: Percent change from a year earlier.

INFLATION-INDEXED TREASURY YIELD SPREADS



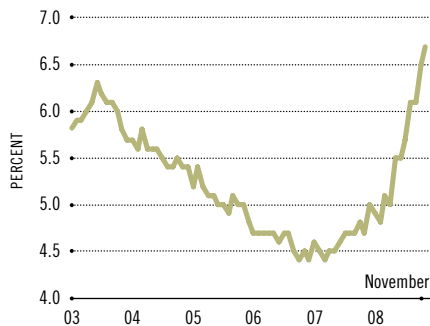
NOTE: Weekly data.

RATES ON FEDERAL FUNDS FUTURES ON SELECTED DATES



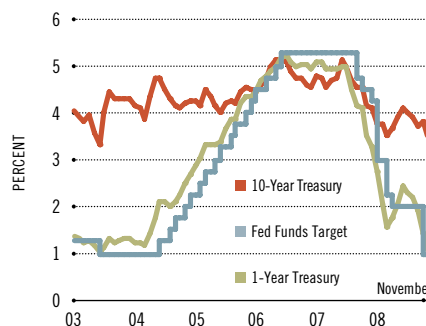
CONTRACT MONTHS

CIVILIAN UNEMPLOYMENT RATE

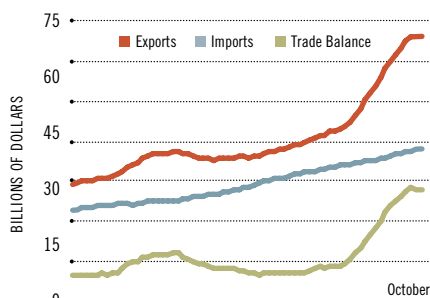


NOTE: Beginning in January 2003, household data reflect revised population controls used in the Current Population Survey.

INTEREST RATES

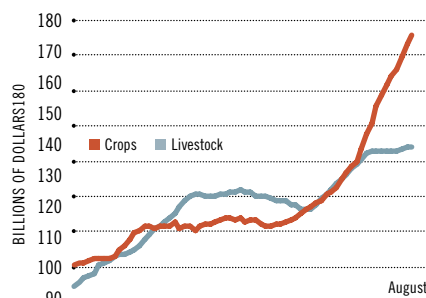


U.S. AGRICULTURAL TRADE



NOTE: Data are aggregated over the past 12 months.

FARMING CASH RECEIPTS



NOTE: Data are aggregated over the past 12 months.

LETTERS TO THE EDITOR

The following are excerpts from letters about October's article titled "U.S. Income Inequality: It's Not So Bad." To read the letters in their entirety, along with complete responses by the article's author, St. Louis Fed economist Thomas A. Garrett, go to www.stlouisfed.org/publications/re.

Dear Editor:

The article first provides some evidence that a wider measure would show less inequality, then argues that inequality is useful and necessary for a vibrant economy. The first ignores many other ways in which inequality is actually greater than our measures, and the second is wrong, and in addition there are many other ways in which inequality causes trouble.

If you include the fact that the lowest-income families are less likely to have health insurance, more likely to live in dangerous neighborhoods, work longer hours for their income and suffer greater insecurity, total inequality of well-being is still larger.

But there are other and serious bad effects of economic inequality: It leads to political corruption and to crimes of the poor, like prostitution and drug running. It violates a basic assumption behind the theoretical justification for free market capitalism, i.e., that market demand and prices are good guides for what to produce and how to produce it. Does anyone believe that our allocation of resources to infant health and to cosmetic surgery is justifiable?

Even worse, inequality leaves the masses without adequate income to provide full employment and the few affluent without real investment opportunities; so, the affluent and corporations bid up the prices of stocks and other existing assets.

James N. Morgan, emeritus professor of economics and research scientist, Institute for Social Research, University of Michigan; fellow of the American Statistical Association; member of the National Academy of Sciences

Dear Mr. Morgan:

Your letter confuses income inequality and poverty. The social ills that you describe, such as crime, lack of health insurance, drug abuse, etc., are a result of poverty and not income inequality. Those

at the lowest end of the income distribution will still suffer negative consequences regardless of how rich others are. Consider the following example: Suppose an economy has 10 people each making \$10,000. All 10 people are below the poverty level, and income inequality is zero. Now suppose one of these 10 people finds \$1 million in a trash can. Income inequality now increases dramatically, but the well-being of the nine people still making \$10,000 a year has not worsened. The point here is that the well-being of the nine people is a function of their poverty-level income and not the income of the now-wealthier individual.

