

# THE REGIONAL ECONOMIST

*A Quarterly Review  
of Business and  
Economic Conditions*

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July 2011

## Foreclosures

The Roles of Predatory Lending  
and Household Overreaching

## Hispanics

Population Growth  
in District and in Nation

THE FEDERAL RESERVE BANK OF ST. LOUIS  
CENTRAL TO AMERICA'S ECONOMY®

# Commodity Price Gains

Speculation vs. Fundamentals



# 4 Commodity Price Gains

By Brett Fawley and Luciana Juvenal

Commodities of all sorts have risen in price over the past few years. Some say that the prices reflect a bubble, driven by low interest rates and excessive speculation. Others say the price gains can be fully explained by supply and demand. Is either right?



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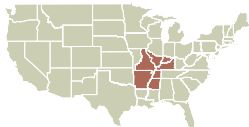
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The Eighth Federal Reserve District includes all of Arkansas, eastern Missouri, southern Illinois and Indiana, western Kentucky and Tennessee, and northern Mississippi. The Eighth District offices are in Little Rock, Louisville, Memphis and St. Louis.



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**James Bullard**, President and CEO  
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## The Effectiveness of QE2

The federal funds rate has been close to zero since December 2008, when the Federal Open Market Committee (FOMC) voted to reduce the target to between 0 percent and 0.25 percent. With its policy rate near the zero bound, the FOMC turned to large-scale asset purchases (so-called quantitative easing) as economic conditions warranted further action. Quantitative easing was successful and showed that the Fed can conduct effective policy even with the fed funds rate near zero.

The FOMC's first quantitative easing program, which began in late 2008 and ended in the first quarter of 2010, consisted of purchases of agency debt, agency mortgage-backed securities and longer-term Treasury securities. The program is generally considered to have been successful in further easing monetary conditions. Throughout the spring of 2010, however, financial market stress in the U.S. increased again, mostly in response to an intensification of the European sovereign debt crisis.

During the summer of 2010, the pace of the U.S. economic recovery slowed. In addition, inflation and expected inflation were both quite low—some measures were as low as they had been in 50 years. Inflation, while still positive, had been trending downward (which is known as disinflation) throughout the first half of 2010. As the Japanese experience over the past 15 years has shown, having mild deflation (i.e., declining prices) along with a near-zero policy rate can lead to poor economic outcomes, and the situation is difficult to escape.<sup>1,2</sup> Avoiding a similar experience in the U.S. was one of the primary motivations for a second round of quantitative easing.

Fed Chairman Ben Bernanke gave a speech in Jackson Hole, Wyo., on Aug. 27, 2010, in which he first indicated that a second asset-purchase program may be needed. At the Nov. 2-3 meeting, the FOMC made the decision to purchase Treasury securities at a pace

of about \$75 billion per month through the first half of 2011 for a total of \$600 billion—the program commonly known as QE2.<sup>3</sup>


The policy change was largely priced into the markets ahead of the November FOMC meeting, as financial markets are forward-looking. The financial market effects of QE2 were entirely conventional. In particular, real interest rates declined, expected inflation increased, the dollar depreciated and equity prices rose. The purchases of longer-term Treasury securities essentially lowered the risk-free real interest rate, which then caused some investors to switch to riskier assets—most notably U.S. equity markets, but also emerging market equities and commodities as an investment class—in search of higher rates of return.

Following the November decision, many people expected the program to have no impact. Some even went so far as to say that purchasing \$7 trillion in longer-term bonds was necessary. But based on the fairly substantial financial market impact of \$600 billion in purchases, those views have been dispelled.

While the effects on financial markets occurred during the run-up to the November decision, effects on the real economy (e.g., consumption and employment) are expected to occur six to 18 months after the monetary policy action, as is the case with conventional monetary policy. Determining exactly which movements in real variables are due to monetary policy and which ones are due to other influences on the economy that occur in the meantime can be difficult. Disentangling these effects is a standard problem in monetary policy analysis. However, the real effects of the asset-purchase program will most likely be conventional, just as the financial market effects were.

As the experience with quantitative easing has shown, monetary policy can be effective even when nominal interest rates are at the zero bound. QE2 was successful as a classic



easing of monetary policy in that the imprint on the financial markets looked just like a standard, aggressive monetary policy easing.<sup>4</sup> Furthermore, the disinflationary trend of 2010 has apparently been reversed, and the U.S. economy seems to have avoided the Japanese-style outcome. Although a rule-like approach would have been preferable from my point of view, rather than independent, isolated decisions with large amounts of purchases, the impact of quantitative easing on macroeconomic and financial conditions showed that the Fed has plenty of ammunition to carry out stabilization policy even when the policy rate cannot be lowered further. 

### ENDNOTES

- <sup>1</sup> For more discussion, see Bullard, James. "Seven Faces of 'The Peril.'" *Federal Reserve Bank of St. Louis Review*, September/October 2010, Vol. 92, No. 5, pp. 339-52.
- <sup>2</sup> Also, see Hursey, Tim; and Wolman, Alexander L. "Monetary Policy and Global Equilibria in a Production Economy." *Federal Reserve Bank of Richmond Economic Quarterly*, Fourth Quarter 2010, Vol. 96, No. 4, pp. 317-37.
- <sup>3</sup> See Bullard, James. "QE2 in Five Easy Pieces." Speech at the High Profile Speaker Series, New York Society of Security Analysts, New York City, Nov. 8, 2010.
- <sup>4</sup> Research at the St. Louis Fed suggests that quantitative easing programs in the U.S. can have international effects (e.g., a reduction in long-term foreign bond yields), as well. See Neely, Christopher J. "The Large-Scale Asset Purchases Had Large International Effects." *Federal Reserve Bank of St. Louis Working Paper 2010-018C*, January 2011.



# Commodity Price Gains: Speculation vs. Fundamentals

*By Brett Fawley and Luciana Juvenal*

This spring, Wal-Mart CEO Bill Simon readied shoppers for what he termed “serious” inflation: “We’re seeing cost increases starting to come through at a pretty rapid rate.”<sup>1</sup>

At the top of the list of cost-related pressures on prices of final goods are gains in underlying commodity prices. Commodities—such as cotton, rubber, food, petroleum and metals—are the raw materials from which all final goods begin. For many businesses, commodities represent the second-largest driver of variable cost, next to labor. Steep, sustained increases in the cost of commodities materially affect the viability of businesses and even industries; often, these price increases must be passed through to consumers.



PHOTOS © SHUTTERSTOCK

The heavy reliance of businesses on commodities is illustrated by the story of John Anton, founder and owner of Anton Sport, a wholesaler of athletic apparel in Tempe, Ariz. Anton, who normally keeps on hand 30 boxes of cotton T-shirts as inventory, was reported this February by *The Wall Street Journal* to be sitting on 2,500 boxes of cotton T-shirts, funded via a \$300,000 loan.<sup>2</sup> The impetus? A 90 percent increase in the price of cotton over 2010.

Currently, commodity prices are making headlines as much for the size of the price increases as for the simultaneity of price hikes across all types of commodities. Figure 1 reveals that, prior to the global recession, upward price trends took hold in a variety of commodities. The financial crisis and ensuing recession induced an acute decline from the 2008 peak in prices. But beginning in 2009, the prices of all types of commodities began to rise once again at astronomical rates.

This synchronization of price movements across a range of commodities has fostered, in part, the assertion that the commodity price boom is a bubble, driven primarily by near-zero interest rates and excessive speculation in commodity futures markets. The counter argument is that market fundamentals—supply and demand for the commodities themselves—can fully explain the price gains. Ultimately, understanding the sources of the price gains is

essential for determining the proper policy response, if any.

#### **Arguments for Market Fundamentals**

In the absence of “irrational exuberance,” the price of any good or asset should be driven by supply and demand. On both the supply and demand side of commodities, there is no shortage of shocks to explain, at least in part, recent price gains.

#### **Negative Supply Shocks**

For crops and many other commodities, annual production is largely at the discretion of Mother Nature. With respect to agricultural commodities, a combination of bad breaks from Mother Nature and stock-to-use ratios at already historic lows seems to explain much of the price increases.

Pre-existing stocks are a key source of stability in commodity markets. When stocks are low relative to use, the market is less able to absorb pressures from supply disruptions or unexpected demand; the resulting pressure on prices is much stronger. A survey of commodities characterized by rising prices uncovers many stock-to-use ratios at historic lows.

