

# THE REGIONAL ECONOMIST

*A Quarterly Review  
of Business and  
Economic Conditions*

Vol. 16, No. 3

July 2008

## Mortgage Crisis

Let Markets Work, But  
Help the Truly Needy

## Foreign Aid

Decisions Are Driven by Need  
—and the Need for Favors

THE FEDERAL RESERVE BANK OF ST. LOUIS



# Ethanol

## Shucking the Hype

# 4

## Ethanol: Economic Gain or Drain?

By Joshua A. Byrge and Kevin L. Kliesen

Corn-based ethanol can make a dent in demand for oil, but at what price? Food costs go up. Environmental damage worsens. If oil prices fall, ethanol production will probably collapse—as it did 20 years ago.



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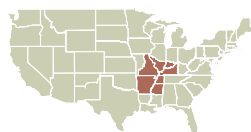
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The Eighth Federal Reserve District includes all of Arkansas, eastern Missouri, southern Illinois and Indiana, western Kentucky and Tennessee, and northern Mississippi. The Eighth District offices are in Little Rock, Louisville, Memphis and St. Louis.



3 PRESIDENT'S MESSAGE



10 **Mortgage Crisis**

By William R. Emmons

Large-scale government interventions are not the answer to the current foreclosure woes. Let the markets work out these problems. The government should, however, consider helping those who are truly needy.



17 NATIONAL OVERVIEW

**Triple Whammy**

By Kevin L. Kliesen

Many forecasters still see a recession in our future, thanks to oil and commodity prices, the housing crisis and turbulence in financial markets.

18 DISTRICT OVERVIEW

**Population Patterns**

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

The District continues to follow the U.S. growth pattern. Of the four main cities, Little Rock has been the fastest growing. Of the counties in the District, Spencer County (in the Louisville area) has been the fastest growing.

20 **Foreign Aid Decisions**

By Howard J. Wall

Foreign aid is motivated both by the needs of recipients and donors' needs for favors. In addition, countries that improve rights and use aid effectively are more likely to see increases in the aid they receive.

22 ECONOMY AT A GLANCE

23 COMMUNITY PROFILE

**Greenwood, Miss.**

By Susan Thomson

A well-known kitchen appliance company keeps the economy cooking in this small Delta town. Besides providing jobs in its factories, Viking Range has renovated about 30 downtown buildings in the past dozen years, helping to turn Greenwood into a retail and tourist destination.



27 READER EXCHANGE

## St. Louis Fed's Approach to Monetary Policy Won't Change

Some of you may be surprised to see a new face on this page. On April 1, I became president and CEO of the St. Louis Fed, succeeding William Poole. If you supported Bill's thinking on monetary policy, take comfort in knowing that I did, too, and plan to continue in that monetarist tradition for which the St. Louis Fed is known.

While I'm new in this position, I'm not new to the St. Louis Fed. I've been an economist here for 18 years. As deputy director of research for monetary analy-

*"Price stability should be the No. 1 goal of policymakers today."*



sis, I worked side by side with Bill, helping him craft his policies and helping him prepare for FOMC meetings. For years, I've had access to the same information that members of the committee had.

Although you might be satisfied in knowing that there's continuity at the helm, I want to share with you some of my fundamental beliefs about monetary policy.

In essence, price stability should be the No. 1 goal of policymakers today. Forty or 50 years ago, policymakers took on multiple objectives: low inflation, low unemployment, low nominal interest rates, stable exchange rates—even growth in housing production. More recently, the Fed's mission has been boiled down to the dual mandate of price stability and

maximum sustainable employment. Ben Bernanke and his two immediate predecessors have emphasized that price stability is a precondition for maximum sustainable employment.

What is price stability? In recent policy discussions, it has not meant that prices always stay the same or that price indexes always revert to an average. Rather, because of possible biases in available indexes, price stability is a small, positive rate of inflation, say 0.5 to 1.5 percent a year, depending on the price index being used.

A specific inflation target has been adopted by some central banks, such as those of Canada, the United Kingdom and Europe. The FOMC has yet to go that far. However, even without an explicit numeric target, the Fed has been able to bring inflation down and keep it relatively low over the past several decades.


A key concern today is that inflation and inflation expectations are on the rise. Since late last summer, the Fed has been battling financial market turmoil, which has threatened to send the economy into recession. During the spring, the turmoil became less severe, allowing the Fed to turn attention back toward its price stability objectives.

One important issue facing the FOMC concerns the use of core measures of inflation to judge success or failure. This practice works well when energy and food prices are volatile but ultimately rise at the same rate as other prices. But that is not what is happening today. As many of you are aware, energy prices in particular have simply been rising faster than other prices most of the time over the past five years.

The problem is that, as we are all painfully aware, we have to pay the energy and food prices along with the core prices. It is




**President and CEO Jim Bullard** addresses a reporter's question June 11. The discussion took place after Bullard's first speech in St. Louis as the new leader of the St. Louis Fed.

hurting Fed credibility to say that we are trying to keep inflation low and stable, but at the same time we are not counting some of the prices that are going up at the most rapid pace. 

To read Bullard's bio and his writings, go to <http://research.stlouisfed.org/econ/bullard/index.html>.



This ethanol plant in Carrollton, Mo., in the west-central part of the state, began production in May. The plant, owned by Show-Me Ethanol LLC, was built at a cost of more than \$80 million. Capacity is 55 million gallons a year.



# Ethanol

## Economic Gain or Drain?

By Joshua A. Byrge and Kevin L. Kliesen

Shucking the  
hype yields a  
kernel of truth  
—oil will still  
dominate

In 2005 and 2007, two pieces of energy-related legislation with potentially far-reaching consequences became law. A key feature of these bills was a federal mandate to substantially increase the production of ethanol over the next two decades. These bills were aimed at reducing U.S. dependence on foreign-produced petroleum and at addressing global climate change.

Even before the federal mandate, ethanol production had been increasing rapidly since 2000. Some of this can be traced to the sharp rise in crude oil prices, which is a derivative of the rapid growth in developing nations like China. At the same time, food prices have begun to rise sharply, which is sometimes attributed to higher prices for corn, the primary ingredient in ethanol.

What are the costs and benefits of the ethanol boom, and is increased production of ethanol the primary cause of rising food prices?

### The Drivers of the Ethanol Boom

According to the Renewable Fuels Association (RFA), ethanol production has increased by an average of almost 22 percent per year

from 2000 through 2007, as seen in the figure on Page 8. Over this period, the number of ethanol plants more than doubled, to 134. By January 2008, industry capacity stood at 7.9 billion gallons per year. According to the RFA, when all current building projects are completed, total capacity will exceed 13 billion gallons per year.

The surge in ethanol production can be attributed mainly to three factors: higher crude oil prices; federal production mandates and tax incentives given to ethanol producers; and the use of ethanol as a fuel oxygenate to replace methyl tertiary butyl ether (MTBE), which was phased out in 2006.<sup>1</sup>

#### 1. Higher oil prices

From 2001 to 2007, the spot price of a barrel of West Texas Intermediate (WTI) crude oil rose from an average of about \$26 per barrel to a little more than \$72 per barrel. (See the figure.) Thus far in 2008, WTI prices have risen further, topping \$135 in May.

Unlike past oil-price shocks that were supply-driven (for example, the OPEC oil



embargo), this increase in crude oil prices mostly reflects increased demand, particularly from China and India. Of the 10.6 percent growth in world oil consumption from 2000 through 2006, China accounted for just over three percentage points—more than double the U.S. contribution.

A rise in oil prices naturally leads to an increase in motor fuel prices. Since early 2006, average U.S. motor gasoline prices have increased to nearly \$4 per gallon from \$2.25, while retail diesel prices have risen to about \$4.50 per gallon from about \$2.50 per gallon.

Higher oil prices elicit numerous responses from consumers and firms. In the short run, with few alternatives, demand for gasoline tends to be relatively unaffected. Over time, though, higher oil prices spur an increase in demand for alternative fuels and a decline in the quantity of oil demanded.

In the United States, the search for alternative fuels has chiefly focused on ethanol, which can be mixed with gasoline and

comes from plant material that is domestically grown, it is hoped that this mandate will, in the long run, reduce U.S. dependency on crude oil—a significant portion of which comes from regions with an unusually high level of political instability.

Originally, the Energy Policy Act of 2005 required that 5.4 billion gallons of biofuels be blended with gasoline in 2008. This amount would then increase to 7.5 billion gallons in 2012. The Energy Independence and Security Act of 2007 (EISA) increased the target for 2008 to 9 billion gallons and extended the mandate through 2022, when 36 billion gallons of biofuel are to be blended.

To achieve this policy goal, Congress has provided numerous incentives for domestic ethanol producers over time, such as subsidies and import tariffs. The Energy Tax Act of 1978 created the first ethanol subsidy by exempting motor gasoline containing ethanol from the gasoline excise tax. As the sidebar on the next page shows, the combination of rising crude oil prices and a government subsidy, much like today, created a boomlet in ethanol production.

The American Job Creation Act of 2004 replaced this exemption with a tax credit for gasoline blenders.<sup>2</sup> This credit is currently 51 cents per gallon. To protect domestic ethanol producers and to generate tax revenue to offset some of the cost of the ethanol tax credits, the U.S. imposes an import tax of 54 cents per gallon on ethanol imported for fuel.<sup>3</sup> All else equal, this tariff raises the price of ethanol to U.S. consumers.

Unlike gasoline or crude oil, there are no existing interstate ethanol pipelines; thus, ethanol is transported by truck or rail, which is why most ethanol plants are located in the Midwest. To spur development of the infrastructure necessary to increase ethanol-based fuel use, Congress is making money available to explore the feasibility of building an ethanol-dedicated pipeline.

Another drawback is that most vehicles can only accommodate fuel that is at most 10 percent ethanol. Hence, Congress has enacted tax incentives to increase the availability of flex-fuel vehicles, such as those that burn E85 (85 percent ethanol). Also, Congress is considering a mandate for ethanol distribution at gas stations in regions where flex-fuel vehicles are common.

## What Makes Ethanol Economically Viable?

In a 2003 study, Vernon Eidman and Douglas Tiffany found that the three most important factors in determining the profitability of an average U.S. fuel-ethanol plant were the price of ethanol, the plant's primary source of revenue; the price of corn, representing roughly 40 percent of the plant's input cost; and the plant's conversion factor, the pure ethanol yield per bushel of corn.

Eidman and Tiffany's model shows that ethanol plants were not profitable in 2000, when corn prices averaged about \$1.90 per bushel and oil prices averaged about \$30 per barrel.<sup>8</sup> In April 2008, however, with corn prices at about \$5.50 per bushel, ethanol would have been profitable to produce as long as the price of crude oil was at least \$96 per barrel. That month, the spot price of WTI was \$112.57 per barrel.<sup>9</sup>

burned in automobile engines. These fuels include E85, which is a blend of 85 percent ethanol and 15 percent gasoline, and biodiesel, which is produced mainly from soybean oil. But since alternative fuels are more expensive to produce than gasoline or diesel, ethanol's economic viability depends importantly on the price of corn and the price of crude oil, as seen in the sidebar above.

### 2. Government support for ethanol production

Since 2005, Congress has begun requiring that an increasing portion of U.S. motor fuel come from ethanol. Because ethanol



## The 1980s Ethanol Boom and Bust

The 1970s were a period of sharply rising crude oil prices, much like the past few years. In 1978, to spur development of alternative fuels, a 40-cent-per-gallon ethanol subsidy was enacted for producers.

In 1980, according to the Energy Information Administration, there were fewer than 10 ethanol production facilities in operation in the U.S., producing a total of about 50 million gallons.<sup>10</sup> In the same year, the Energy Security Act made insured loans available to small ethanol producers. Congress also enacted an import tax on foreign-produced ethanol. Finally, in 1983

and 1984, the ethanol subsidy was increased to 50 and then 60 cents per gallon, respectively. Meanwhile, oil prices, which had risen from about \$12 per barrel in early 1976, peaked at about \$40 per barrel in mid-1980 and then began to steadily decline.

In 1983, the number of ethanol plants peaked at 163. By August 1986, crude oil prices averaged less than \$12 per barrel and fewer than half of the domestic ethanol producers were still in business. A similar development might occur today if the surge in oil prices is not sustainable.

### 3. Ethanol as a fuel additive

In 1995, the federal government mandated the use of reformulated gasoline to help reduce smog in the cities experiencing the worst air pollution. To accomplish this, refineries primarily used MTBE as an additive. Four years later, 30 percent of the nation's gasoline was reformulated.