Tom Garrett

Dear Editor:

You state that “Wealthy people are not wealthy because they have more money; it is because they have greater productivity.” In what way do wealthy people have “greater productivity”—is this capital productivity you are talking about or productivity of their labor?

Your overall philosophy appears to be that “income inequality is the byproduct of a well-functioning capitalist economy”—presumably even a democratic capitalist economy. If this is the case, why would the grass roots of any country, whether ours or in emerging economies, favor such an economic system, especially now in the face of the meltdown of the “capitalist economy,” which needed to be bailed out by the taxpayers of the country?

John J. Pimenta of Wheaton, Ill.

Dear Mr. Pimenta:

Here I am relating income to marginal productivity, that is, the value of one’s labor. Income is positively correlated with the value of labor. Think of a major league baseball player versus a janitor. The former is highly skilled and generates large revenues (through ticket sales, etc.). Not everyone can be a major league ballplayer. On the other hand, janitorial work is low-skilled labor that most people could perform.

I would argue that any economic system should be evaluated on its long-run performance, rather than any short-run performance. Certainly, capitalism is not perfect, but it is that very system that has propelled this country to the greatest economic power on the planet. Even the poorest folks in the United States have a standard of living that is much higher than poor people in other countries. Furthermore, there are numerous factors that have played a role in the current crisis, many of which are not related to our specific economic system.

Tom Garrett

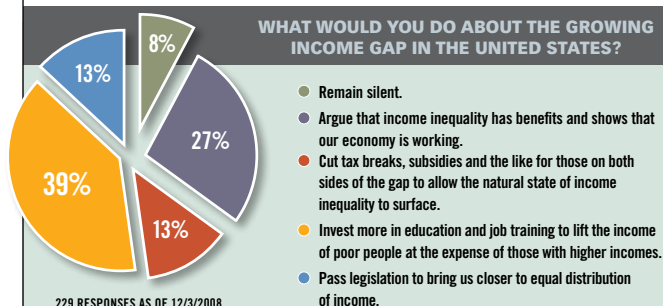
Dear Editor:

Tom Garrett has overturned countless studies and updates of income inequality assessments in one efficient stroke of careful analysis of the data and analytical flaws in prior approaches. He also highlights the role of official data sources in spreading the interpretive problems with misguided reporting routines.

John Shelnutt, an economist in Little Rock, Ark.

FED FLASH POLL RESULTS

Whenever a new issue of *The Regional Economist* is published, a new poll is posted on the Bank’s home page, www.stlouisfed.org. The poll question is always pegged to an article in that quarter’s issue. Here are the results of the poll that went with the October issue. The question stemmed from the article “U.S. Income Inequality: It’s Not So Bad.”



THIS ISSUE’S POLL QUESTION:

What would you do to trim the debt and deficit?

1. Raise taxes to pay for current government programs.
2. Cut government spending across the board.
3. Do nothing. Allow deficit spending to continue.
4. Reform Social Security and Medicare, focusing on revenue increases.
5. Reform Social Security and Medicare, focusing on benefit reductions.

To vote, got to www.stlouisfed.org. Anyone can vote, but please do so only once. (This is not a scientific poll.)

COMMUNITY DEVELOPMENT CONFERENCE IS SET

The second biennial *Exploring Innovation* conference sponsored by the Federal Reserve Bank of St. Louis will take place April 22-24 in St. Louis. The conference brings together people from all over the country who are involved in community development, including bankers, researchers, developers of affordable housing and representatives of nonprofit organizations and of government agencies.

The theme of the 2009 conference will be “Innovation in Changing Times,” a reflection of the current financial crisis. This conference will focus on resiliency, sustainability and innovative programs that can improve an organization’s performance so that it can still have a positive impact on its community, even in the face of tough economic conditions.

Registration begins this month. For more information, see www.exploringinnovation.org.

Working with the Fed to plan this event are CFED (Corporation for Enterprise Development), Enterprise Community Partners, NeighborWorks America, Opportunity Finance Network and Social Compact.