In a report on the pre-recession spike in food prices, the Food and Agriculture Organization of the United Nations (FAO) identified numerous reasons why stock levels have been falling by an average rate of 3.4 percent per year since the mid-1990s.<sup>3</sup>

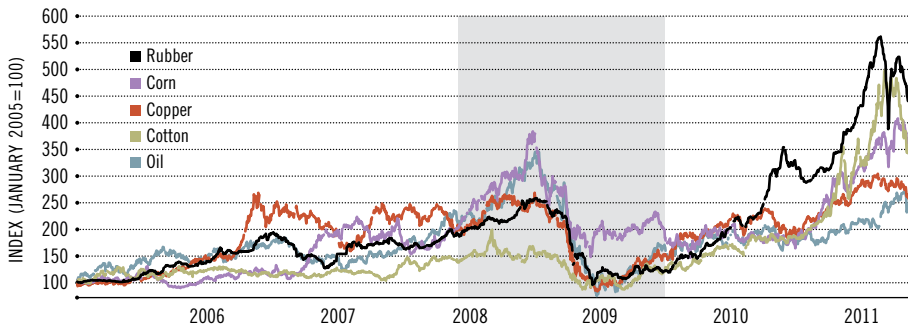
Reasons included declines in the reserves held by public institutions, development of other less costly instruments of risk management, increases in the number of countries able to export, and improvements in information and transportation technologies. Further, the FAO found strong evidence that lower stock levels at the beginning of the marketing season were associated with higher prices throughout the season, implying initial conditions in “tight” markets matter. Compounding this effect is further empirical evidence that the price impact of low stocks becomes magnified when stocks reach critically low levels.

For all of these reasons, low stocks in food and other crops mean that the weather disruptions faced in 2010 were all that much more significant. For example, the 47 percent increase in wheat prices in 2010 was largely attributable to drought in Russia and China and to floods in Canada and Australia. High cotton prices can be traced, in part, to floods in China (the largest producer) and Pakistan (the fourth-largest producer).

In many cases, the high prices in one market have spilled into other markets because of the competition between crops for the same land and growing resources. Farmers are choosing to grow the crops that are in shortest supply with the highest prices, often introducing shortages in other displaced crops.

FIGURE 1

**Recent Commodity Price Growth**



SOURCES: *The Wall Street Journal* and Bloomberg.

NOTE: The shaded area indicates the recession, as dated by the National Bureau of Economic Research.

With respect to nonagricultural commodities, the challenge of suppliers is less a result of temporary negative shocks than it is a result of rapidly expanding global demand.

**Growing Demand**

The convergence in income between developing and advanced countries represents a significant driver of demand growth for commodities: Representative of the trend, more than 90 percent of the increased demand for agricultural commodities over recent years has originated in developing countries.

For commodities such as metals, this additional demand can take time to fully accommodate. Figure 2 reveals the incredible pace at which demand for metals like aluminum and copper has grown in the two most populous emerging countries: China and India. This huge demand growth is a major contributor to the International Copper Study Group’s findings that worldwide demand for refined copper exceeded worldwide supply by 480,000 tons over the first nine months of 2010.<sup>4</sup> The mismatch between supply and demand has unsurprisingly taken a large toll on inventories, cutting them by more than half, from 1.1 million tons in 2001 to 412,000 tons by September 2010.

Continued strong growth in emerging countries, complemented by economic recovery in the United States, Japan and Europe, is expected to continue to put upward pressure on prices of metals. According to Bloomberg News, 13 of 14 industry analysts who were surveyed expected a copper shortage this year.

While exploration and investment in mining operations are under way, much time and money will be required before

new mines are operational. In the words of U.S. Geological Survey specialist Daniel Edelstein, “Mines aren’t just like factories, where you just flip a switch.”

With respect to agricultural markets, the FAO is correct to point out that increased demand due to population and income growth is largely predictable. Biofuels, however, are cited as a new and persistent shock to food demand.<sup>5</sup> Figure 3 reveals an unmistakable recent shift in the relationship between oil prices and the price of popular biofuel crops, such as corn (for ethanol) and soy (for biodiesel). The enormous size of energy markets compared with agricultural markets means that energy-related demand is capable of absorbing near-limitless amounts of surplus crops, effectively placing a floor below food prices. While great for farmers, this is unwelcome news for the impoverished and malnourished populations of the world. The effect of biofuels is also not limited to crops used in their production. Biofuel production represents an alternative use of land, which affects all agricultural products.

The outlook in oil markets, which drives demand for biofuels, is not particularly promising either. According to a recent report from the International Monetary Fund, oil demand in emerging markets is quickly catching up to demand in advanced countries after years of significantly lower consumption rates by the former.<sup>6</sup> Compounding this situation, production constraints in current exporting countries are starting to bind, as oil fields have reached maturity. One source of relief may come in the form of shale oil, in which the United States is rich. But extraction from shale will not become sustainable until the price of oil promises to stay above \$80-105 a barrel.<sup>7</sup>

Overall, there is no doubt that fundamental shocks to supply and demand in commodities, both transitory and persistent, can account for significant price pressures in these markets. Some, however, remain unconvinced that these fundamental shocks are enough to explain the entirety of price increases. Instead, they place some blame on a bubble in commodity prices.

**Arguments for a Bubble**

An asset bubble is characterized by prices detached from fundamentals, instead driven



by the anticipation of profiting from higher prices tomorrow.

Commodity markets, however, do not meet the usual theoretical criteria for a bubble. Arguments for a speculative bubble focus primarily on one marketplace for commodities: the futures market. Commodity futures markets are where both commercial and noncommercial traders can buy and sell standardized contracts for delivery of a specified quantity of goods at a specified date in the future. These contracts are short-term instruments that have few constraints on short-selling (betting on price decreases) and that are easy to arbitrage (profit risk-free from mispricing). In contrast, theory holds that bubbles are limited to markets such as real estate, where the good in question has a long lifespan, is hard to sell before you own, and buying and selling is costly in terms of time and money.

Still, some believe that a bubble is forming in commodities due to either expansionary U.S. monetary policy and/or record flows of investment funds into commodity futures. These possibilities warrant careful consideration.

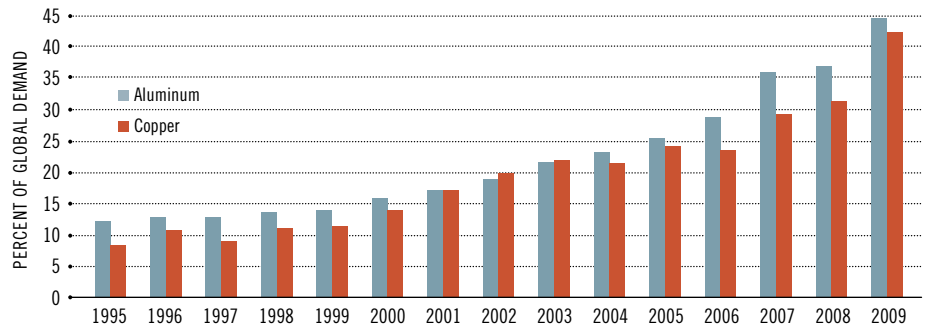
### The Role of Expansionary U.S. Monetary Policy

The primary means by which expansionary monetary policy influences commodity prices is by decreasing the cost of holding inventories. Anton, the apparel wholesaler, provides a good example. One component of the cost of holding inventory is the prevailing interest rate. Expanding inventory means borrowing money, as in the case of Anton, or sacrificing the return that one could earn from investing the money. Near-zero interest rates, as currently exist in the United States, significantly decrease the cost of holding inventory and, thus, increase demand for commodities. In this context, inventory buildups, such as Anton's, can be interpreted as symptomatic of overly loose monetary policy. Broad declines in aggregate commodity inventories, however, cast doubt on the current importance of this effect.

The quotation of international commodity prices in dollars opens a second means for U.S. monetary policy in

FIGURE 2

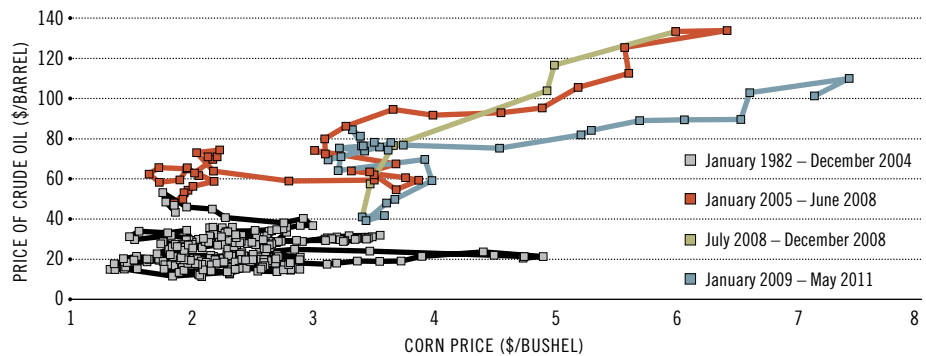
### Growth in Demand for Metals from China and India



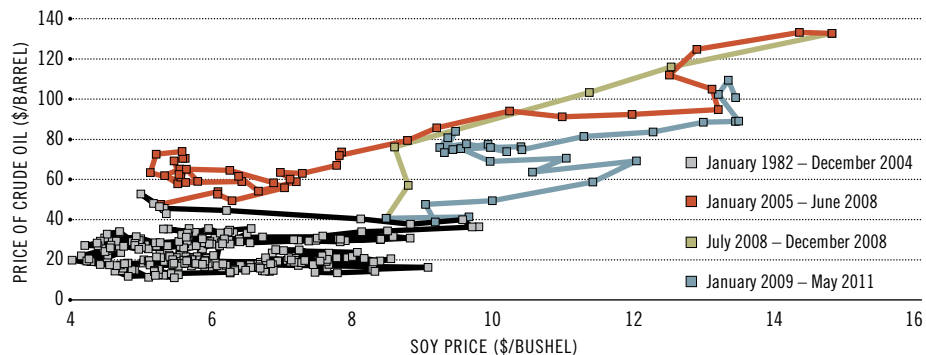
SOURCE: International Monetary Fund (2010).