Over time, though, MTBE was found to be a groundwater pollutant. Beginning in 2006, as a consequence of the 2005 Energy Policy Act, refineries switched to ethanol as a gasoline additive. (In effect, the 2005 act did not provide liability protection against MTBE-related lawsuits.)

As MTBE was phased out, the demand for ethanol rose significantly. As a result, ethanol prices rose from an average of \$2 per gallon in December 2005 to nearly \$4.25 per gallon in mid-June 2006. As the supplies of ethanol increased, prices fell to an average of about \$1.90 per gallon in September 2006.

### Higher Food Prices and Ethanol

Ethanol produced in the U.S. is derived mostly from corn. Hence, the primary consequence of an increase in the demand for ethanol as a gasoline fuel additive is an increase in the demand for corn. With the federal government mandating a five-fold increase in ethanol production by 2022, it seems inevitable that an increasing share of the nation's corn crop will be devoted to ethanol production. The prospect of higher corn prices—and the prices of other commodities, as more acres are devoted to corn production—has raised the specter of a food-fuel debate in some quarters.

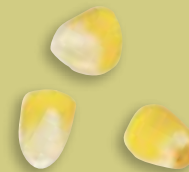
According to the U.S. Department of

Agriculture (USDA), the percentage of the domestic corn supply used to produce ethanol has increased from less than 5 percent in 2000 to 22 percent last year. The USDA's latest long-term projections indicate that nearly 5 billion bushels of corn, or about 31 percent of total projected supply, will be used to produce ethanol in 2017. At the same time, the USDA projects that the price of corn in nominal terms will fluctuate between \$3.50 per bushel and \$3.80 per bushel. Although this is considerably less than prices seen currently, it represents a substantial step-up from the roughly \$2.25 per bushel average price seen from 2000 to 2006.

The increased percentage of the corn crop used in ethanol production, according to the USDA, largely comes at the expense of corn used for livestock purposes (feed) and, perhaps more important, buffer stocks (inventory). In addition, the increased acreage devoted to corn reduces the area devoted to other important crops, like wheat and soybeans. All else equal, this means higher prices for those crops also.

For farmers, higher crop prices eventually lead to higher land prices, which has already occurred. At the same time, higher crop prices increase the cost of producing beef, poultry and chicken.

Critics of the U.S. ethanol mandate argue that this increase in commodity prices has led to increased food prices worldwide. In the U.S., the Consumer Price Index for food and beverages increased by more than 4.5 percent last year, following an average increase of 2.5 percent from 2000 to 2006. This trend has continued into this year. Researchers, such as C. Ford Runge and





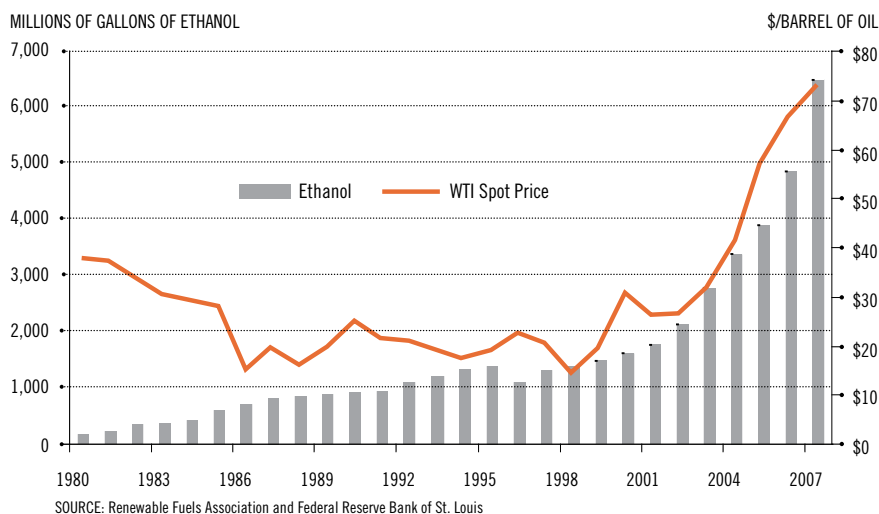
Benjamin Senauer, professors of economics at the University of Minnesota, argue that increased biofuel production will lead to even more significant price increases for consumers in poor and less-developed nations, where food expenditures are a larger portion of consumer incomes. These concerns were also recently noted by officials from the United Nations and the International Monetary Fund.

However, in the U.S. the percentage of the corn crop used to produce food for humans is projected by the USDA to decline only from 9.6 percent of total supply in 2007 to 9.4 percent of total supply in 2017. In effect, to compensate for the increased ethanol production, the USDA assumes that (1) corn yields will continue to increase and (2) that

the 1980s, and then has averaged about 20 percent since the 1990s.<sup>4</sup>

According to a study published recently by Texas A&M University, the approximate doubling of corn prices from 2004 (\$2.06 per bushel) to 2007 (\$4 per bushel) raised the farm cost of high fructose corn syrup in a 12-pack of soda from 11.5 cents to 22.2 cents. Similarly, when wheat prices rose from \$3.40 per bushel in 2004 to \$6.65 per bushel in 2007, the farm cost (wheat) in a loaf of bread rose from 5 cents to 9 cents. Thus, all else equal, if the price of bread in 2004 averaged \$2 per loaf, then its price would have been \$2.04 per loaf in 2007, an increase of 2 percent. However, the price of bread rose by 15.6 percent over this period. This suggests that some other factors have been more important in raising the price of bread and other commodities. One important factor has probably been higher energy prices.

## U.S. ETHANOL PRODUCTION AND CRUDE OIL PRICES



### Weighing the Benefits

Greater use of ethanol would make a dent in the demand for oil, albeit a pretty small dent. (Using all corn grown in the U.S. to produce ethanol would replace only 12 percent of the gasoline used for transportation in the U.S.<sup>5</sup>) Moreover, many experts contend that burning ethanol will lower greenhouse-gas emissions.

These potential benefits must be weighed against the potential costs of ethanol production noted above. But there might be other costs. For example, one study, co-authored by Princeton University lecturer Timothy Searchinger, claims that when the environmental effects of land clearing for ethanol source crops are taken into account, ethanol actually produces more carbon emissions than standard gasoline. Moreover, ethanol faces other environmental barriers, such as water and fertilizer intensity. One cost rarely discussed is the opportunity cost of scarce resources devoted to producing more corn.

For these and other reasons, Congress has begun to promote cellulosic ethanol, which could produce 250 percent more ethanol per acre than corn.<sup>6</sup> Of the 36 billion gallons of biofuels required by 2022—and nearly all of this is expected to be ethanol rather than biodiesel—16 billion must be from cellulose. One key source of cellulose is switchgrass, which is considerably cheaper to produce. However, as a recent academic study found,

there will be no major drought. The latter assumption might be crucial, given the projected decline in buffer stocks over time. Without adequate inventories (or imports), a major drought would probably cause a sharp increase in corn prices.

Another important, but often ignored, reason why higher raw commodity prices cannot fully explain the rise in food prices is that the commodity component of the consumer's food bill is relatively small. Over time, the farmers' average share of total consumer expenditures for domestically produced food has dropped measurably. This share averaged about 33 percent during the 1960s and 1970s, fell modestly to 26 percent during







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In McLean, Ill., farmer Mike Olson checks his crop as he augurs corn from a storage bin into a truck for delivery to a grain elevator. Olson said at that time (April 2007) that he planned to increase his corn planting to take advantage of rising prices for corn.

the infrastructure to support ethanol from switchgrass is “virtually nonexistent,” and the U.S. Department of Energy’s National Renewable Energy Laboratory has probably underestimated the costs of producing cellulosic ethanol by as much as 37 to 191 percent.<sup>7</sup>

Obviously, significant improvement in technology will be necessary to bring this form of ethanol to market. Moreover, if the 2022 mandate is met, the combination of corn and cellulosic ethanol produced in that year will be “energetically” equivalent to roughly 21 billion gallons of gasoline (15 percent of the gasoline used for transportation in 2005). In short, crude oil will remain the dominant source of motor fuels production.

Furthermore, the long-term benefit from ethanol production depends on its viability when compared to conventional fuels. A repeat of the 1980s’ decline in oil prices would most probably lead to a considerable departure of economic resources from ethanol production. This development could create pressure to extend or increase the federal tax credit and the import tax. Hence, meeting the federal mandates set by EISA might require even larger subsidies and government outlays than are currently anticipated.

One way to partly meet the federal mandate would be to remove the federal import

tax. This would allow imports of ethanol from Brazil, which is the world’s second-largest ethanol producer. According to a recent report by the Congressional Research Service, Brazilian ethanol enjoys a significant cost advantage relative to U.S.-produced ethanol. Moreover, since Brazilian ethanol is made from sugar cane, allowing increased imports from Brazil would lessen the potential supply pressures on U.S. feed grain production noted above. [Q](#)

*Joshua A. Byrge is a research analyst and Kevin L. Kliesen is an economist, both at the Federal Reserve Bank of St. Louis. For more on Kliesen’s research, see <http://research.stlouisfed.org/econ/kliesen/index.html>.*



## ENDNOTES

- <sup>1</sup> See the 2008 Economic Report of the President.
- <sup>2</sup> See Lazzari (2005).
- <sup>3</sup> See chapters 99 and 22 of the Harmonized Tariff Schedule of the United States (2008 Rev.1) at [www.usitc.gov/tata/hts/index.htm](http://www.usitc.gov/tata/hts/index.htm).
- <sup>4</sup> See [www.ers.usda.gov/data/FarmToConsumer/marketingbill.htm](http://www.ers.usda.gov/data/FarmToConsumer/marketingbill.htm)
- <sup>5</sup> See Hill, et al. (2006).
- <sup>6</sup> Currently, ethanol yield per acre of corn is 400 gallons while cellulose is expected to produce 1,000 gallons per acre or more. See Coyle (2007).
- <sup>7</sup> See Epplin et al. (2007).
- <sup>8</sup> See Doering, Hurt and Tyner (2006) for assumptions used in the Eidman/Tiffany model and to relate ethanol price with crude oil price. Here, we assume a production capacity of 40 million gallons per year and zero additive-premium value of ethanol.
- <sup>9</sup> These issues will be discussed at a conference co-sponsored by the St. Louis Fed at Washington University in St. Louis on Nov. 14, 2008. See inside back cover.
- <sup>10</sup> For more on the history of ethanol production and legislation, see [www.eia.doe.gov/kids/history/timelines/ethanol.html](http://www.eia.doe.gov/kids/history/timelines/ethanol.html).

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# The Mortgage Crisis

*Let Markets Work, But Compensate the Truly Needy*

*By William R. Emmons*

Recent mortgage-foreclosure rates are the highest since the 1930s.<sup>1</sup> Yet, large-scale government interventions directly in housing or mortgage markets—such as government purchases of delinquent mortgages or vacant houses, involuntary mortgage modifications, or outright mortgage-foreclosure bans—are not necessarily the best policy responses. From the perspective of maximizing long-run economic efficiency, it would be better to allow housing and mortgage markets to sort themselves out, as painful as that may be. Politicians can decide whether and how to help those who were made truly needy by this crisis.

In order to minimize future boom-and-bust cycles in housing and mortgage markets, makers of public policy also should seek to eliminate risk-taking distortions that have become evident recently and to level the playing field for all market participants to the greatest extent possible.

## The Mortgage-Foreclosure Crisis

Mortgage foreclosures had been increasing gradually for many years, but they spiked sharply upward beginning in 2006. Almost 3 percent of first-lien mortgages in the U.S. entered the foreclosure process during 2007, affecting about 1.6 million households (Figure 1).<sup>2</sup> Conditions in housing and mortgage markets remain stressed in mid-2008, suggesting that foreclosure rates this year could be even higher than last year.<sup>3</sup> Based on various data sources, mortgage-foreclosure rates probably have not been this high in the U.S. since the Great Depression during the early 1930s.

Among states in the Federal Reserve's Eighth District, Indiana experienced the highest foreclosure-start rate last year (Table 1). About 4.34 percent of all Indiana mortgages entered foreclosure, representing more than 45,000 households. Illinois, Mississippi and Kentucky also experienced foreclosure rates higher than the national average, while Tennessee, Missouri and Arkansas foreclosure rates were below the national average.

In each case, the 2007 rate was the highest for that state in many decades.

## Causes of the Crisis

Two potential causes of debt default are an interruption of the borrower's income and unaffordable payments. For most households, the primary source of debt repayment is earnings from employment. Becoming unemployed, therefore, is likely to increase the risk of default considerably. A likely cause of unaffordable mortgage payments is a high interest rate on a fixed-rate mortgage or a high reset rate on an adjustable-rate mortgage. Recent research suggests that neither of these factors played a large role in the 2006-07 increase in mortgage-foreclosure rates. (See sidebar on Page 13.)