Exploring Innovation

www.exploringinnovation.org

ASK AN ECONOMIST

Subhayu Bandyopadhyay's research interests are international trade, development economics and public economics. The native of India has lived in the United States since 1987 and is now a U.S. citizen. He is an avid cricket fan, having played the baseball-like game in his youth. He likes to travel and meet people of different cultures.



Should we be concerned about the economic impact of immigration on native U.S. labor?

Immigration is the use of imported labor as a factor of production. While international trade in goods and services ships goods across international borders, immigration allows labor to be imported. In principle, international trade can perform the same function as immigration because nations that have cheap labor can make goods that are intensive in labor and export them to labor-scarce nations. This should help alleviate the labor scarcity problem for richer nations, while reducing the labor glut in the poorer ones, benefiting both. In practice, however, barriers to trade, as well as the fact that services are often not easily traded, may require nations to allow immigration.

While movement of labor, capital and goods across international borders is generally considered a good thing in the context of overall

economic efficiency of a nation, such openness may hurt some groups within an economy. In particular, there is a lot of concern that immigration may hurt native U.S. labor. To the extent that the skill level of the immigrant is a close substitute for that of the native worker, this seems plausible. However, at least three points are worth noting in this context. First, unskilled immigrants may do jobs that unskilled natives may not want to do; so, natives may not compete with immigrants for the same type of jobs. Second, skilled immigrants may complement and enhance the productivity of the unskilled natives, much like machines enhance the productivity of labor. Finally, to the extent that the employers of the immigrants benefit, they are able to invest in their businesses to raise employment opportunities for all.

A recent paper by Gianmarco I.P. Ottaviano and Giovanni Peri focuses on these issues.¹ The authors found that immigration during the 1990-2006 period had a small negative effect (negative 0.7 percent) on wages of native workers with no high school degree. In the longer run, this effect was actually a positive 0.3 percent for the same group. Average wages also showed a similar pattern in the researchers' analysis.

We know from Depression-era history that greater protectionism in the face of an economic downturn is likely to only accentuate the problem of high unemployment. It is generally recognized that the Smoot-Hawley Tariff Act in 1930—along with retaliatory tariffs imposed by other countries—exacerbated the onset of the worldwide Great Depression.

Times of economic slowdown might increase pressures to "protect" jobs, but ill-conceived plans to limit employment opportunities for some does

Globalization ... of a Financial Crisis

Recent financial market turmoil did not affect just the United States, but spread to become a global crisis. In the April issue of *The Regional Economist*, read about the impact on other countries around the world and find out about some of the policy responses that they implemented.



not necessarily provide opportunities to others. Rather, the law of unintended consequences can lead to outcomes that are detrimental to all.