FIGURE 3

### Co-Movement between Oil and Corn Prices



### Co-Movement between Oil and Soy Prices



SOURCE: The Wall Street Journal.



PHOTOS © SHUTTERSTOCK

particular to influence commodity prices. When the dollar depreciates, goods priced in dollars become more affordable to foreign consumers, all else equal leading them to increase consumption and bid up the prices on these goods. This argument is countered, however, by the observation that commodity prices rose significantly over recent years regardless of the currency quoted in.

The rather recent argument that has been put forth is that historically low U.S. interest rates have increased commodity prices by driving investment funds into other markets, including the financial markets of emerging countries, to seek higher returns. The evidence, however, is founded mostly

2006 to just under \$200 billion by the end of 2007. The proposed link between large flows of capital into commodity markets and increases in current prices appeals to common sense: Speculative demand for commodity-based assets increases demand for the underlying commodity, increasing its price. A second practically founded rationale for why excessive speculation must have played a role in rising commodity prices is embodied by a U.S. Senate committee staff report in 2006: “The traditional forces of supply and demand cannot fully account for [energy price] increases.”<sup>9</sup>

Despite these straightforward propositions, however, the true impact of specu-

authors of the OECD report reviewed four studies supporting a pre-recession commodity bubble and five studies discounting a bubble. The authors concluded that “the weight of the evidence at this point in time clearly tilts in favor of the argument that index funds did not cause a bubble in commodity futures prices.” Of the studies supporting a bubble, they write, “These studies are subject to a number of important criticisms that limit the degree of confidence one can place in their results.” Still, the OECD report contains an important caveat regarding the markets most often linked to a speculative bubble: “The evidence is weaker in the two energy markets studied because of considerable uncertainty about the degree to which the available data actually reflect index trader positions in these markets.”

Sorting out the bubble arguments has extremely important policy implications going forward.

To try to design policy around commodity prices would require abrupt about-faces and would detract from a central bank’s goal of bringing stability to markets.

on correlation and largely lacks a credible transmission mechanism. Completing the theory of how an inflow of capital to emerging markets inflates commodity prices requires a link between the inflow of foreign investment and a broad expansion in emerging market credit. Ultimately, the banking systems of the developing countries receiving the influxes of capital must transmit the funds into the general economy. But the skepticism that developing countries like Brazil, Thailand and Indonesia have shown toward much of the capital inflows, labeling the funds as “hot money” seeking short-term returns, places uncertainty over the extent that capital inflows are funding bid-ups in commodity prices among developing countries.

The impact of increased speculation in commodity futures markets, perhaps exacerbated by low traditional investment returns, has been an area of intense research in recent years, however.

### **The Potential Costs of Excessive Speculation**

Just as well-documented as the large gains in commodity prices prior to the recession is the contemporaneous large influx of capital into the commodity markets, namely in long-only index funds.<sup>8</sup> According to Barclay’s, index fund investment in commodities increased from \$90 billion in early

lative inflows on underlying commodity prices remains debatable. A technical report prepared for the Organisation for Economic Co-operation and Development (OECD) offers a useful examination of the research done on both sides.<sup>10</sup> In particular, the authors pointed out both logical and factual inconsistencies within the argument for a speculation-induced bubble in commodity prices. Logical inconsistencies include a tenuous link between speculative inflows and demand for the underlying commodity and doubt over the extent that index fund investors could artificially increase futures and cash prices while only participating in the futures market and not the spot market, where commodities are sold for immediate delivery. Factual inconsistencies are numerous. For example, inventories should have risen between 2006 and 2008 according to the bubble theory, but they actually fell. Other reasons for discounting this theory include:

- arbitraging index-fund buying is fairly easy due to its predictable nature,
- commodity prices rose in markets with and without index funds,
- speculation was not excessive after accounting for hedging demand, and
- price impacts across markets were not consistent for the same level of index fund activity.

In addition to their own analysis, the

### **Are Policy Responses Required in Commodity Markets?**

The most important thing to remember with respect to commodity markets is that they are volatile. The traditional decision of central banks to focus on core inflation, which excludes food and energy, is easy to understand in the context of recent movement in rubber markets.

During 2010, the price of rubber increased by 114 percent. The run-up in the price was largely attributed to bad weather, low stocks and growing demand from China’s automobile industry. Around the end of 2010, many investors remained bullish on rubber prices due to expectations of continuing strong demand. Indeed, the real price of rubber reached a historic peak in the middle of this February. Yet only a month removed from that peak, the price fell more than 30 percent in a matter of weeks, and the Thai government was discussing price supports for rubber. The price drop was due to uncertainty over global demand, stemming first from unrest in the Middle East and, subsequently, the earthquake and resulting tsunami in Japan and their uncertain effects on the demand for rubber tires from Japanese carmakers like Toyota, Honda and Nissan. This drop was then followed by a 23 percent increase in the price over the second half of March



as Thailand, the largest producer of rubber, ultimately intervened to buy up domestic rubber supplies and support prices, while simultaneously telling farmers to restrict supplies in an effort to bid prices back up.

Not only are large movements in commodity prices common, but they are often linked to inherently unpredictable events. Just in the past few months, cotton prices fell by 25 percent and oil had its largest one-day drop in two years. To try to design policy around commodity prices would require abrupt about-faces and would detract from a central bank's goal of bringing stability to markets.

More pertinent questions with respect to commodity markets are:

- Is strong regulation in futures markets needed?
- Are large subsidies on biofuels good policy?
- Should U.S. monetary policy take into consideration global economic conditions?


Some countries, like India, have already begun to regulate commodity futures markets; other countries, including the United States, have debated the issue. Both those who believe in a speculative commodity bubble and those who do not can agree that properly functioning commodity futures markets are integral to the real economy because they allow those who do not wish to hold the risk of future price movements to sell that risk to willing parties. The OECD report provides a reminder that index fund investors are an important source of liquidity and of risk absorption for these markets. Pushing such investors out of the market could result in huge costs, which must be weighed against the evidence that their activity is hindering, and not enhancing, the proper functioning of these markets.

With respect to biofuels, potential negative effects, such as reversing a 30-year downward trend in real food prices, are of particular relevance because these markets are currently highly dependent on government subsidies. Brazil's ethanol from sugar cane is the only biofuel whose production is viable without government subsidies. In the United States, subsidies on ethanol increase the price that processors can afford to pay for corn and break even (a function of oil prices) by \$63 per ton. This compares with an average price of corn in 2005 (predating heavy investments in biofuel) of \$75 per ton and a price of \$163 per ton that processors

can already afford to pay and break even given crude oil prices of \$100 per barrel.

Government support of the industry is motivated by benefits, such as energy independence and a reduction in the environmental impact, that accrue to society but cannot be internalized by processors. But recent life-cycle analysis of biofuels—an analysis that takes into account the extra land needed to grow crops and the production process—raises questions about the environmental benefits. The question is whether there may be less-costly and more-efficient ways to achieve the same policy goals. The long-run success of biofuels is likely to hinge on the development of second-generation fuels, which can make use of more parts of the crop, as well as biofuels based on highly efficient algae.

The final question regarding the consideration of global economic conditions in U.S. monetary policy debate will require much more convincing evidence before a firm conclusion can be reached. If expansionary U.S. monetary policy is transmitted globally to economies in danger of overheating, which in turn bids up commodity prices and, hence, increases price levels back at home, then U.S. monetary policy should care about output gaps around the world. At the same time, the mere correlation of commodity price increases with loose U.S. monetary policy, without any convincing empirical evidence or theoretical mechanisms for this avenue, is not enough to determine that U.S. policy decisions should factor in economic conditions from Latin America to Europe, from Asia to Africa.

Ultimately, the greatest lesson from recent trends in commodity prices may be the reminder that economics is founded on the assumption of a world with unlimited wants and limited resources. A world with a growing population and ever-increasing income parity implies a world with ever-increasing competition for resources. 