Three important trends combined to create the current wave of foreclosures:

**1) An increasing number of risky mortgages.** In 2001, fewer than 10 percent of outstanding mortgages were nonprime, a category comprising subprime and Alt-A (Alternative-A), or near-prime, mortgages.<sup>4</sup>



After losing their house to foreclosure, Celeste Trettin, 52, and her husband, Rick Trettin, 62, moved their camper late last year to "tent city" in Ontario, Calif. They were still living there in March when the park was raided by government officials. In an effort to thin the population—which had grown to 400 from 50 in nine months—officials forced those who could not prove their residency in Ontario to leave.

On the facing page, a so-called McMansion awaits disposition after foreclosure.

Their share grew rapidly in the years that followed, however. Figure 2 shows that subprime and near-prime mortgages reached almost 34 percent of all *mortgage originations* during the peak year of 2006. After several years of rapid growth, about 13 percent of *outstanding first-lien mortgage loans* were subprime at the end of 2007, and a further 10 percent were near-prime.<sup>5</sup> Thus, almost one-quarter of mortgages were conventional (not guaranteed by the federal government)

nonprime loans by late 2007, compared with a mid-single-digit share a decade earlier.

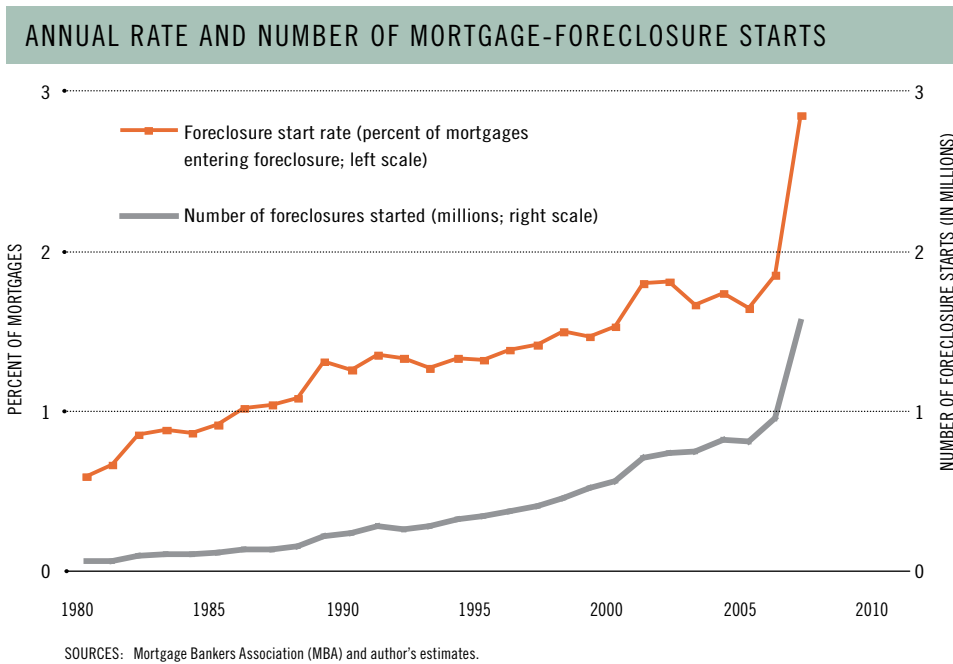
Subprime loans are characterized by weaker borrowers (for example, low credit scores), and near-prime loans are characterized by riskier loan structures (for example, limited documentation). Lenders attempt to compensate for increased risk of default by charging higher interest rates. Even if the loan underwriting is done properly, lenders expect the default rate to be higher on these loans. Higher interest payments by borrowers who do not default are expected to offset the losses on defaulting loans. Thus, higher default rates should be expected as the mix of outstanding mortgages shifts toward riskier categories.

**2) The riskiness of the typical nonprime mortgage loan increased.** There is evidence that the amount of risk being assumed by a typical nonprime borrower increased steadily during recent years. One indicator of increasing risk is greater borrower leverage. About 45 percent of subprime borrowers in 2001 had less than 20 percent equity in their houses at the time they took out the mortgage. Five years later, 58 percent were in this category, an increase of 13 percentage points.

**3) House prices stopped rising rapidly in 2006 and began to decline in many areas.** A common characteristic of most borrowers with risky mortgages (including those with subprime and near-prime mortgages) is that their ability and willingness to remain current on payments is extremely sensitive to the rate of appreciation of their house's market value.<sup>6</sup> As long as house prices are rising, even financially weak borrowers who are facing cash-flow problems can avoid default by selling the property or refinancing the mortgage. Rising house prices create additional homeowners' equity, which bails out both the lender and the borrower.

When house prices stop rising or actually fall, the sale-or-refinancing escape hatch begins to close. Any financial setback can translate quickly into mortgage delinquency and, sometimes, into default. Falling house prices tend to coincide with slow markets, when houses remain unsold for long periods (due to the unwillingness of many sellers to lower their asking prices sufficiently to meet the prices bid by potential buyers). Inability to sell quickly increases default risk further.

**FIGURE 1**



**TABLE 1**

**FORECLOSURE STARTS DURING 2007 IN EIGHTH DISTRICT STATES**

	Percent of mortgages entering foreclosure at MBA-surveyed lenders	Estimated number of mortgages entering foreclosure at all lenders
Indiana	4.34	45,516
Mississippi	3.49	10,625
Illinois	3.05	63,178
Kentucky	2.90	15,420
Tennessee	2.62	27,331
Missouri	2.61	27,970
Arkansas	2.05	7,611
<b>USA</b>	<b>2.84</b>	<b>1,554,828</b>

SOURCES: Mortgage Bankers Association (MBA) and author's estimates.

The estimated numbers of foreclosure starts are adjusted upward using the assumption that the numbers reported by MBA represent 84 percent of the true amount.

Nationwide average rates of house-price appreciation declined in 2006 and 2007 from double-digit rates of increase experienced earlier (Figure 3). In areas that previously had experienced extremely rapid price increases, such as California and Florida, deceleration turned into outright price declines. Among nonprime borrowers, the most vulnerable were those who bought their houses with little or no down payment or refinanced into a nonprime loan just before the house-price boom ended (2005 or 2006). In fact, statistical evidence shows that these later cohorts of borrowers are defaulting in large numbers now—regardless of local unemployment trends and often before their mortgage interest rates were due to reset.<sup>7</sup>

These three trends—a rising number of risky loans, increasing risk levels in these loans and decelerating house prices—are interconnected. Increased availability of nonprime mortgages during the last decade was associated with vastly increased nonprime-mortgage borrowing and faster rates of house-price appreciation. Rising house prices, in turn, encouraged more nonprime lending and borrowing on ever-riskier terms—after all, loan performance had been good and homeowners' equity appeared healthy and growing. Unfortunately, the rising tide of ever-riskier mortgages has unleashed a flood of defaults as

house price appreciation stalled and went into reverse.<sup>8</sup>

### **A Case for Correction—or Not**

From the perspective of maximizing long-run economic efficiency, it is better to allow housing and mortgage markets to sort themselves out as quickly as possible, rather than intervening to prevent house prices and homebuilding activity from finding their natural levels. It is unlikely that any public policies could have prevented house prices from declining and many borrowers from defaulting during recent years, given the scale of apparent overvaluation and overbuilding in housing markets, together with the large number of risky mortgages taken on by many households. Any delay in necessary adjustments would be temporary, at best, and could exacerbate the problems, at worst. For example, artificially maintaining house prices at levels above those that a free-functioning market would produce could induce homebuilders to continue adding to the supply of houses. Ultimately, this would drive house prices down even further.

A preference for nonintervention in markets does not mean that economists are heartless, however. A policymaking corollary to the economic rule of *laissez-faire* in markets is the so-called compensation principle.<sup>9</sup> This states that a portion of the economic gains

## **Unemployment and Mortgage Rates Are Not the Culprits in This Crisis**

**T**he current crisis over mortgage foreclosures appears to be quite different from previous periods of elevated defaults, such as the 1930s, when unemployment reached 25 percent, or the early 1980s, when mortgage rates reached well into double digits. The culprit this time appears to be falling house prices in many parts of the country.

The U.S. unemployment rate remained well below 5 percent during 2006 and 2007, near the lowest levels of recent decades. In fact, with the exception of the years 1998-2001, there has not been a two-year period with an unemployment rate as low as the 4.6 percent average of 2006 and 2007 since the late 1960s. Regression evidence confirms that instances of unemployment played a very minor role in raising foreclosure rates during 2006-07.<sup>12</sup>

Mortgage interest rates for strong borrowers (those with prime credit) also were historically moderate during 2006 and 2007, albeit somewhat higher than during 2002-05. Interest rates did rise sharply during 2004-06 for borrowers who took out adjustable-rate subprime mortgages and subsequently allowed the initial teaser rate to expire before paying off or refinanc-

ing the mortgage. These rates did not reach the levels seen during 2000, however, when foreclosure rates were lower. Moreover, most borrowers were able to refinance their mortgages before, or shortly after, their interest rates reset at a higher level. Therefore, high mortgage rates do not appear to be the cause of historically high default rates during 2006 and early 2007.

Recent research points to declining house prices in many areas as a much more significant shock to hit vulnerable mortgage borrowers than either unemployment or mortgage interest rates.<sup>13</sup> Many subprime borrowers had been able to avoid disastrous interest-rate resets on adjustable-rate mortgages, as well as improve their stressed financial conditions, by liquefying the rapidly accumulating home equity that rising house prices had created. But when house prices stopped rising and actually began to fall in many markets, the refinancing escape hatch began to close. When subprime-mortgage originations virtually ceased after the onset of financial turmoil in August 2007, the escape route for millions of borrowers was blocked completely. In many cases, "negative equity"—mortgage debt greater than the market value of the house—began to grow, spurring defaults.

achieved by allowing markets to work unimpeded can and should be used to compensate the losers—individuals who are harmed by the adjustment process itself.

In addition to compensating those adversely and, perhaps, unfairly affected by necessary market corrections, an economic approach to the mortgage-foreclosure crisis would seek to reduce or eliminate market distortions that may have contributed to the boom and bust in the first place. The key underlying causes of the current spike in mortgage foreclosures are an increasing number of risky mortgages, greater risk-taking by lenders and borrowers, and a historic housing boom turned to bust. Was each of these a bad thing by itself, needing correction?

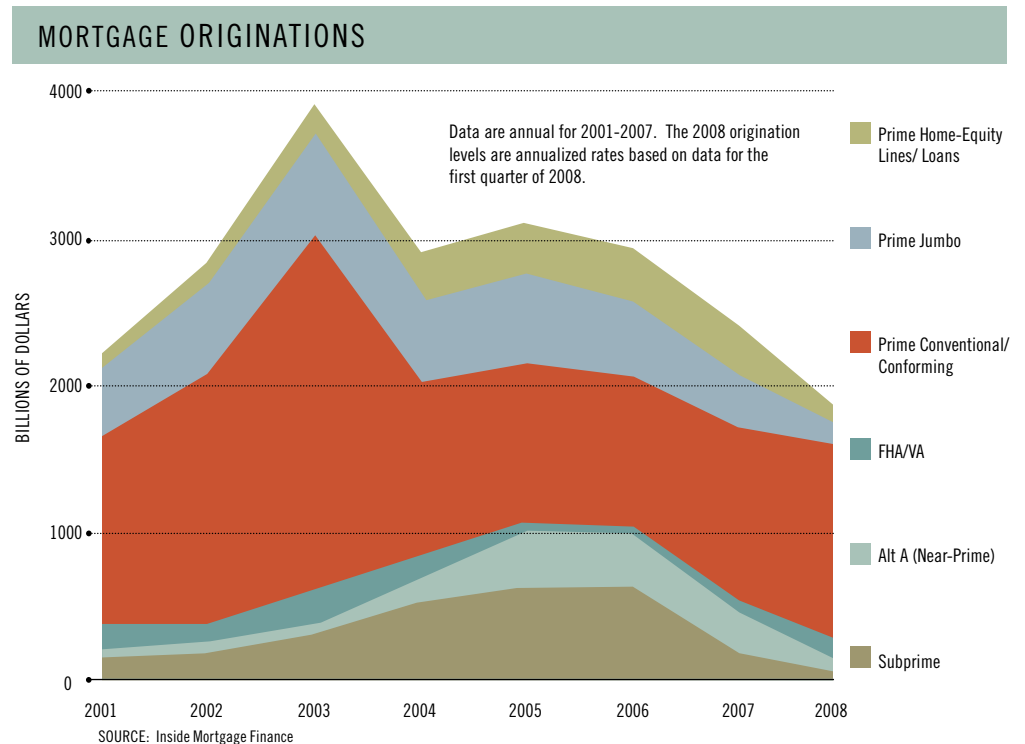
**Underlying cause No. 1—an increasing number of risky mortgages.** It is not obvious that an increasing number of risky mortgages is a problem that needs to be fixed. The increased number of risky mortgages in recent years represents an increase in the number of households that were able to access the mortgage market, as well as a larger variety of ways to borrow.