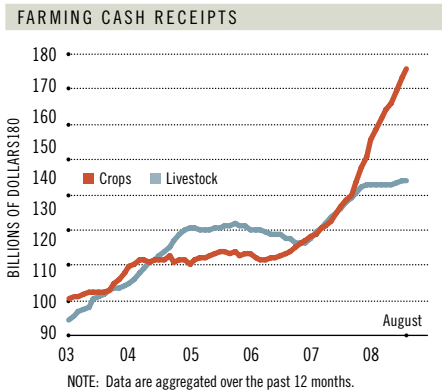
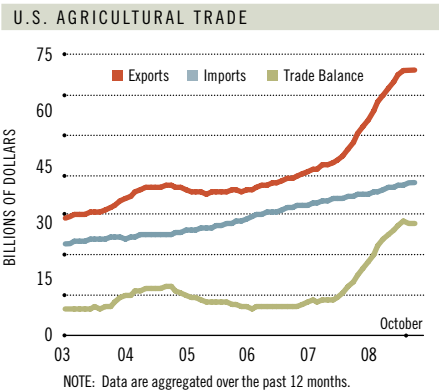
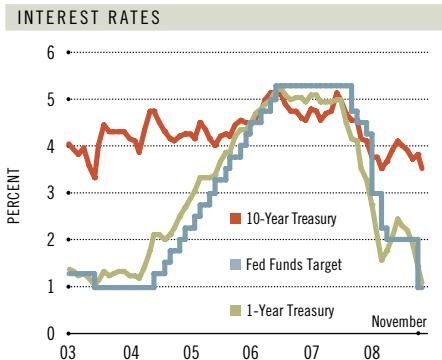
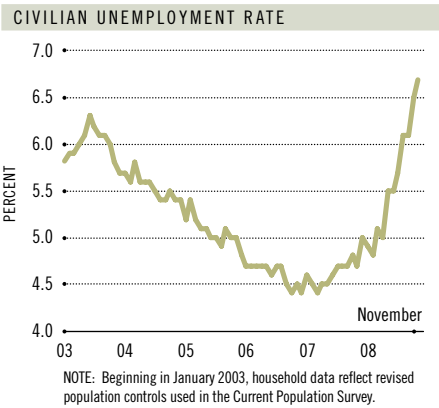
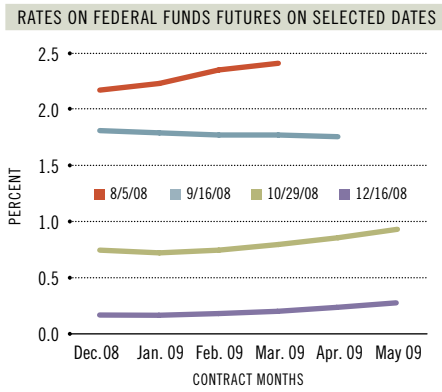
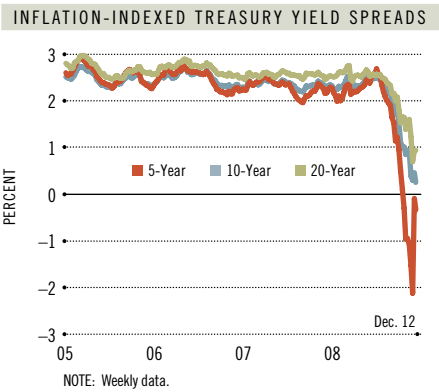
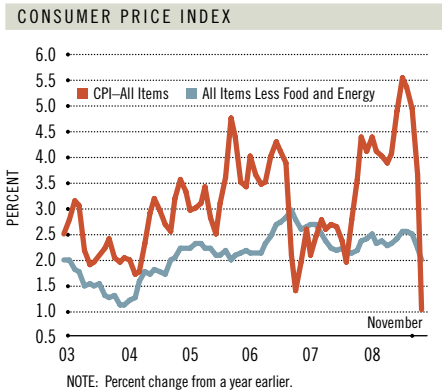
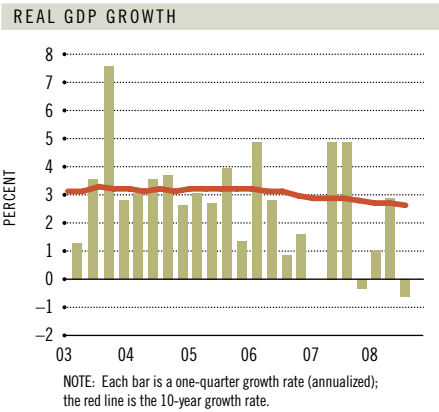
¹ Ottaviano, Gianmarco I.P.; and Giovanni Peri. "Immigration and National Wages: Clarifying the Theory and the Empirics." National Bureau of Economic Research Working Paper No. 14188, July 2008. See www.nber.org/papers/w14188.

Submit your question in a letter to the editor. (See Page 2.) One question will be answered by the appropriate economist in each issue.

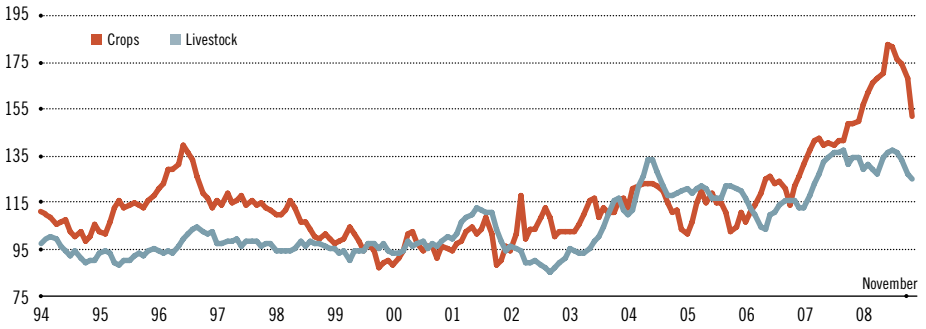


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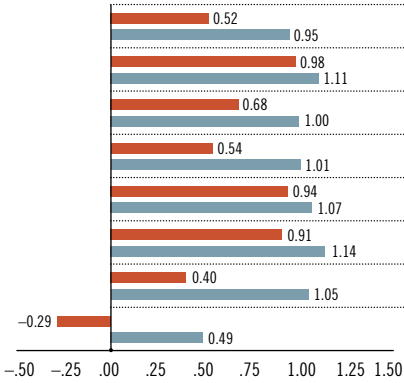