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## ENDNOTES

- <sup>1</sup> See O'Donnell.
- <sup>2</sup> See Plevin and Wirz.
- <sup>3</sup> See Food and Agriculture Organization of the United Nations (2009).
- <sup>4</sup> See Davis.
- <sup>5</sup> See Food and Agriculture Organization of the United Nations (2008).
- <sup>6</sup> See International Monetary Fund (2011).
- <sup>7</sup> See Engemann and Owyang.
- <sup>8</sup> "Long-only" refers to the fact that these index funds make only buy and sell decisions and do not short futures contracts.
- <sup>9</sup> See Senate Report 109-65.
- <sup>10</sup> See Irwin and Sanders.

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# The Mismatch between Job Openings and Job Seekers



PHOTOS © SHUTTERSTOCK

By Maria E. Canon and Mingyu Chen

The 2007-09 recession had a severe impact on the U.S. labor market. During the recession, more than 89 million employees lost their jobs, while fewer than 82 million were hired.<sup>1</sup> The unemployment rate spiked to a 27-year high of 10.1 percent in October 2009. Since then, the labor market has experienced a slow recovery; the unemployment rate still stood at 9.1 percent in May.

In the 2010 annual report of the Federal Reserve Bank of St. Louis, David Andolfatto and Marcela Williams suggested that search “frictions” might explain why the unemployment rate remained high even while job

openings appeared to have increased during the recent recovery. One type of friction that they mentioned relates to employer-employee pairings: Each job and worker has idiosyncratic characteristics that make some job-worker pairings more productive than others. As employers and workers usually cannot anticipate where the best pairing is located, they must expend time and resources to search out the best matches.

## Mismatch can be interpreted as a poor match between the skills and location required to fill vacant jobs and the skills and geographic preferences of unemployed workers.

Mismatch can be interpreted as a poor match between the skills and location required to fill vacant jobs and the skills and geographic preferences of unemployed workers. The idea, also known as structural imbalance, was first identified by a group of European economists in the 1970s, when they were struggling to understand the consistently high unemployment rate in some European countries.<sup>2</sup>

In general, skills can be represented in

different contexts, such as industries, occupations and educational levels. Geographic characteristics can be measured at different levels, such as metropolitan statistical areas (MSAs), states and, at an even larger level, census regions. Economists have recently paid close attention to mismatch and have investigated whether it is causing the currently high unemployment rate in the U.S.

Some evidence suggests that mismatch might have increased since the recession started. The figure shows the average monthly share of vacant jobs and share of employment lost by industry from December 2007 to February 2011.<sup>3</sup> Most new positions have been created in some sectors, while most job loss has been concentrated in others. Since these new jobs usually require different skills than what unemployed workers from different sectors have, firms and unemployed workers may take longer to find their best matches. For example, over 50 percent of the jobs lost between December 2007 and February 2011 were in manufacturing and construction, while more than 90 percent of new positions opened in other industries. The education and health sector has experienced steady employment growth since the recession started; 20 percent of all job openings have occurred in this sector.

In the rest of the article, we review the role of two types of mismatch (skill and geographic) in explaining the increase in unemployment that occurred during and after the 2007-09 recession.

### Skill Mismatch

Economists Ayşegül Şahin, Joseph Song, Giorgio Topa and Giovanni Violante recently derived mismatch indexes from an economic model.<sup>4</sup> In their framework, the aggregate labor market is comprised of many small labor markets, categorized by skill levels or working locations (e.g., industries and MSAs). Şahin and others define mismatch as the distance between the observed allocation of unemployed workers across sectors and the “optimal” allocation. The optimal allocation of unemployed workers is the allocation that, given the distribution of vacancies in the economy, would occur if there were free movement of workers across labor markets. The authors’ indexes allow them to quantify not only the level of mismatch but also the proportion of the increase in unemployment that can be attributed to mismatch.

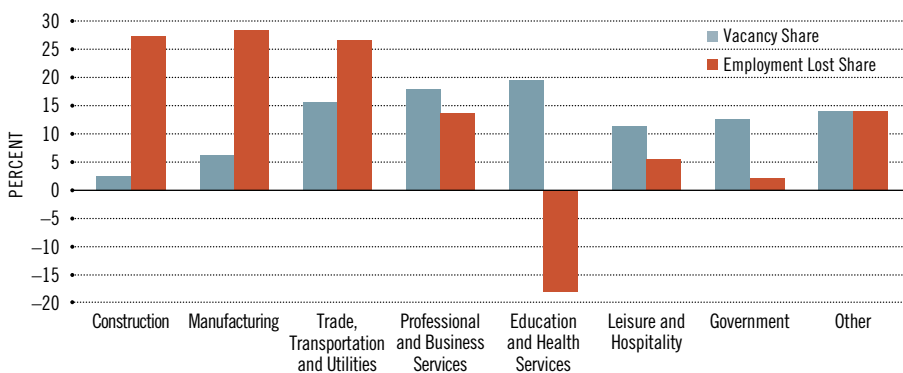
Using five industries as divisions of the aggregate labor market, Şahin and her co-authors found that the fraction of unemployed workers misallocated increased by 10 percentage points during the 2007-09 recession; the fraction then dropped but remained at a level higher than its prerecession level. But this increase in mismatch can explain only between 0.4 and 0.7 percentage points of the total increase of five percentage points in the unemployment rate from the beginning of 2007 to the middle of 2009. Therefore, although skill mismatch increased during the recession and influenced unemployment to some degree, it is not the main source of the increase in the unemployment rate.

### Geographic Mismatch

The 2007-09 recession was accompanied by a steep decline in housing prices. Some economists and commentators have argued

## Share of Job Vacancies and Lost Employment by Industries

MONTHLY AVERAGE FROM DECEMBER 2007 TO FEBRUARY 2011



SOURCES: Job Openings and Labor Turnover Survey and the Current Population Survey.

NOTE: A negative share of lost employment in the education and health services sector means it gained employment during the examined period; that growth was about 18 percent of all the total employment lost.

Vacancy share of an industry is the number of openings in that industry over the total number of job openings in the U.S. Lost employment share of an industry is the number of jobs lost in that industry over the total number of jobs lost in the U.S.


that the housing crisis may slow down geographic mobility of job applicants. Economists Fernando Ferreira, Joseph Gyourko and Joseph Tracy concluded from past research that negative equity significantly reduced the mobility of homeowners. Unemployed workers who owe more than what their home is worth are less likely to apply for and accept positions that are in places that would require them to sell their homes.

If this is the case, then a geographic mismatch is likely to occur and lead to prolonged high unemployment rates. Economist Sam Schulhofer-Wohl, however, points out that Ferreira and his co-authors systematically dropped from their data some observations of homeowners with negative equity who move; this resulted in a misleading conclusion. Schulhofer-Wohl found that negative equity does not reduce mobility of homeowners, a finding that is consistent with what is suggested by the empirical results from Şahin and others. Şahin and her co-authors found that geographic mismatch, measured at census region level, was very low throughout the recession and has had no impact on the recent dynamics of U.S. unemployment.

### Conclusion

Although mismatch has recently raised a lot of attention among economists as a potential explanation for the increase in unemployment, the existing literature does

not find evidence of it being the principal source. The newly developed measure of mismatch indicates a rise in skill mismatch (across industries) but only associates it with a minor increase in the unemployment rate. The geographic mismatch (across census regions) does not have a significant effect on the labor market.

One potential alternative explanation for the persistently high unemployment rate is the extended hiring time. Although job vacancies have been rising, the increased number of unemployed workers makes those openings more competitive. Anecdotal evidence suggests that, since the last recession started, companies have had a difficult time deciding who the “best” candidates are; therefore, the hiring time is extended. According to an article in *The Wall Street Journal*, a survey conducted recently by the Corporate Executive Board indicated that positions that typically took two months to fill before the recession are sometimes taking four times longer to fill.<sup>5</sup> Even with qualified applicants on hand, recruiters might be holding out for better candidates. 

*Maria E. Canon is an economist and Mingyu Chen is a research analyst, both at the Federal Reserve Bank of St. Louis. See <http://research.stlouisfed.org/econ/canon/> for more on Canon's work.*

## ENDNOTES

- <sup>1</sup> Data are from the Job Openings and Labor Turnover Survey. Job loss is measured by the number of employees separated from payroll, and number of hires is measured by the additions of personnel to payroll.
- <sup>2</sup> See Padoa-Schioppa for a collection of papers on findings of mismatch in the 1970s.
- <sup>3</sup> December 2007 is the starting date of the 2007-09 recession. Vacancy share of an industry is the number of openings in that industry over the total number of job openings in the U.S. Lost employment share of an industry is the number of jobs lost in that industry over the total number of jobs lost in the U.S.
- <sup>4</sup> Their definition of mismatch builds on the findings of Jackman and Roper.
- <sup>5</sup> See Light.