In some cases, these nontraditional borrowers were riskier, which resulted in higher expected delinquency and default rates. But a higher rate of default is not by itself a reason to reduce access to credit.

For all its flaws, the boom in nonprime mortgage lending coincided with, and may have contributed to, an increase in the homeownership rate. After reaching 64.3 percent in 1969, the homeownership rate fluctuated, but did not significantly surpass the 1969 level until 1995. During the following decade, as the nonprime mortgage sector expanded, the homeownership rate rose to 69 percent.

Some of these new homeowners overextended themselves, and abuses appear to have been committed by some mortgage brokers, other lenders, investors, appraisers and others. Oversight in the mortgage market should be strengthened and abuses eliminated, but the goal of extended access to mortgage credit surely is a reasonable one for public policy. Because the private market for nonprime mortgages is not likely to recover quickly, there is a case for bolstering government agencies and programs that facilitate widespread access to decent housing and mortgage credit. These programs include Federal Housing Administration and Veterans Administration mortgage guarantees, as well as housing assistance from the Department of Housing and Urban Development (HUD), both for renters and owner-occupiers.

**FIGURE 2**

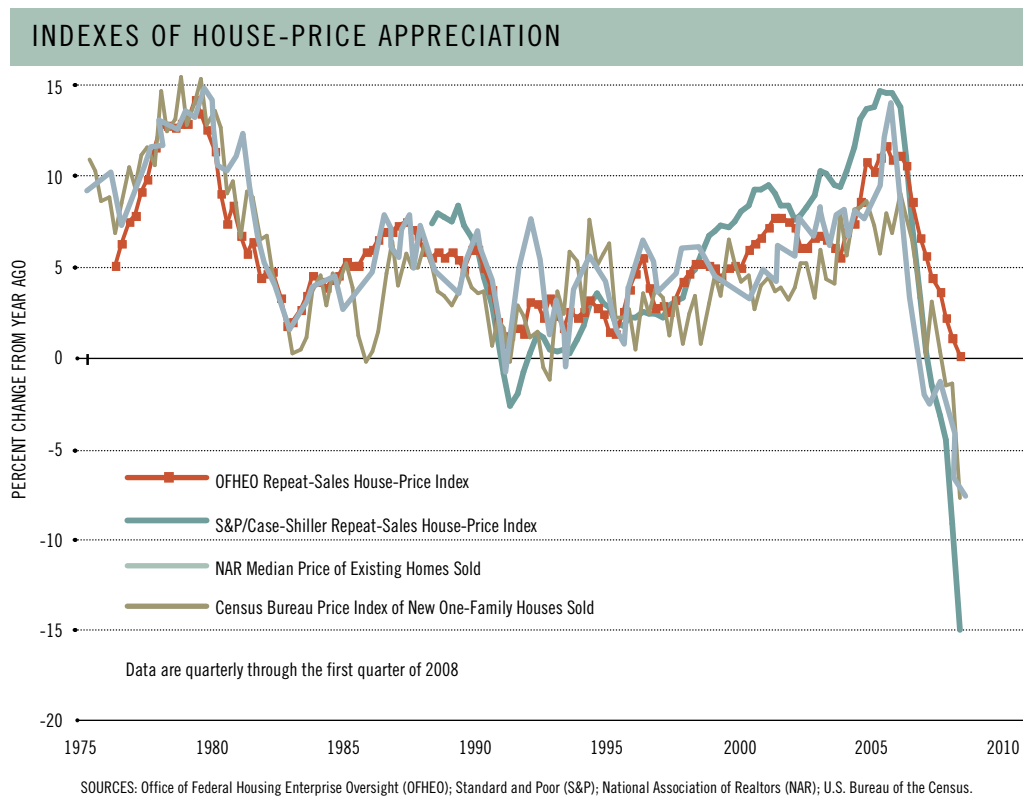


**Underlying cause No. 2—greater risk-taking by borrowers and lenders.** As long as both borrowers and lenders were fully aware of the greater risks they were taking, there is, once again, no problem to fix. It would be counterproductive to ban outright any practices and contracts that well-informed buyers and sellers are willing to accept. Of course, many mortgage borrowers probably were not fully informed or as sophisticated as lenders were. Financial literacy desperately needs improvement. Consumer-protection regulations, including disclosure requirements and enforceable penalties that are consistently assessed against bad actors, are important in leveling the playing field. The Federal Reserve actively promotes greater financial

financial firms make poor risk decisions. The financial pain suffered by mortgage lenders and investors is measured in the hundreds of billions of dollars already. No doubt, investors' appetite for making risky mortgage loans is much reduced today. It is unlikely that as many risky mortgages will be offered in the future as occurred during the early 2000s.

**Underlying cause No. 3—a historic housing boom turned to bust.** As is true for the mortgage market, housing markets also are most efficient when allowed to function unimpeded—as long as the preconditions for competitive markets are met, of course. Is the housing market capable of functioning efficiently?

**FIGURE 3**



literacy, and the Fed has revised Regulation Z, which implements the Truth In Lending Act, to strengthen consumer protections in both mortgage and credit-card lending. In addition, more work should be done in strengthening enforcement mechanisms available to both federal and state agencies.

As for excessive risk-taking by lenders and investors, the best disciplining device is market discipline—the harsh punishment meted out by stock and bond markets after

There are potentially many buyers and sellers of existing houses, while the home-building industry consists of low barriers to entry (and exit) and vigorous competition. In some communities, land-use or other building restrictions put artificial constraints on increasing the supply of housing units, but this means simply that house prices must bear more of the burden of equating supply and demand, rather than relying on changes in the housing stock. In either type

of market—supply-constrained or unconstrained—there is no compelling reason why market processes will produce inefficient outcomes. Tax distortions may contribute to overinvestment in housing, but houses, once built, trade in relatively free markets.

The recent housing boom ranks among the most vigorous in recent decades, measured both in terms of increased home-building activity and house-price gains outstripping income growth. The U.S. was not unique in this respect, as many countries experienced unusually large increases in both home-building activity and house prices.<sup>10</sup> The national housing bust that is unfolding now is likewise large in comparison with recent downturns, but is unexceptional when compared with experiences in many other countries or with some prior regional housing busts in the U.S.—for example, in the manufacturing-intensive states in the early 1980s, in the energy-producing states in the late 1980s, or in the Northeast and California in the early 1990s.<sup>11</sup>

### Policy Responses

A key step in sound economic policymaking is to determine if it is likely that government actions would fix the problems. After all, intervening can make the situation worse—for example, by distorting housing or mortgage markets so much that eventual recovery is more difficult or future performance is compromised; by using public funds inefficiently and shifting the cost onto future taxpayers who are not represented in today's debate; or by increasing moral hazard (the expectation of a future bailout), which could make future crises larger and more likely.

Based on the previous discussion of the underlying causes of the mortgage-foreclosure crisis, the scope for welfare-enhancing direct interventions into housing and mortgage markets appears limited. Increased government funding of housing and mortgage assistance to households not served by the prime mortgage market—via FHA and VA loan guarantees, for example—might temporarily replace some of the private nonprime mortgage markets that have collapsed. A renewed emphasis on public-sector assistance for housing and on mortgage access for underserved households also would address the presence of predatory lenders who take advantage of uninformed or financially


unsophisticated borrowers. Stronger disclosure regulations and stiffer penalties also are needed to reduce the information deficit many households suffer.

### Conclusion

House prices in many parts of the country may fall from their peak levels in 2006 or 2007 by the largest amount in several decades. Millions of households already have lost their houses through foreclosure, and millions more probably will follow. What should governments do, if anything?

From a purely economic perspective, it is desirable that overvalued house prices decline. Artificially high house prices send the wrong signal to homebuilders, who will make the ultimate correction even worse by supplying even more unneeded houses. Foreclosures are necessary to ensure that mortgage markets function effectively. The ability of a lender to seize the borrower's collateral is what keeps a mortgage borrower's interest rate far below credit-card rates. Without the possibility of foreclosure, mortgage rates would be much, much higher because the borrower's incentive to pay back the loan would be diminished greatly.

The financial distress to borrowers and communities caused by foreclosures should be addressed directly. A stronger social safety net—including measures such as income support, vouchers to guarantee access to decent housing and assistance in re-establishing household financial stability—is the most direct way to deal with the fallout from mortgage foreclosures. Local communities can be supported through direct grants from the federal government to replace tax revenue lost as a result of slumping local housing markets.

Economically efficient public policy attacks the underlying causes of a crisis directly, rather than approaching problems indirectly or by dealing only with symptoms. By allowing markets to sort themselves out quickly, a basis for sustainable homeownership and responsible mortgage lending can be re-established. 

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*William R. Emmons is an economist at the Federal Reserve Bank of St. Louis. For more on Emmons' work, see [www.stlouisfed.org/banking/PDFs/CVs/Emmons\\_vitae.pdf](http://www.stlouisfed.org/banking/PDFs/CVs/Emmons_vitae.pdf).*

### ENDNOTES

- 1 See Bernanke.
- 2 This estimate is based on the Mortgage Bankers Association National Delinquency Survey, which covers about 84 percent of all first-lien mortgages. The MBA survey identified 1,306,000 foreclosure starts in 2007, or 2.84 percent of all mortgages. If nonsurveyed lenders experienced comparable foreclosure rates, the nationwide total of foreclosure starts in 2007 would be about 1,555,000.
- 3 Not all foreclosure starts result in foreclosure. A borrower entering foreclosure may become current on payments again; the mortgage terms may be renegotiated to become affordable; or the buyer may sell the house and pay off the loan.
- 4 There is no precise definition of a subprime or near-prime mortgage loan. In general terms, subprime loans are the riskiest, prime loans are the least risky and near-prime loans are in between. See Emmons and Sengupta.
- 5 See Mortgage Foreclosure Project Research Committee of the Federal Reserve.
- 6 See Gerardi, Shapiro and Willen.
- 7 See Demyanyk and Van Hemert.
- 8 See Mian and Sufi.
- 9 See Stiglitz.
- 10 See International Monetary Fund.
- 11 See Wheelock.
- 12 See Demyanyk and Van Hemert.
- 13 See Demyanyk and Van Hemert; and Gerardi, Shapiro and Willen.

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# Triple Whammy Fuels Economic Doubts

By Kevin L. Kliesen



Escalating oil and commodity prices, a sharp contraction in the housing market, and recent financial market turbulence have increased the odds of a recession this year, according to most forecasters. A return to trend-like real GDP growth (3 percent) toward the middle of 2009 seems the most likely scenario, but recent stimulative actions undertaken by the monetary and fiscal authorities could provide a kick-start to growth in the second half of 2008. However, a quicker rebound, while welcome, might also exacerbate the upward pressure on inflation, which in 2007 was at its highest rate in 17 years, as well as on inflation expectations.

## Is Inflation Gaining Steam?

Measures of actual and expected consumer price index (CPI) inflation have risen sharply since late last year. This development stems mostly from the extraordinary increases in crude oil and commodity prices. Six months ago, the CPI was expected to increase by about 2.25 percent this year after increasing 4.2 percent last year. But in the first quarter of this year, CPI increased at about a 4.25 percent rate.

With oil prices skyrocketing to more than \$135 per barrel in May, average U.S. retail gasoline prices rose to nearly \$4 per gallon. The summer driving season is expected to put some additional upward pressure on prices. Moreover, in April the food component in the CPI had increased by more than 5 percent from a year earlier—its largest increase since late 1990. Thus, it is conceivable that the inflation rate will remain high in the second and third quarters of 2008. In its May report, the Survey of Professional Forecasters (SPF) expects that the CPI will increase by a little more than 3.25 percent in 2008.

Forecasters and the FOMC remain hopeful that the sharp increase in food and energy

prices will not worsen the inflation expectations of households, firms and financial market participants. Keeping inflation expectations low and stable is a key pillar of a successful monetary policy. At this juncture, the evidence is mixed. On the one hand, expected inflation over the next 12 months rose to more than 5 percent in May, according to the University of Michigan consumer sentiment survey. This level was the highest in the survey since 1982. On the other hand, the average yield on inflation-sensitive 10-year U.S. Treasury securities remains below 4 percent, and SPF's forecasts of inflation over the next 10 years have been exceptionally stable at about 2.5 percent for more than a decade.