COMMERCIAL BANK PERFORMANCE RATIOS

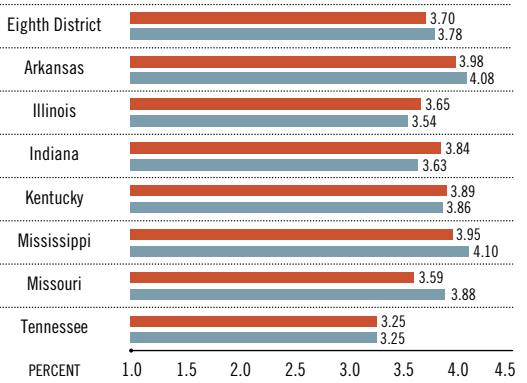
U.S. BANKS BY ASSET SIZE / THIRD QUARTER 2008

	All	\$100 million-\$300 million	Less than \$300 million	\$300 million-\$1 billion	Less than \$1 billion	\$1 billion-\$15 billion	Less than \$15 billion	More than \$15 billion
Return on Average Assets*	0.44	0.65	0.60	0.46	0.53	0.38	0.45	0.44
Net Interest Margin*	3.31	3.93	3.96	3.86	3.91	3.87	3.89	3.13
Nonperforming Loan Ratio	2.26	1.88	1.82	2.22	2.03	2.31	2.18	2.30
Loan Loss Reserve Ratio	2.00	1.32	1.33	1.41	1.37	1.61	1.50	2.19

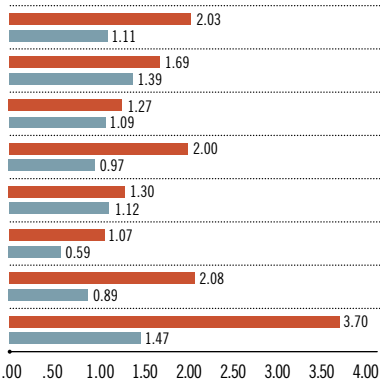
RETURN ON AVERAGE ASSETS*



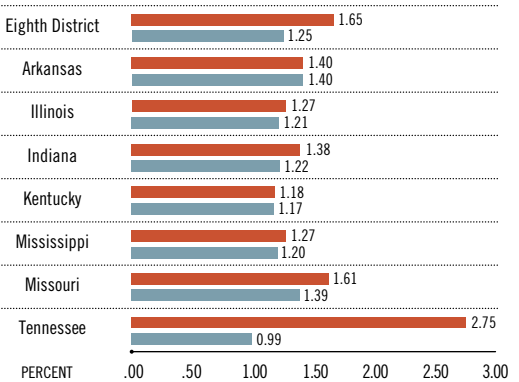
NET INTEREST MARGIN*



NONPERFORMING LOAN RATIO



LOAN LOSS RESERVE RATIO



■ Third Quarter 2008 ■ Third Quarter 2007

NOTE: Data include only that portion of the state within Eighth District boundaries.
SOURCE: FFIEC Reports of Condition and Income for all Insured U.S. Commercial Banks
* Annualized data

For additional banking and regional data, visit our web site at:
www.research.stlouis.org/fred/data/regional.html.