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## The Foreclosure Crisis in 2008: Predatory Lending or Household Overreaching?



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By William R. Emmons, Kathy Fogel, Wayne Y. Lee, Liping Ma, Deena Rorie and Timothy J. Yeager

Watching southern Florida home prices spiral out of reach, Mr. Briar decided to take the plunge in 2004 and buy his first home. The mortgage broker he worked with encouraged him to enter into a 2/28 contract, in which the interest rate is fixed for the first two years and then resets to a higher floating rate. Mr. Briar bought the home, and the mortgage broker transferred the loan to Wall Street, where it was packaged and securitized into a collateralized debt obligation (CDO). Mr. Briar struggled to pay his mortgage even during the first

vastly different. If predatory lending was the primary culprit, strong consumer protection laws like those in the Dodd-Frank law might be sufficient to avoid a future foreclosure crisis; that's because such laws would prevent Wall Street banks from making high-risk loans that borrowers could not possibly afford. If household overreaching was the primary culprit, preventing another foreclosure crisis is a much more complex policy challenge. A return to high appreciation in home prices could again set off dynamics in which even borrowers with decent credit

to their current income and net worth; these households could already have relatively high incomes and be well-educated.

### Profiles of Foreclosed Households

The data used in our analysis of foreclosed households came from two sources. RealtyTrac compiles nationwide data on homes in foreclosure. Acxiom compiles data on millions of U.S. households each quarter and segments households based on economic, demographic and consumption patterns. To obtain a profile of foreclosed households, we combined these two large datasets by household for the third quarter of 2008. The dataset contains more than 40 million records and more than 200,000 foreclosures.

Figure 1 presents key statistics from our dataset on households in foreclosure alongside households not in foreclosure. Defaulted homes were more expensive, on average. The median market value of homes in foreclosure was \$242,400 versus \$199,129 for homes not in foreclosure. As expected, the median loan-to-value ratio was much higher on defaulted properties, at 96 percent, which was more than 30 percentage points higher than on nondefaulted properties. Homes in foreclosure also were slightly newer and smaller in terms of square footage.

Household characteristics, shown in the bottom panel, reveal that households in foreclosure had slightly fewer members and were significantly younger. The median head-of-household age for a foreclosed household was 44, eight years younger than the median for households not in foreclosure. Heads of households in foreclosed properties were less likely to be married and more likely to be single. They had lower incomes and much shorter length of residence. Although

**Certainly, both predatory lending and household overreaching occurred during the subprime housing bubble. But it is important to identify the primary reason for the foreclosure crisis because the policy implications are vastly different.**

two years. Meanwhile, Florida home prices plunged, and, eventually, Mr. Briar permanently defaulted on his loan. The servicing bank foreclosed nine months later.

Although Mr. Briar is a fictitious person, this story has played out for millions of households over the past few years. Did Mr. Briar overreach by taking on too much housing debt, or was he duped by Wall Street? The answer is difficult to ascertain because it ultimately depends on the intentions of the borrower and the lender. After the fact, a lender would hardly admit to deceiving a borrower, and the borrower would be more than willing to place at least some of the blame for the foreclosure on the lender.

Certainly, both predatory lending and household overreaching occurred during the subprime housing bubble. But it is important to identify the primary reason for the foreclosure crisis because the policy implications are

would overreach and end up in homes they ultimately couldn't afford. The only comprehensive solution might be to prevent the formation of asset price bubbles, a solution that would require policymakers, such as the central bank, to recognize and deflate such bubbles when they occur.

To distinguish between the predatory lending and overreaching hypotheses, we tapped two nationwide data sources to analyze the characteristics of households in foreclosure. Because private motivations were unobservable, we argue that households with low income and education levels should be the most vulnerable to predatory lending practices because such borrowers, all else equal, are more likely to have a poorer understanding of the contract terms at the time of origination. In contrast, households most susceptible to overreaching are those that have high economic aspirations relative

mean years of education were similar at just over 14, households in foreclosure had a median 12 years of education compared with a median of 16 years for households not in foreclosure.

Because we were interested in identifying the characteristics of households that were responsible for a disproportionate number of foreclosures, we looked beyond the simple averages described above. *PersonicX Life Stage Segmentation* is an Acxiom classification scheme that divides households into 21 life stages based on marital status, number of children in the household, employment status and other socio-economic characteristics.<sup>1</sup> A number and letter correspond to the name of each group listed in Figure 2. The number corresponds to the age of the group, with lower numbers representing younger demographics; the letter approximates the group’s cultural generation. Groups ending in B represent the Baby Boomers, while X and Y represent Generation X and Generation Y. M represents the Mature generation, mostly those in their 50s and 60s, and S represents Seniors, most of whom are retired.

To see which of the 21 PersonicX groups contributed the most disproportionately to the foreclosure crisis, we calculated the share of total foreclosures represented by each group and the share of all households represented by each group. We subtracted the household share from the foreclosure share to derive the “excess foreclosure shares” of each group. Group 07X, for example, accounted for 5.52 percent of all households but 11.3 percent of all foreclosures. The excess share of foreclosures is the difference of these two ratios, or 5.78 percentage points. Figure 2 plots the 11 PersonicX Groups with the highest excess foreclosure shares.

Figure 2 shows that excess foreclosures came primarily from younger, relatively affluent households, a finding more consistent with the overreaching hypothesis. In particular, the group with the largest number of excess foreclosures was 07X, *Cash & Careers*. This Generation X group was the most prosperous of the generation of adults born in the mid-1960s and early 1970s. Out of the first 10 PersonicX groups with excess foreclosures, *Cash & Careers* members ranked first in average household income (\$59,500), net worth and years of education (14.8). The second most-overrepresented group in terms

FIGURE 1

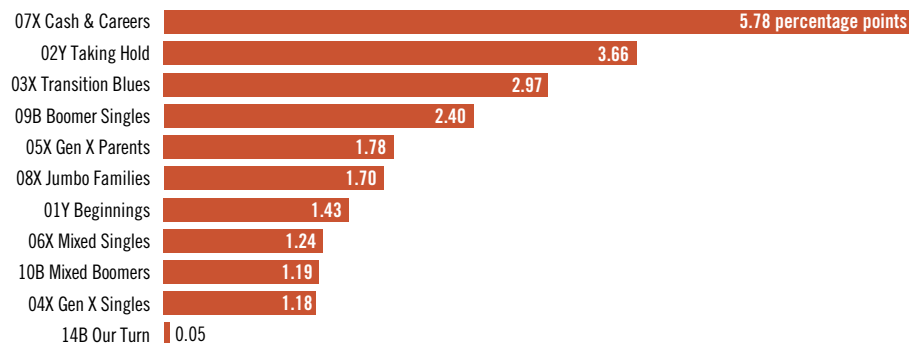
**U.S. Property and Household Characteristics by Foreclosure Status**

|                                  | Not in Foreclosure |           | In Foreclosure |           |
|----------------------------------|--------------------|-----------|----------------|-----------|
|                                  | Mean               | Median    | Mean           | Median    |
| <b>Property Characteristics</b>  |                    |           |                |           |
| Home Market Value                | \$278,115          | \$199,129 | \$290,653      | \$242,400 |
| Home Purchase Amount             | \$198,598          | \$140,000 | \$253,650      | \$199,950 |
| Loan to Value                    | 64.6%              | 65.0%     | 90.7%          | 96.0%     |
| Year Home Built                  | 1969               | 1974      | 1972           | 1978      |
| Home Size (square feet)          | 2,376              | 1,907     | 1,554          | 1,526     |
| <b>Household Characteristics</b> |                    |           |                |           |
| Household Size                   | 3.3                | 3.0       | 2.9            | 2.0       |
| Annual Income                    | \$55,700           | \$51,500  | \$51,241       | \$48,800  |
| Years of Education               | 14.8               | 16.0      | 14.1           | 12.0      |
| Age                              | 53.1               | 52.0      | 45.1           | 44.0      |
| Length of Residence              | 9.1                | 9.0       | 5.3            | 4.0       |
| Number of Children               | 1.4                | 1.0       | 1.5            | 1.0       |
| Married                          | 70.7%              |           | 56.2%          |           |
| Single                           | 25.7%              |           | 36.9%          |           |

SOURCES: Acxiom, RealtyTrac and authors’ own calculations.

FIGURE 2

**Excess Foreclosure Percentages by PersonicX Group for U.S. Households**



SOURCES: Acxiom, RealtyTrac and authors’ own calculations.