## Is This a Recession?

Housing continues to exert a sizable drag on real GDP growth. Rising foreclosure rates, exceptionally high levels of unsold new and existing homes, continued declines in house prices, and lack of financing in the nontraditional mortgage market suggest that the housing slowdown has a ways to go.

The SPF projects that real residential fixed investment will continue to decline through the first quarter of next year, but some in the housing industry are even more pessimistic. Since housing's peak in the fourth quarter of 2005, real GDP growth has averaged 2.4 percent per quarter, whereas the contribution from real residential fixed investment has averaged -0.9 percentage points per quarter. Hence, a silver lining is that real GDP growth excluding housing has averaged about 3.25 percent during this two-year period. Nevertheless, labor market conditions have

deteriorated noticeably this year. Over the first four months, nonfarm payroll employment has declined by an average of 65,000 per month.

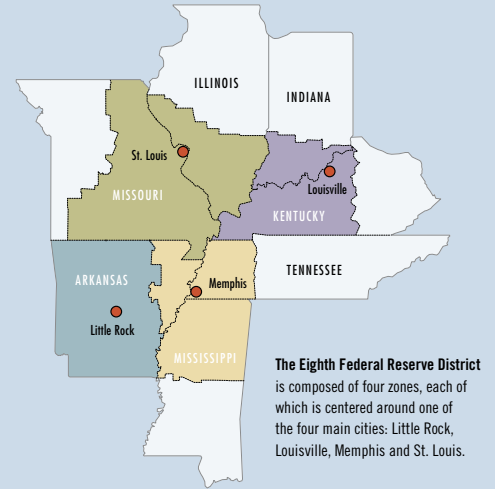
To help counter the fallout from the housing bust, the Federal Reserve has taken two major steps. First, it enacted several new forms of direct lending to financial institutions; this lending is designed to counter strains in the financial markets and to assist depository institutions that may not have an adequate amount of financial capital to lend to credit-worthy customers. Second, the FOMC has reduced its target rate for federal funds from 5.25 percent to 2 percent since August. These stimulative actions, by and large, will not produce an immediate payoff.

All in all, increasing energy prices will likely impart further downward pressure on the growth of real household income and expenditures, and, thus, also business sales, earnings and capital outlays for the remainder of this year. These drags on economic growth—financial, housing and oil—have increased the risk of a recession this year. Although the recently passed fiscal stimulus package may provide a modest, albeit temporary, boost to growth, forecasters and the FOMC expect real GDP growth this year to be 1 percent or less. 

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

## Eighth District Population Growth Follows National Pattern

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



Earlier this year, the U.S. Census Bureau released its population estimates through July of 2007. The data for the Eighth Federal Reserve District contain few surprises. The District continues to closely follow the U.S. growth pattern. From 2006 to 2007, the U.S. population grew by 0.96 percent. Tennessee was the only Eighth District state to exceed that rate by growing at 1.4 percent. The growth rates in other District states ranged from a low of 0.6 percent (Illinois) to a high of 0.9 percent (Arkansas).

For counties within the Eighth District, Spencer County, Ky., of the Louisville metro area remained, at 4.9 percent population growth since 2006, the fastest-growing county in the District. Other counties in the top five were Christian County of Springfield, Mo. (4.7 percent); Benton County of Fayetteville, Ark. (4.1 percent); and Fayette and DeSoto counties of Memphis (4.0 and 3.9 percent, respectively). Of the 10 fastest-growing counties, six were in large metropolitan statistical areas (MSAs), while four were in small- and medium-sized MSAs.

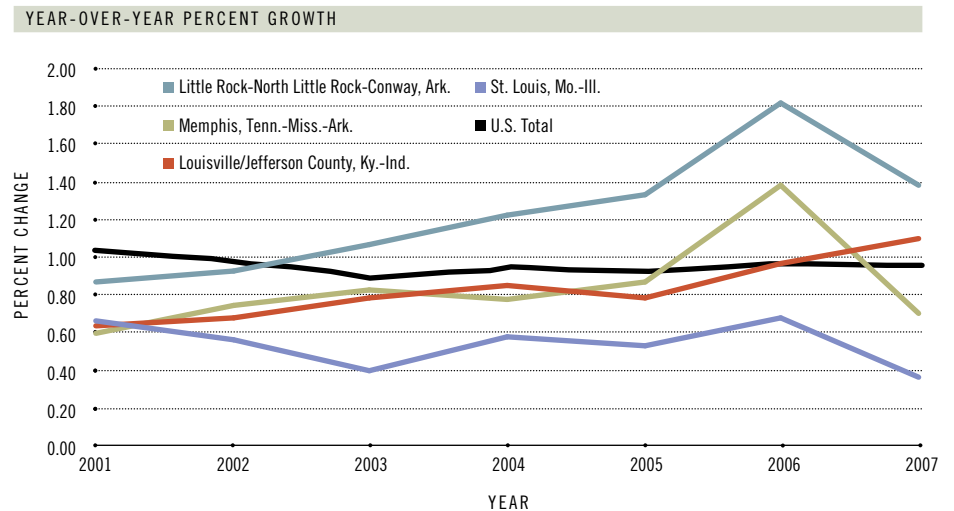
### Accelerated Growth

St. Louis, with 2.8 million people, continues to be the largest metro area. Louisville and Memphis are roughly the same size with 1.2 and 1.3 million people, respectively, and Little Rock is half their size with slightly more than 600,000 residents. The chart looks at year-over-year growth rates and highlights the differences among these four largest MSAs of the Eighth District. The

most consistent trend is a widening gap in growth rates among these metro areas. In 2001, growth in these MSAs from the previous year ranged from roughly 0.6 percent to 0.8 percent, well below the U.S. average of 1 percent. In 2007, the range was a low of 0.4 percent in St. Louis to a high of 1.4 percent in Little Rock. The chart also demonstrates a nationwide pattern in urbanization, which

growth almost every year and exceeding the U.S. average since 2003. Little Rock's growth rate peaked in 2006 at 1.8 percent before cooling down slightly and falling to 1.4 percent in 2007. Within the Little Rock zone, the outlying suburb of Saline County grew the fastest (3.3 percent) in 2007. Memphis followed a pattern similar to Little Rock's, although population

### Population Growth



is characterized by faster growth rates in small- to medium-sized metro areas. St. Louis is the only metro area that grew at a slower rate in 2007 than in 2001, seeing its growth nearly cut in half, while Louisville and Little Rock grew at about 1.5 times their 2001 rates. Memphis seemed to grow like Louisville and Little Rock through 2006 before declining sharply in 2007.

Among the individual MSAs, Little Rock has grown the fastest, accelerating its

growth held steady at about 0.8 percent from 2003 to 2005. Memphis didn't see a surge in population growth until 2006, when it exceeded the U.S. average and followed Little Rock in both the upward trend from 2005 to 2006 and the slight cooling in 2007. Despite this slowdown, Memphis in 2007 was home to the fourth and fifth fastest-growing counties of the Eighth District: Fayette County (4 percent) in Tennessee and DeSoto County (3.9 percent) in

Mississippi. The Louisville metro area has grown every year since 2001. It was the only large MSA in the Eighth District to grow faster in 2007 (at 1.1 percent) than in 2006. St. Louis is the only metro area consistently below the U.S. average and only grew by 0.36 percent in 2007. The area continues to see high growth in the secondary suburbs near St. Charles, Mo., that just barely cover for the population declines in St. Louis city. Since 2006, Lincoln (3.8 percent) and Warren (3.2 percent) counties have grown the fastest, with St. Charles (2.3 percent) not far behind. St. Louis city (−0.9 percent) and St. Louis County (−0.4 percent) have declined, albeit slightly, since 2006.

The 14 other small- and medium-sized metro areas also showed a widening gap in their year-over-year growth rates. In 2001, 12 areas were clustered between zero and 1.3 percent. The exceptions were the Fayetteville-Springdale-Rogers, Ark., area, which in the decade before 2001 was the sixth fastest-growing metro area in the U.S., and Pine Bluff, Ark., the only Eighth District MSA to lose population since 2000. In 2001, Fayetteville grew at a year-over-year rate of 2.6 percent, almost double the rate of the next closest MSA, Springfield, Mo. In 2007, growth in those same 12 areas ranged between 0.2 and 2.2 percent. Among them, the fastest growers in 2001 also increased their growth rates by 2007. Springfield grew at 2.3 percent; Bowling Green, Ky., Columbia, Mo., and Jonesboro, Ark., all grew at 1.6 percent in 2007, down from their respective highs in 2006 of nearly 2 percent. Fayetteville continued its upward surge, adding almost 4 percent more people in 2005 and another 3 percent in 2006 and 2007. Pine Bluff, on the other hand, continued to decline, and population losses accelerated as its year-over-year growth rate slowed to −1.3 percent in 2007.

### Rate of Natural Increase


The U.S. Census Bureau also releases estimates of the natural population increase by county and metropolitan area. The rate of natural increase is computed as the birth rate minus the death rate for a specific year, while the birth rate (or death rate) is simply the number of births (or deaths) per 1,000 people. The natural increase for a given year does not include migration, either

domestic or international, but offers a snapshot of demographic trends in an area.

Overall, the rate of natural increase remained fairly constant for each of the metro areas. Within the Eighth District, both Little Rock and Memphis had the highest rate of natural increase, which is to be expected from the population growth rates presented above. From 2001 to 2007, Memphis maintained a steady rate of natural increase of 7 percent, a full point above the U.S. average. Little Rock was closer to the national trend before the rate of natural increase went up to 6.5 percent in 2007. Louisville and St. Louis continued to increase at about 4 percent per year, and St. Louis passed Louisville in 2005. In 2007, St. Louis experienced a natural rate of increase of 4.6 percent. <sup>10</sup>

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



# Need and the Need for Favors

## Motivate Foreign Aid Decisions

By Howard J. Wall

Amounts of aid from all sources from all over the world to individual countries averaged about \$338 million and ranged from the \$46,000 received per year by Bermuda to the \$2.3 billion per year received by Iraq.

The criteria by which foreign aid is distributed have long been debated. Most of the arguments can be placed into one of two broad models of aid criteria—recipient needs and donor interests. In the recipient-needs model, “aid is given to compensate for the shortfalls in domestic resources.” In the donor-interests model, aid serves donors’ “political/security, investment and trade interests.”<sup>1</sup> Although the debate is often polarized into these two models, research shows that both models are valid, although aid probably has become more responsive to recipient needs since the end of the Cold War.

According to the World Bank, total worldwide foreign aid averaged just short of \$77 billion per year during 2002-04, and there were 172 countries that were net recipients of aid over the period.<sup>2</sup> Amounts of aid from all sources from all over the world to individual countries averaged about \$338 million and ranged from the \$46,000 received per year by Bermuda to the \$2.3 billion per year received by Iraq.

From the table, which lists the top and bottom 15 aid recipients between 2002 and 2004, one can easily see elements of both models.

The role of recipient needs is apparent from the relative poverty of the top 15 recipients and the relative affluence of the bottom 15. Donor interests are most obvious from the very large allocations to Iraq and Afghanistan. Although they are relatively poor countries (they are classified by the World Bank as lower-middle and low income countries, respectively), their rankings at the top of the table are in large part due to donors’ political and strategic objectives intertwined with the countries’ needs. Similarly, the aid totals for Egypt and the West Bank and Gaza have much to do with considerations other than economic need.

Other patterns and oddities are apparent in the list of the bottom 15 countries. These countries tend to be very small. But most of them are high-income countries that nevertheless are net recipients of aid. Four exceptions are St. Vincent and the Grenadines, Seychelles, St. Kitts and Nevis, and Libya, but even they are classified as upper-middle income.

### Recipient Needs during the Cold War

As illustrated by the table, there are elements of recipient needs and donor interests in the allocation of foreign aid. Because of this, it is important to disentangle the two

sets of motivations when trying to understand how responsive aid is to the needs of the recipient countries. It is difficult, however, to come up with very good measures of political and strategic interests. An early study by William Trumbull and Howard Wall gets around this by using a “fixed-effects” approach, which simply allows for each recipient country to have its own strategic and political relationship with donors, without the need to find actual data to capture the relationship. Although this approach does not provide estimates of the role of donor interests, it does provide better estimates of the role of recipient needs than do approaches that ignore donor interests altogether.