REGIONAL ECONOMIC INDICATORS

NONFARM EMPLOYMENT GROWTH* / THIRD QUARTER 2008

YEAR-OVER-YEAR PERCENT CHANGE	United States	Eighth District †	Arkansas	Illinois	Indiana	Kentucky	Mississippi	Missouri	Tennessee
Total Nonagricultural	-0.3%	-0.3%	0.3%	-0.1%	-0.7%	0.3%	-0.4%	-0.5%	-0.6%
Natural Resources/Mining	8.3	0.1%	4.7	-0.7	-0.9	1.7	3.1	-15.7	#NA
Construction	-5.9	-2.0%	-0.2	-3.7	-1.5	-0.9	-0.1	-1.2	#NA
Manufacturing	-3.0	-2.8%	-3.0	-0.9	-4.1	-3.0	-3.6	-4.0	-2.5
Trade/Transportation/Utilities	-1.1	0.3%	-0.1	0.4	-0.7	1.7	0.1	0.7	-0.1
Information	-1.5	-0.9%	1.0	-1.5	0.3	-1.4	-1.5	-0.9	-1.1
Financial Activities	-1.3	-1.2%	0.7	-1.5	0.2	-0.4	-0.5	-2.5	-1.9
Professional & Business Services	-0.7	-0.1%	2.1	0.8	-1.2	-0.6	1.0	-0.4	-2.0
Educational & Health Services	3.2	1.3%	2.0	1.3	0.7	-0.3	1.7	1.8	1.8
Leisure & Hospitality	0.9	-0.4%	1.5	-0.4	0.9	0.3	-1.4	-1.1	-1.8
Other Services	0.6	-0.6%	1.0	-1.2	0.4	-0.6	1.0	-1.2	-0.4
Government	1.4	0.6%	0.5	-0.1	1.2	3.0	0.1	0.4	0.3

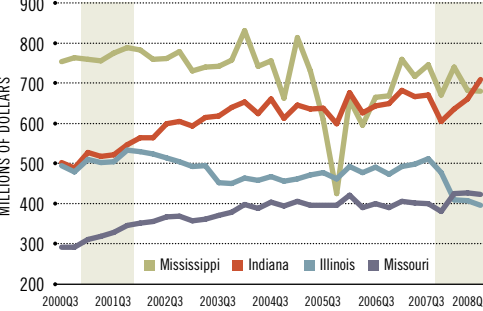
* NOTE: Nonfarm payroll employment series have been converted from the 1987 Standard Classification (SIC) system basis to a 2002 North American Industry Classification (NAICS) basis.

† Eighth District growth rates are calculated from the sums of the seven states. For Natural Resources/Mining and Construction categories, the data exclude Tennessee (for which data on these individual sectors is no longer available).

UNEMPLOYMENT RATES

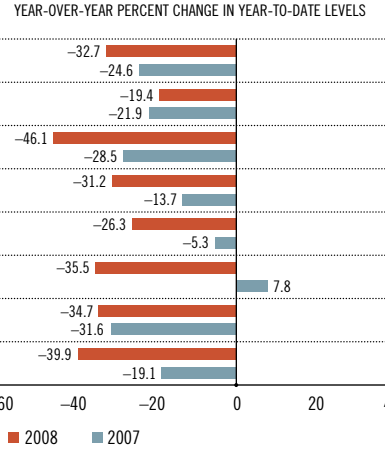
	III/2008	II/2008	III/2007
United States	6.0%	5.3%	4.7%
Arkansas	4.7	4.9	5.5
Illinois	7.1	6.2	5.2
Indiana	6.3	5.3	4.5
Kentucky	6.9	6.0	5.5
Mississippi	7.8	6.6	6.3
Missouri	6.5	5.6	5.2
Tennessee	6.9	6.1	4.7

ADJUSTED GROSS CASINO REVENUE*



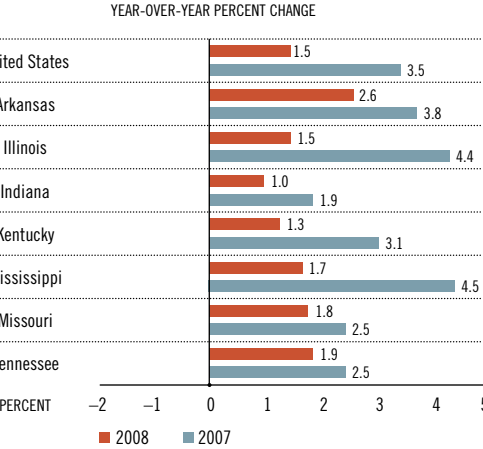
* NOTE: Adjusted gross revenue = total wagers minus players' winnings. Native American casino revenue (Mississippi only) is not included in 2007 Q3 dollars. Recession bars are determined by the National Bureau of Economic Research. SOURCE: State gambling commissions.

HOUSING PERMITS / THIRD QUARTER



All data are seasonally adjusted unless otherwise noted.

REAL PERSONAL INCOME* / SECOND QUARTER



*NOTE: Real personal income is personal income divided by the PCE chained price index.