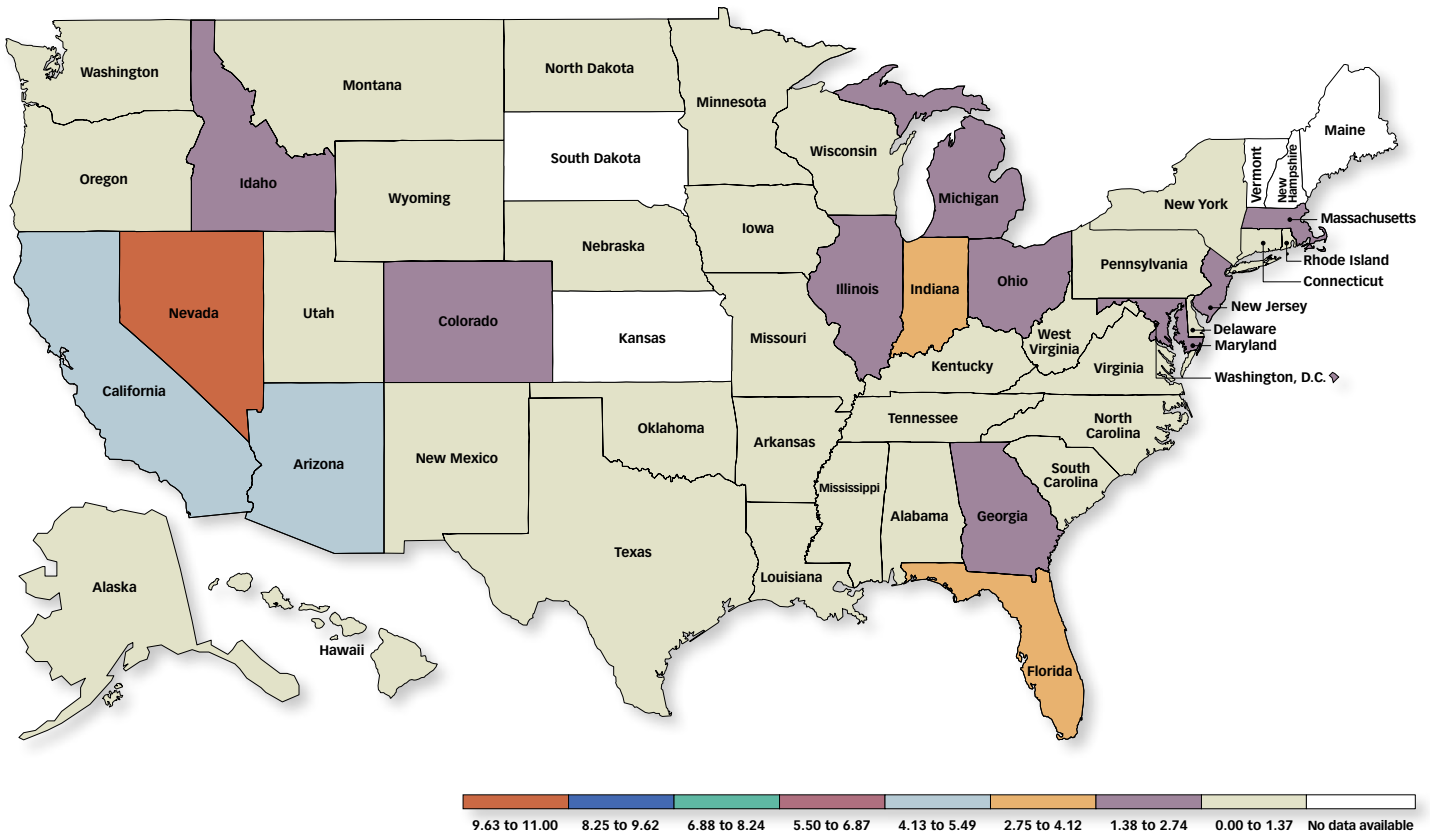
of excess foreclosures was 02Y, *Taking Hold*. These were Generation Y households with an average age of 27.8 years, second-highest average income (\$55,500), third-highest net worth and fifth-highest education level (14.1 years). These two groups’ characteristics were consistent with our expectations of households that are most likely to overreach.

The two groups in Figure 2 that were most likely to be victims of predatory lending were Group 01Y, *Beginnings* and Group 06X, *Mixed Singles* because these groups ranked ninth or 10th in income, net worth and education. Yet these groups ranked seventh and eighth,

The figure shows the groups of people with the highest excess foreclosure rates. The classifications come from Acxiom’s PersonicX Life Stage Segmentation. In the names of the groups, the lower numbers represent younger people. The letters after the numbers stand for: B=Baby Boomers, X=Generation X and Y=Generation Y. For example, 07X *Cash & Careers* accounted for 5.52 percent of all households but 11.3 percent of all foreclosures, meaning its excess share of foreclosures was 5.78 percentage points.

FIGURE 3

**Annualized Foreclosure Rates, 2008:Q3**



SOURCE: RealtyTrac

The foreclosure percentages for each state were calculated by taking the annualized number of households that were in foreclosure during the third quarter of 2008 and dividing them by the total number of households in that state.

respectively, in share of excess foreclosures, and jointly, they accounted for just 2.67 percentage points of excess foreclosures relative to 9.44 percentage points for groups 07X and 02Y.

Rather than rely solely on Acxiom’s groupings, we also separated all the households into quadrants based on income and education to identify the most leveraged households in each quadrant based on their loan-to-income ratio. We conjectured that the most over-leveraged households in the low-income, low-education (bottom) quadrant were more likely to be victims of predatory lending, while the most over-leveraged households in the high-income, high-education (top) quadrant were more likely to have overreached. Our tests showed that the most-leveraged households in the top quadrant were statistically more likely to enter foreclosure than the other households in the same quadrant. This pattern was not true, however, for households in the bottom quadrant. Once again, overreaching

appeared to be the more important explanation of mortgage foreclosure.

**Geographic Patterns of Foreclosures**

In addition to household profiles, our hypotheses also have differing implications for the geographic distribution of foreclosures. The predatory lending hypothesis predicts that the geographic distribution of foreclosures will reflect the spatial distribution of low-income and low-educated households because bankers (or their brokers) will seek out households most easily deceived, regardless of the household’s location. In contrast, the overreaching hypothesis predicts that bubble dynamics will be the important factor explaining the foreclosures. This hypothesis implies that foreclosure rates will spike in specific “hot spots” where households and speculators bid up prices in an effort to buy more-expensive homes before these homes become unaffordable.

We identified real estate hot spots using data from the Federal Housing Finance

Agency House Price Index between 2000 and 2007. The areas with the most significant home appreciation are Florida and the states in the Southwest and in the Northeast.

Figure 3 is a map of foreclosure rates by state for the third quarter of 2008. The overreaching hypothesis suggests that there should be a strong correlation between the states with the greatest price increases and the states with the highest foreclosure rates. Indeed, the concentration of foreclosures in the Southwest and in Florida is consistent with overreaching as a more important explanation than predatory lending for the foreclosure crisis. The main outliers in Figure 3 are the Great Lakes states, such as Michigan, Illinois, Indiana and Ohio, all of which experienced moderate home-price appreciation but relatively high foreclosure rates. Foreclosures in these states are more likely driven by a weak economy rather than by housing price bubbles.

To more firmly support this visual evidence, we ranked all of the 50 states by home price appreciation (between 2000 and 2007) and foreclosure rates (in 2008) to evaluate their statistical correlation. The overreaching hypothesis suggests that these two characteristics should be positively correlated. Indeed, for all the states, the correlation is 0.23—positive as the overreaching hypothesis suggests, though not statistically different from zero. When we exclude the Great Lakes states, however, the rank correlation rises to 0.43 and is statistically significant. Again, the evidence is more consistent with the overreaching hypothesis than with the predatory lending hypothesis.

### Policy Response to Asset Bubbles


By combining household foreclosure data from RealtyTrac with household data from Acxiom, we were able to create a profile of households in foreclosure during the early stages of the financial crisis. We found that many foreclosed households were young with relatively high income and education levels. Moreover, geographic foreclosure patterns were consistent with bubble dynamics as illustrated by the positive correlation between home-price appreciation and subsequent foreclosure rates. The weight of the evidence supports the overreaching hypothesis. Consequently, strong predatory lending restrictions, while desirable, would likely

be insufficient to avoid a future foreclosure crisis should another housing bubble emerge.

In our view, the ultimate underlying cause of the foreclosure crisis was the emergence of a significant housing price bubble and its subsequent collapse. Unfortunately, preventing asset price bubbles is a much more complex policy problem to address than protecting consumers from predatory lending.

The late economist Hyman Minsky argued that capitalist economies go through leverage cycles, in which credit access becomes progressively easier as an economy grows strongly. The success of lenders and firms in the good years, combined with appreciating capital assets, reduces the perception of risk and encourages increasingly riskier financing. Financial innovation exacerbates the leverage cycle as financial firms devise new ways to extend credit. Eventually, asset prices peak and then begin to decline, financial instability emerges and latent systemic risk is unleashed in a financial crisis.