Using data for 1984-89, Trumbull and Wall measured recipient needs by per capita income and infant mortality.<sup>3</sup> Although countries with low per capita incomes tend to also have high infant mortality, these variables nevertheless measure two different classes of need: Per capita income measures economic need, while infant mortality measures physical need. These two measures do not necessarily move together in the short run; so, it is possible that aid responds differently to changes in the two types of need. Trumbull and Wall found that levels of foreign aid responded to changes in infant mortality (physical need), but not to changes in per capita income (economic need). They also found that improved civil and political rights tended to mean increases in aid.<sup>4</sup>

### Recipient Needs vs. Strategic Interests

More recently, Alberto Alesina and David Dollar, who were interested in the relative importance of strategic interests and recipient needs, took a different approach. To achieve their purposes, it was necessary to include actual variables to measure the strategic interests of donor countries and to consider them alongside the measures of recipient need. When they looked at aid allocations over the period 1970-94, they found that “the direction of foreign aid is dictated as much by political and strategic considerations as by the economic needs and policy performance of the recipients.”<sup>5</sup> According to their results, aid responded to per capita income and political rights, but only marginally to infant mortality. In contrast, aid was highly responsive to whether a recipient had a colonial past

### Foreign Aid Recipients

ANNUAL AVERAGE 2002-2004			
Top 15	\$ million	Bottom 15	\$ million
Iraq	2,335	Bermuda	0.05
Afghanistan	1,687	Qatar	2.1
Vietnam	1,627	Kuwait	3.9
Ethiopia	1,566	Bahamas, The	4.7
Pakistan	1,538	United Arab Emirates	4.7
China	1,496	Macao, China	4.9
Mozambique	1,491	Hong Kong, China	5.3
Serbia	1,472	Antigua and Barbuda	7.0
Russian Federation	1,290	St. Vincent and the Grenadines	7.0
Bangladesh	1,238	Singapore	7.8
West Bank and Gaza	1,235	Malta	8.8
Egypt, Arab Rep.	1,226	St. Lucia	8.9
Poland	1,199	Libya	9.0
Indonesia	1,068	Seychelles	9.1
India	1,011	St. Kitts and Nevis	9.4

SOURCE: World Bank

and whether its votes in the United Nations tended to follow those of major donors.<sup>6</sup>

This analysis provided a very different picture of the responsiveness of aid to recipient needs. It wasn’t just that Alesina and Dollar found that, in contrast with Trumbull and Wall, aid responded to economic rather than physical need, but that for the very poorest countries aid actually decreased if they became poorer. There are good reasons, however, to doubt these results. Although the strength of Alesina and Dollar’s approach is that it is possible for them to compare the two views of aid allocation simultaneously, its weakness is that there is a good chance that the role of recipient needs is misestimated. This is likely to happen unless the measures of strategic interests that they include are comprehensive. Further, because the period they analyzed spanned the end of the Cold War, the chances of this misestimation are greatly amplified.

### After the Cold War

Recently, two St. Louis Fed economists, Subhayu Bandyopadhyay and Howard Wall, tried to get around these problems. They used the fixed-effects approach and confined their analysis to a portion of the post-Cold War period so that they did not have to

*continued on Page 22*

### ENDNOTES

- 1 See Maizels and Nissanke (1984).
- 2 Here, “foreign aid” means net official development assistance and net official aid. Net official development assistance consists of disbursements of loans made on concessional terms and grants by countries and multilateral institutions to promote economic development. Net official aid refers to aid flows (net of repayments) from official donors.
- 3 Infant mortality is the number of deaths of infants 1 year old or younger per 1,000 live births.
- 4 When fixed effects estimation was not used, income per capita was important while infant mortality was not, and civil/political rights was less than one-third as important.
- 5 See Alesina and Dollar (2000).
- 6 Specifically, they found that more aid tended to go to countries whose U.N. votes were similar to Japan’s, but that the same was not true for countries whose votes followed the United States’.

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- Maizels, Alfred; and Nissanke, Machiko K. “Motivations for Aid to Developing Countries.” *World Development*, Vol. 12, No. 9, September 1984, pp. 879-900.
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continued from Page 21


actually measure donors' strategic interests to obtain good estimates of the importance of recipient needs.

What Bandyopadhyay and Wall found was that aid responded strongly and in the expected ways to economic and physical needs. Specifically, if the average recipient country saw its per capita income rise by 10 percent, it would tend to see a 10 percent decrease in the aid it receives. Also, if the average country saw its infant mortality worsen (i.e., its infant mortality rate increased) by 10 percent, its aid would rise by about 3 percent.

Aid also was found to respond strongly to changes in the behavior of the governments of recipient countries: If a country with the average level of civil and political rights changed its policies and became one of the freest countries, its aid would rise by about 17 percent. Finally, if a government with an average effectiveness in using funds efficiently became moderately more effective (i.e., improved by one standard deviation), its aid would rise by about 25 percent.

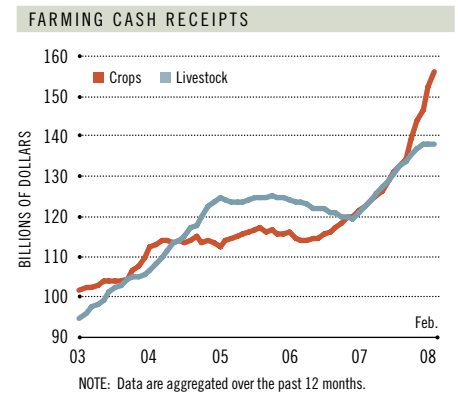
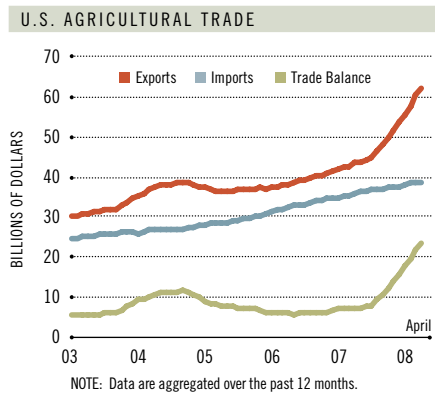
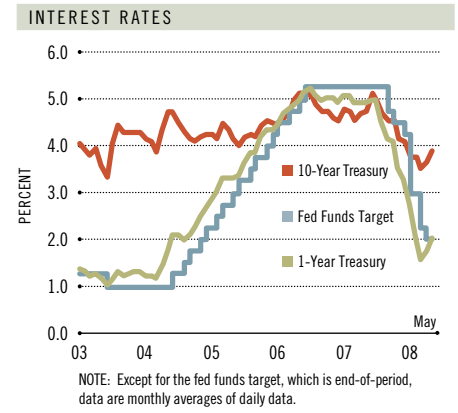
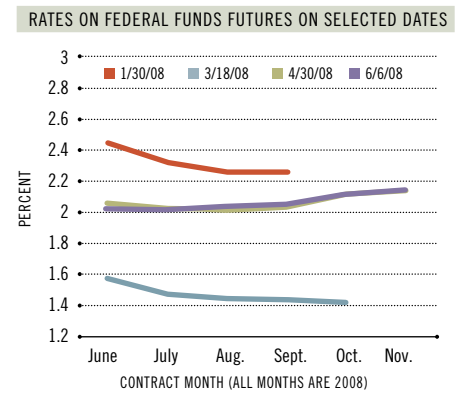
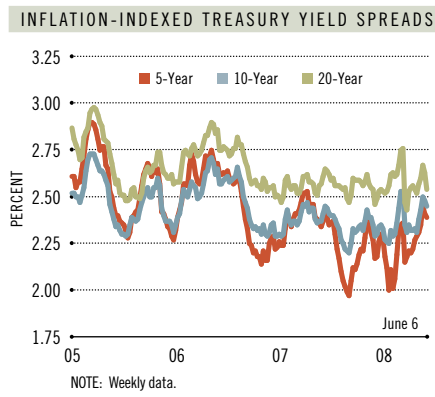
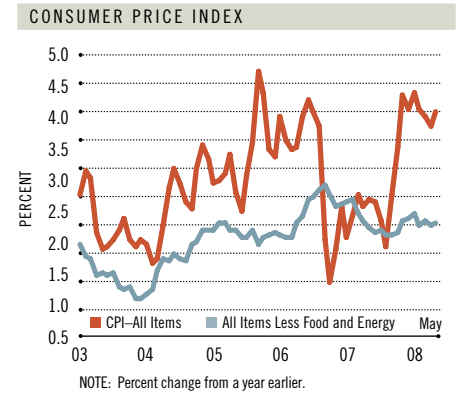
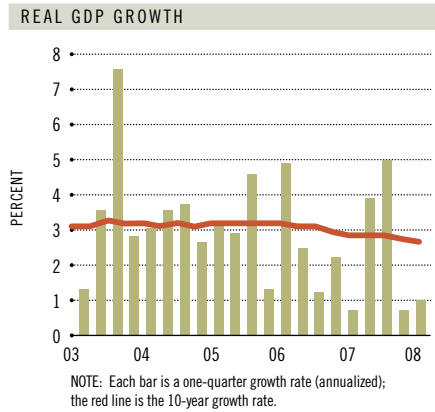
**Lessons**

There should be little doubt that foreign aid is related to the strategic interests of donor countries. Although the nature of this relationship is not known with much precision, the information in the table alone should convince anyone of the existence and importance of the relationship. There should also be little doubt that aid is responsive to changes in the needs, both economic and physical, of recipient countries. Therefore, the donor-interest and recipient-needs models are both relevant to the allocation of foreign aid.

Finally, and perhaps surprising to many, aid is strongly responsive to changes in the level of civil and political rights in recipient countries, as well as to the improvements in the effectiveness of recipient governments in using aid that they are given. It also appears that the link between aid and the needs of recipient countries is stronger than it was during the Cold War. 

*Howard J. Wall is an economist at the Federal Reserve Bank of St. Louis. For more on Wall's work, see <http://research.stlouisfed.org/econ/wall/index.html>.*

Eleven more charts are available on the web version of this issue. Among the areas 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/2008/c/pdf/7-08-data.pdf](http://www.stlouisfed.org/publications/re/2008/c/pdf/7-08-data.pdf).





Besides being the top manufacturer and employer in Greenwood, Miss., Viking Range Corp. has been the leader in rejuvenating downtown. Its headquarters (above) occupies two square blocks facing the Yazoo River where cotton traders once did business.

# Recipe for Success

## Kitchen Company Keeps Town's Economy Cooking

*By Susan C. Thomson*

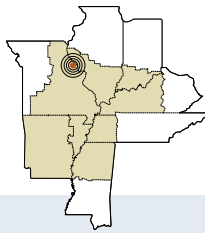
**I**n rich alluvial soil where cotton once was king, the stove now reigns. Since its founding in 1984, homegrown Viking Range Corp. has built a global business in Greenwood, Miss., become the area's premier employer and helped create an island of relative prosperity in what locals often describe as the poorest region in the nation's poorest state.

**At one of the Viking factories** in town, employee Latonja Harris gives a final inspection to a range.

**Liz Lester**, one of John-Richard's 250 employees in Greenwood, applies gold leaf to a picture frame.

**Stanley Marshall**, Heartland Catfish's full-time flavor taster, does his job on a sample he's just microwaved.

**Also at Heartland**, an unidentified employee, swathed head-to-toe in her uniform, processes catfish.



### Leflore County, Miss., By the Numbers

Total population .....	35,088 (1)
City of Greenwood.....	16,742 (2)
Labor force.....	14,150 (3)
Per capita personal income .....	\$24,731 (4)
Unemployment rate .....	8 percent (5)
High school graduates .....	61.9 percent (6)
People living in poverty.....	31.6 percent. (7)

- (1) U.S. Census Bureau, 2007.
- (2) U.S. Census Bureau, 2006.
- (3) Bureau of Labor Statistics, April 2008.
- (4) Bureau of Economic Analysis, 2006.
- (5) 12-month average as of April 2008, compared with 6.2 percent in Mississippi and 4.8 percent for the United States. SOURCE: Mississippi Department of Employment Security.
- (6) U.S. Census Bureau, 2000.
- (7) U.S. Census Bureau, 2004.

### LARGEST EMPLOYERS:\*

Viking Range Corp. ....	1,467
Greenwood Leflore County Hospital.....	968
Mississippi Valley State University .....	543
Heartland Catfish .....	400
America's Catch.....	380
Milwaukee Electric Tool Corp.....	297

\*Self-reported spring 2008

The seed for this success story was planted by the wife and customers of local homebuilder Fred Carl. They kept asking him for restaurant-style ranges for their home kitchens.

Carl conceived and made one. All manner of variations on it followed, as did dozens of other Viking appliances, including disposers, trash compactors, microwave ovens, refrigerators and dishwashers. Now, the founder presides over what he proudly calls an "all-kitchen" company, its brand most recently extended to cookware, cutlery and countertop appliances, designed in Greenwood and made in Europe or China.

Except for these newer, smaller items, almost everything with the Viking name on it is produced in one of the company's four plants and shipped from its worldwide distribution center, all in Greenwood.

The company's growth has helped take up some of the job slack created by the flight of other employers, two of them in the early 2000s. First, Baldwin Piano Co. pulled up stakes, laying off the last 275 employees of a workforce that once topped 1,000. Soon, National Picture & Frame Co.'s two Greenwood plants and their 475 jobs had disappeared, as well.

### Incentives for Business

Since then, Greenwood has welcomed the arrival of the smaller plants of Raybestos Products Co., which makes brake and clutch products, and Milwaukee Electric Tool Corp., which makes power hand tools. Both

companies received economic incentives to come, says Ronnie Robertson, a utility executive who chairs both the publicly funded Greenwood-Leflore Industrial Board and a private economic development foundation.

The two groups combine forces to lure new businesses from out of town. Some are likely to be attracted by the county's nonunion work environment. Others are drawn in by federal, state and local grants, loans and tax breaks. While declining to discuss specific



Viking founder Fred Carl.

cases, Robertson says the possibilities for incentives include federal loans for infrastructure improvements and state loans and grants for roads, utilities, building construction,

workforce development and the cost of transporting and installing special equipment.

As a result of the state offerings, most new in the past five years, "we are aggressively competing with programs and incentives that are offered all across the country," Robertson says.

A standard local offer of 10-year abatement on real estate taxes to relocating companies extends at times to existing businesses. Viking got it for the dishwasher plant it finished earlier this year, along with a \$3 million state grant to build it. The





company also got a \$1.3 million state loan to fix up an abandoned building it uses for parts distribution and a call center. The company will own both buildings after leasing them for 10 years.

### Viking Doesn't Roam

Not that Viking needed any special enticement to stay put. Other states have come courting, dangling inducements for pieces of the company's expanding operations, but to no avail. Carl, a white-haired and cheery man whose favorite term of disapproval is "dad-gum," insists his company is not—and never will be—in play.

"It just doesn't feel right. It feels like I would be abandoning my hometown," says Carl, the fourth generation of a home-building family in Greenwood.

Alex Malouf is no less a Greenwood loyalist. "I was born here and reared here, and I started the business here ... and it's going to remain here forever," he says. His business is John-Richard; it evolved from one local furniture store into a worldwide maker and seller of high-end home furniture and accessories.

The company operates a plant in Vietnam and subcontracts work to 17 different Asian manufacturers. But almost all of its worldwide production passes through its Greenwood facilities, where employees also do some of the assembling and hand finishing.

As employers, Greenwood Leflore Hospital and Mississippi Valley State University, a 58-year-old historically black school with 3,000 students, also count among the

major fixtures. Another is the farm-raised catfish industry, which Robertson estimates employs more people in Leflore County than Viking does.

The county's unemployment rate is one of the lowest among 14 counties in the state's depressed Delta region—a region that consistently registers higher unemployment than the state and nation. But stubbornly high poverty and low education rates combine to limit the pool of job-ready workers.

"The biggest money that's spent around here is between January and March, when tax refund checks come out," says Jim Quinn, senior vice president of Planters Bank & Trust of Greenwood.

His bank's first name speaks to an area rooted in agriculture. Cotton ruled from the early 1800s through about the 1930s. The latest statistics from the Greenwood-based Staplcotn cotton growers co-op show soybeans leading all Leflore County crops, both in acres planted and the crop's total market value. By both measures, cotton has declined by more than half in just the past three years, the result also of rising corn production and prices.

Cotton remains "a big deal, as big a deal as any other crop," says Meredith B. Allen, the co-op's marketing vice president. "It's just not king anymore."

Despite highway signs that still advertise Greenwood as the "cotton capital of the world," that title now belongs somewhere in China, the world's leading cotton-producing country these days, Allen says.



**On Howard Street**, Greenwood's main retail street, another old building is being renovated by Viking, this one for a furniture store. Also on Howard Street, visitors will find one of the handful of markers in the area that are part of the Mississippi Blues Trail. Among the famous blues musicians with connections to the area are B.B. King and Robert Johnson.

### Catfish Concerns

The soaring global demand driving Leflore County farmers into corn and soybeans—and, says Quinn, ensuring them profits for the first time in several years—is driving up costs for the county's catfish farmers. That's because corn and soybeans

*"To the people of Greenwood, Fred is Viking, and Viking is Fred."*

are the main ingredients in catfish feed, those farmers' biggest expense. The price of that feed has risen by two-thirds over the past year, says Roger Barlow, president of the Catfish Institute, which is also tracking and campaigning against a tide of imported catfish.

He speaks for a U.S. industry grown up since the early 1980s and centered in Mississippi. Leflore County is home to a number of small operators and two large producers—America's Catch and Heartland Catfish. Those two have more than 1,200 catfish ponds between them, along with automated plants that process, pack and ship their products.

The changing economic times have affected even Viking. Citing the housing slowdown, Carl forecasts the company's

sales will be down this year from last, snapping a stretch of year-to-year increases of 10 percent and more. He foresees a shake-out in the industry, with Viking winning market share from weaker competitors and proceeding toward his goal of \$1 billion a year in sales. "I always wanted to be large," he says.

The company is forging ahead with new products, including its first commercial ranges, and new projects, including renovation of downtown Greenwood's former Elks Club into a school for professional chefs.

### Downtown's Revival

Viking's imprint is already all over that 38-square-block downtown, which dates largely from Greenwood's boom years of the early 20th century. The company made a headquarters out of two square blocks on the Yazoo River where traders once bought and sold cotton. The company converted other buildings into a cooking school and a training center for distributors. To accommodate them and other visitors to town, it created the boutique Alluvian Hotel out of an old, abandoned hostelry.

Bill Crump, Viking's director of governmental affairs and Carl's executive assistant, says the hotel's opening five years ago marked downtown's turning point. New book, gift, antique and other stores

followed. Now—along with historic sights, museums and various festivals—downtown and the shopping there figure prominently in the marketing efforts of the Greenwood Convention and Visitors Bureau.


More than 50 downtown buildings have been restored since 1995, according to Main Street Greenwood, an organization that promotes downtown revitalization and is responsible for some of it.

Staplcotn has also contributed, spending \$4.5 million a few years ago to restore its headquarters in three adjacent 1950s-era buildings.

But Viking has been downtown's driving economic force, just as it has been for the city in general. Crump estimates that 30 of those 50 buildings downtown have been renovated by Viking—or, in a few cases, by Carl personally.

Carl's motivation? "The quality of life in Greenwood is good, but the amenities are limited," making it tough to attract and keep managers from out of town, Carl says.

Most recently, Carl was spearheading an effort to remodel and reopen the town's only movie theater, closed since 2002.

Locals tend not to differentiate Carl from the company, says Crump. "To the people of Greenwood, Fred is Viking, and Viking is Fred." And Greenwood has become so much both of them that, says Quinn, "there's a risk of taking them for granted ... a risk of letting Fred do it." 

*Susan C. Thomson is a freelance writer. She also took all of the photographs, except that of Fred Carl.*

ASK AN ECONOMIST

**Daniel L. Thornton** has been an economist at the St. Louis Fed since 1981. A vice president, his areas of interest are monetary theory and policy, macroeconomics, and econometrics. For more on his work, see his web page at <http://research.stlouisfed.org/econ/thornton/index.html>.



*In response to recent financial market turmoil, the Federal Reserve has introduced an alphabet soup of programs (TAF, TSLF, PDCF, etc.). What are these, and how do they work?*

Since August, the Fed has implemented a variety of programs to deal with this turmoil. Each program is intended to inject liquidity into a potential trouble spot in the market.

The Term Discount Window Program (TDWP) essentially extends the term of discount window loans from overnight to up to 90 days. Depository institutions that borrow under the TDWP or the conventional discount window pay the primary credit rate.

Under the Term Auction Facility (TAF), the Fed auctions off loans to depository institutions every other Thursday for a term of 28 days. The size of the auction is set (currently \$75 billion), and depository institutions bid for the funds. The interest rate paid is the lowest rate that exhausts the funds (or the lowest rate proposed by any bidder if the total requests are smaller than the amount to be auctioned). Consequently, the rate can be higher or lower than the primary credit rate.

The Primary Dealer Credit Facility (PDCF) extends overnight borrowing from the Fed to primary dealers. (Currently, there are 20 dealers with whom the Fed trades government securities.) The loans are overnight but may be renewed daily for a period of six months or longer if conditions warrant. The interest rate charged is the primary credit rate. The collateral requirements under the PDCF are somewhat different from those used for regular discount borrowing.

The Term Securities Lending Facility (TSLF) established term swaps of securities between the Fed and primary dealers. Primary dealers are permitted to exchange various securities for U.S. Treasuries for a term of 28 days. The securities are auctioned weekly with the amount of the auction and the Treasuries available determined in advance of the auction. The rate is essentially the spread between the rate on Treasuries being auctioned and the rate on the pledged collateral presented by the primary dealers.

The TSLF differs from conventional open market operations (OMO) in that with OMO the Fed exchanges funds, i.e., deposits at the Fed, for securities from the dealers—it does not swap securities for securities. Moreover, the Fed accepts a wider range of securities under the TSLF than it accepts with OMO.

Finally, on March 7, 2008, the Fed announced the Single-Tranche OMO Program. Funds provided through this program are made available weekly for a term of 28 days—longer than the overnight to 14-day term of conventional OMO.

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

FED FLASH POLL RESULTS

Here are the results of the poll that went with the April issue. The question stemmed from the article “Extra Credit: The Rise of Short-term Liabilities.”



THIS ISSUE'S POLL QUESTION:

*What should be the federal government's role in ethanol production and use?*

1. Do whatever it takes—taxpayer subsidies, mandates, government ownership of plants, etc.
2. Force the oil companies to subsidize additional R&D spending on ethanol.
3. Lift tariffs on imports of ethanol to lower price for consumers.
4. Encourage innovation by subsidizing alternatives to corn-based ethanol.
5. Phase out all subsidies and other tax breaks. Let the markets take charge.

To vote, go to [www.stlouisfed.org](http://www.stlouisfed.org). Anyone can vote, but please do so only once. (This is not a scientific poll.)

ECONOMICS OF ETHANOL TO BE DISCUSSED AT PUBLIC FORUM

This daylong program on ethanol issues will take place Nov. 14 at Washington University in St. Louis. There is no cost to attend, but registration is required. (Go to <http://wc.wustl.edu>.) Participants can sign up for any one of the five major sessions or for all of the day's events. The main topics and speakers are:

1. The U.S. ethanol industry: history and challenges. *Jeff Broin, chief executive officer of South Dakota-based POET, the largest ethanol producer in the world.*
2. The profitability of corn ethanol processing. *Paul Gallagher, department of economics, Iowa State University.*
3. The economic consequences of corn ethanol as a fuel source: environmental effects of production, energy balance with fossil fuels, effects on food prices, subsidy rate relative to oil/gas, and impact on farmer production decisions (e.g. cattle vs. corn). *Douglas Tiffany, department of applied economics, University of Minnesota.*
4. The impact of the ethanol boom on rural America. *Jason Henderson, Federal Reserve Bank of Kansas City—Omaha branch.*
5. The future of biofuel. *A panel discussion with Jerry Taylor of the Cato Institute; Rich Taylor, CEO of the National Corn Growers Association; and Nicholas Kalaitzandonakes, department of agricultural economics at the University of Missouri—Columbia.*



The hosts for this nontechnical conference are the Federal Reserve Bank of St. Louis; the Weidenbaum Center on the Economy, Government and Public Policy, which is part of the university; and the International Center for Advanced Renewable Energy and Sustainability (I-CARES), also at the university.

## Community Colleges Not So Junior Anymore

Community college students constitute an astonishing 46 percent of all undergraduates in the United States. As enrollments have risen, these colleges have become increasingly important for the U.S. education and training system. In the October issue of *The Regional Economist*, read about the various characteristics of students attending community colleges, their educational choices and labor market outcomes. In addition, the value of an associate degree, and whether the value varies across regions, will be examined.