This leverage cycle, which Minsky called the financial instability hypothesis, may be inherent to the capitalist system. Minsky's thesis might portray the subprime financial crisis quite well, but it also would suggest that future crises can result from asset bubbles in other sectors of the economy, not just housing.

If capitalist economies are subject to periodic asset price bubbles, Minsky suggested that policymakers take steps to eliminate bubbles that threaten to become systemically important. This, of course, requires the ability to 1) recognize an asset bubble, 2) classify the bubble as a systemic risk to the economy and 3) curb the formation of the bubble either through monetary policy actions or through more-targeted interventions, such as higher bank capital requirements or more stringent mortgage underwriting criteria. 

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### END NOTE

<sup>1</sup> A list of the 21 PersoniX life stages and their descriptions is available from the Acxiom web site at [www.acxiom.com/products\\_and\\_services/Consumer%20Insight%20Products/segmentation/Pages/index.html](http://www.acxiom.com/products_and_services/Consumer%20Insight%20Products/segmentation/Pages/index.html)

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## A Closer Look at House Price Indexes



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By Bryan Noeth and Rajdeep Sengupta

Central to economic events of recent times were the rapid increases in house prices after 1995 and the ensuing downturn in those prices around 2006–07. Naturally, the importance of accurate measurement of house price trends can hardly be overemphasized. Several prominent house price indexes have been developed for the United States. These include the National Association of Realtors (NAR) median index, the Census Bureau median index, the S&P/Case-Shiller national index, the CoreLogic index and the Federal Housing Finance Agency (FHFA) index.<sup>1</sup> Each differs in

conditions. Dealing with houses that differ in “hedonic” characteristics—such as the square footage, number of bedrooms and distance from city center—can be tricky.

To deal with these issues, economists have adopted a “repeat sales” methodology, which measures price changes of the same house between a previous and current sale.<sup>2</sup> Examples of repeat sales indexes include the Case-Shiller, CoreLogic and FHFA indexes. This method allows economists to control for home characteristics—the previous sale price being considered an appropriate surrogate for the hedonic information. An obvious

The Census Bureau median index differs from the NAR index mainly in that the former covers new homes as opposed to existing structures. Consequently, the Census median index is typically higher than the NAR index (see Figure 1) since, historically, new homes have been higher-priced than existing homes. In terms of both indexes, prices have clearly fallen since their peaks in 2006–07. However, the gap between the two has widened recently, largely due to the steeper decline in the NAR index. One possible reason: Existing homes have seen an increase in foreclosures and short sales, placing downward pressure on the NAR index. Distressed sales are less of a concern in the market for new homes, and the Census median index has not fallen as sharply.

Indexes of repeat sales are more commonly cited than median indexes. The FHFA index is published quarterly by the FHFA and goes back to 1975. The FHFA also publishes several other indexes, including regional, state, metropolitan, purchase only, average and median price indexes on a monthly and quarterly basis.

Standard & Poor’s publishes the Case-Shiller proprietary family of indexes, which includes quarterly national, monthly 10- and 20-composite metropolitan area, and individual metropolitan series.

The final index is the monthly CoreLogic index, a proprietary index published by CoreLogic and dating to 1976. Additionally, CoreLogic publishes a variety of indexes based on property locations, price tiers, property types, loan types and distress levels.

Among the three major repeat sales indexes, the FHFA index is significantly different from the other two. FHFA collects data from conforming mortgages only (i.e.,

It is not always a fact that home price indexes move in tandem. It is not difficult to record instances where changes in home prices differ in both direction and magnitude.

methodology, in its emphasis on the various segments of the housing market or both. To the casual observer, the difference in price changes recorded on each of the indexes can be perplexing. Therefore, knowing how the indexes differ from one another can be instructive as to which index to follow.

Housing price indexes are calculated by tracking home prices in a given region over a period of time. Ideally, one would track the price of a random sample of houses. However, this method has operational problems because, at any particular point in time, not all houses are for sale; additionally, there may be variations in the type of houses sold. If one merely tracked the price of homes sold over time (e.g., as is found in median house price indexes, such as the NAR and the Census indexes), observed changes could be due to changes in the composition of homes sold as opposed to changes due to market

limitation is the omission of sales of new homes. Additionally, to maintain consistency, repeat sales indexes often drop houses that have undergone major improvements or deterioration. Consequently, this method’s calculations require a large number of repeat sales, which can be problematic for nonmetropolitan areas and also during downturns. Finally, it has been shown that repeat sales with larger time gaps in between transactions have greater variance, leading some indexes to adjust their weight downward.

Two median price indexes are noteworthy: the NAR index and the Census Bureau median index. The former dates to 1968. The data come from surveys of sales of existing single-family homes from NAR affiliates. The national median is calculated by value-weighting the median within each of the four census regions in the country by the number of single-family homes in each region.




those securitized by Fannie Mae or Freddie Mac).<sup>3</sup> The Case-Shiller and CoreLogic indexes, however, include all available arm's-length transactions on single-family homes, including sales financed with nonconforming mortgages—such as jumbo, Alt-A and subprime. As a result, these indexes include sales of higher-priced homes (those financed with jumbo mortgages) and transactions with more-volatile sales prices (those financed by Alt-A or subprime mortgages). Moreover, unlike the FHFA index, the Case-Shiller and CoreLogic indexes value-weight transactions so that higher-valued homes have greater effect on the index.<sup>4</sup> A final distinction is that the FHFA index includes refinances, whereas the Case-Shiller and CoreLogic indexes do not.<sup>5</sup>

While the Case-Shiller and CoreLogic indexes are similar, they are different on two counts. In addition to value-weighting, the Case-Shiller series employs an

interval-weighting procedure that places greater weight on repeat sales with shorter intervals. Such a weighting scheme is not adopted by CoreLogic. Also, CoreLogic has larger coverage because it includes mortgage data in place of public records in states with nondisclosure laws. This helps it obtain a broader coverage by including some states with nondisclosure laws that are omitted in the Case-Shiller index.

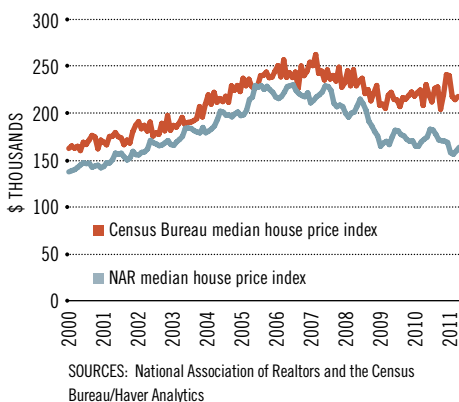
Figure 2 shows various repeat sales indexes.<sup>6</sup> Notably, the FHFA index is flatter than the other two indexes. First, the CoreLogic and Case-Shiller indexes place more weight on higher-valued homes; so, if higher-priced homes have larger appreciations and, subsequently, larger depreciations, then these indexes will likely see larger swings. Second, the FHFA index is less volatile because it does not include nonconforming loans. Combined, these factors can help explain why the FHFA index is flatter than the other two series.

Not surprisingly, the CoreLogic and Case-Shiller indexes tend to move together because of their similar computation and included loan types. However, the CoreLogic index tends to be slightly higher than the Case-Shiller national index. This is possibly due to the smaller weight on lengthier intervals between sales in the Case-Shiller index. Stated differently, the statistical procedure used in the Case-Shiller index likely mitigates the influence of sales pairs with extreme price changes.

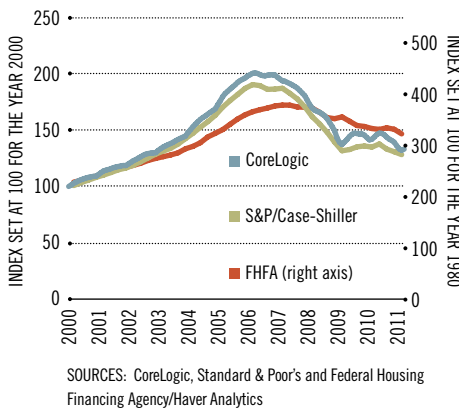
It is not always a fact that home price indexes move in tandem. It is not difficult to record instances where changes in home prices differ in both direction and magnitude. This is true, for example, of the FHFA and Case-Shiller indexes for the second quarter of 2010. The differences in methodology and composition determine the behavior of each index at different points in time. Knowledge of individual index calculation aids in understanding the observed disparities among the indexes. 