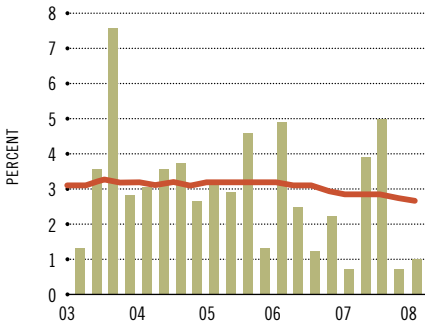


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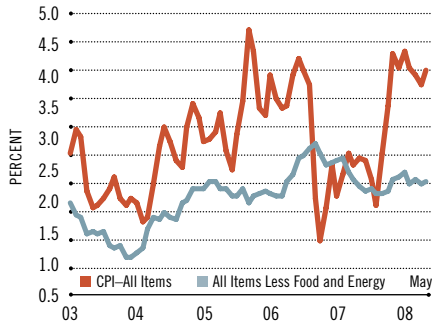
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**REAL GDP GROWTH**



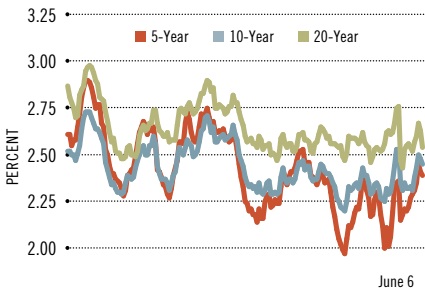
NOTE: Each bar is a one-quarter growth rate (annualized); the red line is the 10-year growth rate.

**CONSUMER PRICE INDEX**



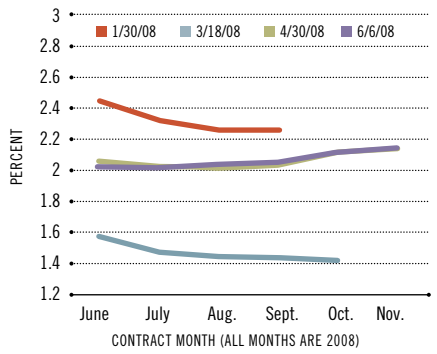
NOTE: Percent change from a year earlier.

**INFLATION-INDEXED TREASURY YIELD SPREADS**

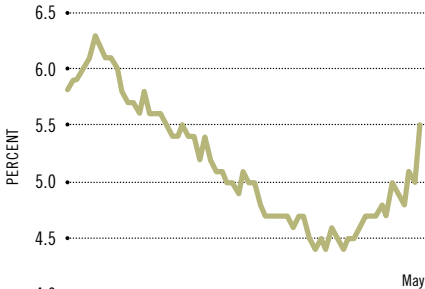


NOTE: Weekly data.

**RATES ON FEDERAL FUNDS FUTURES ON SELECTED DATES**

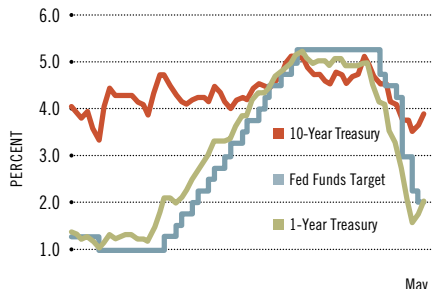


**CIVILIAN UNEMPLOYMENT RATE**



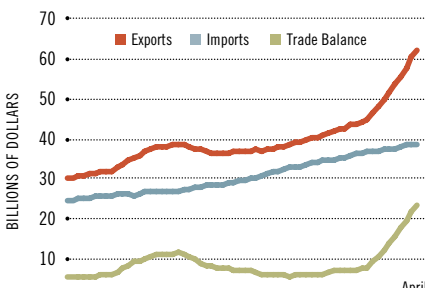
NOTE: Beginning in January 2003, household data reflect revised population controls used in the Current Population Survey.

**INTEREST RATES**



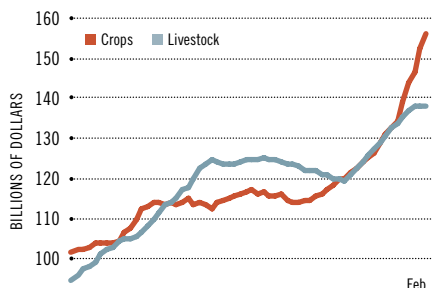
NOTE: Except for the fed funds target, which is end-of-period, data are monthly averages of daily data.

**U.S. AGRICULTURAL TRADE**



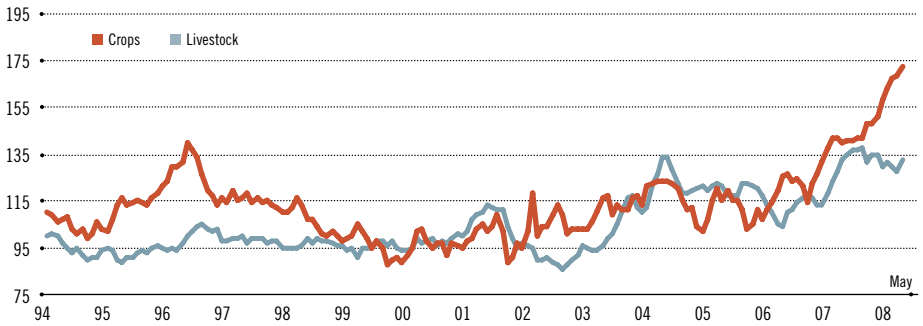
NOTE: Data are aggregated over the past 12 months.

**FARMING CASH RECEIPTS**



NOTE: Data are aggregated over the past 12 months.

U.S. CROP AND LIVESTOCK PRICES / INDEX 1990-92=100



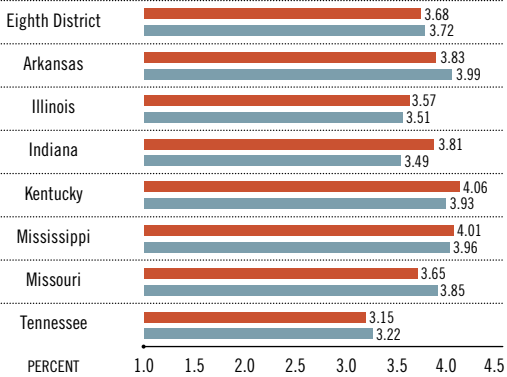
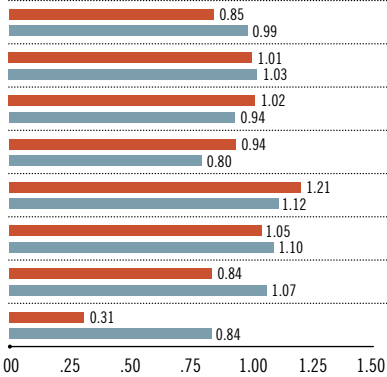
COMMERCIAL BANK PERFORMANCE RATIOS

U.S. BANKS BY ASSET SIZE / FIRST 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*	0.68	0.87	0.80	0.93	0.87	0.77	0.82	0.63
Net Interest Margin*	3.31	3.92	3.95	3.86	3.90	3.84	3.87	3.13
Nonperforming Loan Ratio	1.62	1.50	1.47	1.67	1.58	1.67	1.63	1.62
Loan Loss Reserve Ratio	1.56	1.27	1.29	1.30	1.29	1.42	1.36	1.64

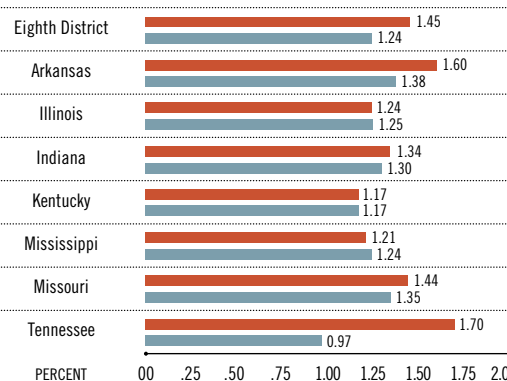
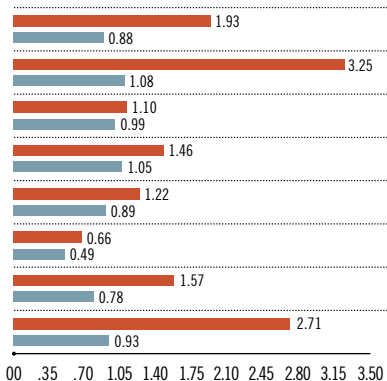
RETURN ON AVERAGE ASSETS\*

NET INTEREST MARGIN\*



NONPERFORMING LOAN RATIO

LOAN LOSS RESERVE RATIO



■ First Quarter 2008 ■ First 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](http://www.research.stlouis.org/fred/data/regional.html).

## REGIONAL ECONOMIC INDICATORS

### NONFARM EMPLOYMENT GROWTH\* / FIRST QUARTER 2008

YEAR-OVER-YEAR PERCENT CHANGE

	United States	Eighth District	Arkansas	Illinois	Indiana	Kentucky	Mississippi	Missouri	Tennessee
Total Nonagricultural	0.6%	0.5%	0.3%	0.5%	0.5%	1.3%	0.7%	0.3%	0.2%
Natural Resources/Mining	5.1	2.0	16.1	-5.4	-2.0	-2.1	1.4	13.7	#NA
Construction	-4.0	0.1	-2.3	-1.0	-1.4	4.9	-0.1	1.0	1.1
Manufacturing	-2.1	-2.3	-3.9	-0.6	-1.8	-2.4	-2.6	-3.7	-3.8
Trade/Transportation/Utilities	0.2	0.6	-0.2	0.9	0.2	1.4	1.0	0.2	0.4
Information	-0.6	1.4	1.4	0.8	2.4	1.9	-0.5	2.9	0.1
Financial Activities	-1.4	0.1	1.7	-0.4	-0.4	1.7	-0.4	-0.1	-0.5
Professional & Business Services	1.2	1.0	1.9	0.9	0.8	1.2	0.3	1.6	0.5
Educational & Health Services	3.0	2.2	2.5	1.9	3.9	0.5	2.1	1.5	2.5
Leisure & Hospitality	2.5	1.0	1.7	0.1	0.4	3.1	2.5	0.8	1.6
Other Services	0.8	0.5	0.2	0.5	1.3	1.9	1.7	-0.8	-0.4
Government	1.1	1.1	1.1	0.6	1.3	2.7	1.6	0.7	0.8

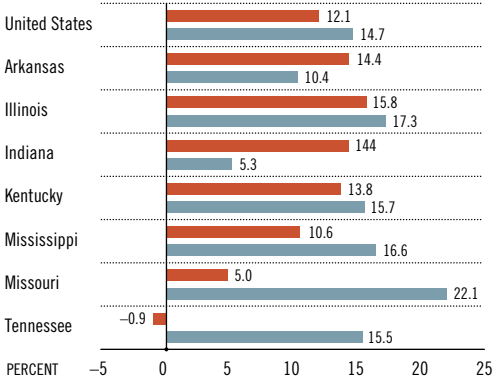
\* NOTE: Nonfarm payroll employment series have been converted from the 1987 Standard Classification (SIC) system basis to a 2002 North American Industry Classification (NAICS) basis.

### UNEMPLOYMENT RATES

	I/20078	IV/2007	I/2007
United States	4.9%	4.8%	4.5%
Arkansas	5.2	5.5	5.3
Illinois	5.5	5.3	4.7
Indiana	4.7	4.5	4.7
Kentucky	5.4	5.3	5.7
Mississippi	6.0	6.3	6.4
Missouri	5.5	5.3	4.8
Tennessee	5.2	5.0	4.5

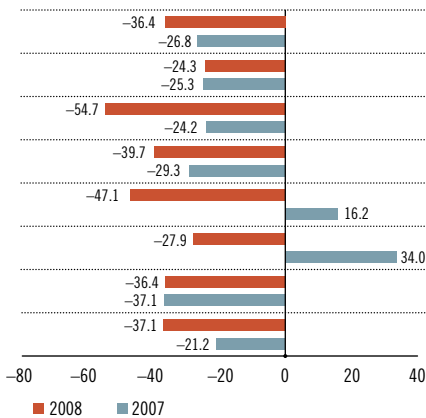
### EXPORTS

YEAR-OVER-YEAR PERCENT CHANGE



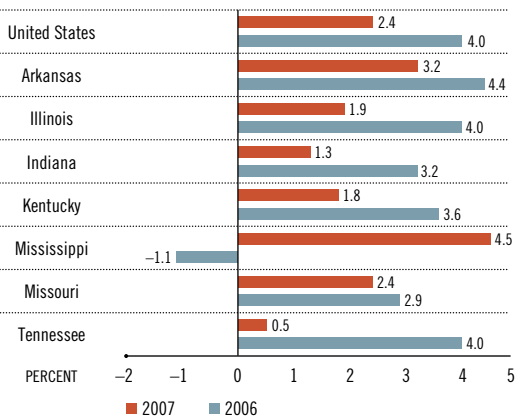
### HOUSING PERMITS / FIRST QUARTER

YEAR-OVER-YEAR PERCENT CHANGE IN YEAR-TO-DATE LEVELS



### REAL PERSONAL INCOME\* / FOURTH QUARTER

YEAR-OVER-YEAR PERCENT CHANGE



All data are seasonally adjusted unless otherwise noted.

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