*Rajdeep Sengupta is an economist and Bryan Noeth is a research associate, both at the Federal Reserve Bank of St. Louis. See <http://research.stlouisfed.org/econ/sengupta/> for more on Sengupta's work.*

**FIGURE 1**  
**Median Price Indexes**



**FIGURE 2**  
**Repeat Sales Indexes**



ENDNOTES

- <sup>1</sup> The FHFA house price index was formerly titled the OFHEO index.
- <sup>2</sup> This methodology was developed by Bailey, Muth and Nourse and was later modified by Karl Case and Robert Shiller (1987, 1989).
- <sup>3</sup> See [http://en.wikipedia.org/wiki/Non-conforming\\_mortgage](http://en.wikipedia.org/wiki/Non-conforming_mortgage)
- <sup>4</sup> See Aubuchon and Wheelock.
- <sup>5</sup> The FHFA also publishes a purchase-only index that excludes refinances.
- <sup>6</sup> Note that the Case-Shiller index is quarterly, whereas the CoreLogic is monthly.

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# Du Quoin Strives To Diversify Beyond State Fair

By Susan C. Thomson



PHOTO BY SUSAN C. THOMSON

## Du Quoin/Perry County, Ill.

by the numbers

|                                  |                    |
|----------------------------------|--------------------|
| Population for City/County ..... | 6,109/22,350 *     |
| Labor Force .....                | NA/9,554 **        |
| Unemployment Rate .....          | NA/10.2 percent ** |
| Per Capita Personal Income.....  | NA/\$24,290 ***    |

\* U.S. Census Bureau, 2010 census  
 \*\* BLS/HAVER, April 2011, seasonally adjusted  
 \*\*\* BEA/HAVER, 2009

### LARGEST EMPLOYERS

|  |        |
|--|--------|
| General Cable Corp. ....                             | 215 †  |
| Heartland Baking LLC .....                           | 200 †† |
| Marshall Browning Hospital.....                      | 190 †° |
| Du Quoin Community Unit School District No. 300..... | 187 †  |
| Wal-Mart.....  | 110 †† |

† Self-reported  
 †† Reference USAGOV, Infogroup Inc.  
 ° 150 full-time equivalents

Lamppost banners around town bear the old-time image of a horse-drawn, two-wheeled cart with a seated, mustached driver. Thus does Du Quoin, Ill., hitch its own wagon to its namesake event, the Du Quoin State Fair, long famed for harness racing.

The fair is the social, recreational and economic event of the year, unfolding over 10 days in late summer and peaking on Labor Day. It's a something-for-everyone affair, with auto and motorcycle races, horse shows, livestock and farm equipment exhibits, carnival rides, musical acts and food. Of course, there's also harness racing, though the schedule was reduced to three days from five last year, reflecting the sport's waning popularity, says the fair's manager, John Rednour Jr.

Attractions are spread out across the fair's 1,435 acres and its 77 buildings. The centerpiece is a 7,700-seat grandstand that looks out on a stage and the one-mile, lighted, circular racing track. An estimated 350 temporary jobs make the fair briefly the city's largest employer. Upward of 300,000 people attend.

Local hotels are booked solid weeks in advance, with the overflow spilling out for miles around, says Stacy Hirsch, executive director of the Chamber of Commerce in Du Quoin (pronounced *du-COIN*). The fair boosts business for restaurants, gas stations and stores, adds Judy Smid, president of the Du Quoin Tourism Commission and proprietor of a downtown gift shop. Certified public accountant Harold Emling says the merchants tell him they get about a month's worth of their revenue from the fair.

Typical of state fairs, the Du Quoin event celebrates agriculture, historically a foundation of Southern Illinois' economy, along with coal. Agriculture remains the Du Quoin area's economic base, says Jeffrey Ashauer, the city's economic



PHOTO BY TERRY JONES

development consultant. Prospering from recent high prices for their corn, wheat and soybeans, farmers “come to town, buy new vehicles, put their money in the bank and go to Wal-Mart,” he says.

Coal, meanwhile, has taken its lumps since the Clean Air Act dried up markets for the state’s high-sulfur product. Most of the Du Quoin area’s coal mines were shut down 20 or more years ago, and the resulting job losses account for Perry County’s chronically above-average unemployment rate since, says Daniel Fulk, president of Du Quoin State Bank. The Great Recession? “Du Quoin has been in a statistical recession for the last 30 years,” he says. “We’re used to it.” Through it all, the community has proved persevering and resilient, qualities that position it to “survive very nicely in the future,” he adds.

Rex Duncan, one of the four members of the city’s elected governing commission, also makes an upbeat case for the city, based on its brick-and-mortar assets. Showing a visitor around, he points out an Amtrak station with daily passenger service to Chicago and New Orleans, an \$18 million high school under construction and a “basically new” hospital.

Marshall Browning Hospital dates to 1922, but it has been almost completely rebuilt over the past decade at a cost of nearly \$10 million. Emergency room, radiology department, pharmacy, labs, surgical suites, offices, single-bed patient rooms—everything has been upgraded to

state-of-the-art. A physicians’ building and a 22-unit independent-living center have been added to the 19-acre campus on the edge of town.

The hospital has an annual payroll of \$6.5 million and, between its 25 beds and extensive out-patient services, is able to meet 75 percent of the community’s health-care needs, says the chief executive, William Huff.

“We don’t have a lot of industry here,” observes Emling, while acknowledging that two of the city’s other leading employers happen to be manufacturers.

General Cable Corp. has been a fixture in town under various names and owners since 1965, making insulated cable, especially for electric utilities. The plant has thrived not only on good relations between management and the Teamsters-led labor force but also on the resulting flexibility to quickly change product lines, says human resources manager Kathy Hanks. Although 20 production jobs were cut during the recession, all have since been added back.

Heartland Baking, a commercial cookie maker that started up in 2006 in a bakery shuttered by its previous owner, is one of only two tenants in the city’s 90-acre, 20-year-old industrial park. The other is MPP, an electroplating company that moved to the park from Kansas City in 2000.

Besides state tax credits linked to the number of jobs created, Heartland and MPP each got a low-interest \$400,000 loan



PHOTO PROVIDED BY JOHN CROESSMAN, DU QUOIN EVENING CALL

**The Du Quoin State Fair** has long been associated with harness racing. Despite the reputation, the races were held last year only on three days instead of the usual five because of declining popularity.

**As at any major county or state fair,** the exhibition of livestock remains a centerpiece of the action.



PHOTO PROVIDED BY GENERAL CABLE CORP.



PHOTO BY SUSAN C. THOMSON

**Wendell Killian** at work at General Cable Corp., the largest employer in Du Quoin. The plant has thrived in town for more than 40 years, thanks to good labor-management relations and the resulting flexibility to quickly change product lines, says the human resources manager.

**The Medicine Shoppe pharmacy** is one of several downtown businesses that have taken advantage of \$5,000 grants for updating their facades. The money became available through a tax-increment financing (TIF) district.

funded by the federal block grant program, with principal and interest repayable to the city. The city has used the income to make civic improvements and other low-interest business loans.

Ashauer says the park has proved a tough sell to out-of-town prospects for three reasons: U.S. manufacturing has been moving offshore, Illinois is perceived as business-unfriendly and Du Quoin isn't located on an interstate.

That "tough sell" has become a bit less tough now that the city has decided to outfit the park with solar panels. The installation, financed with \$405,000 in federal stimulus money plus \$135,000 in city development funds, is expected to be finished later this year. The panels are expected to shave electric bills for park tenants by 10 percent. Given that promise, word of the park is now spreading "like wildfire," Ashauer says.

As a further inducement, the city in 2009 classified the park and some nearby land as a tax-increment financing (TIF) district, where any new or increased city real estate taxes will be automatically reinvested.

This was the second of Du Quoin's two TIF zones. The original, set up two years earlier, covers the dozen square blocks of the city's Victorian-era downtown.

As the decades passed, Wal-Mart opened outside of downtown and retailers gravitated to malls. The city's core was showing signs of wear and neglect. "Your downtown is like your home; if you don't keep it up, it falls apart," says Mayor John Rednour Sr., father of the fair manager.

As one remedy, the city has set aside \$100,000 from the downtown TIF and made it available in grants of up to \$5,000 to downtown owners for updating their buildings' facades. Projects began this past spring. In the interest of creating synergies between downtown and the fair, TIF grants are also available to downtown businesses that make improvements designed to attract fairgoers. One of these went to a restaurant that added outdoor seating.

The fair has been a source of pride, fun and dollars to its hometown since its birth as a private enterprise in 1923. It has gone on uninterrupted, even through its 1986 takeover by the Illinois Department of Agriculture, which also runs the larger state fair every August in Springfield.

Independent audits, available from the state for the years through 2009, show the Du Quoin fair losing money annually for the previous decade on revenue averaging a little more than \$1 million and expenses ranging from \$1.5 million to more than \$2 million.

But it's unfair to judge the fair on those numbers alone, officials say. For instance, while the audit shows a deficit of \$863,288 for the 2000 fair, the festivities spun off more than \$8 million in economic benefit to Perry County, according to an analysis by the University of Illinois and the Federal Reserve Bank of Chicago. A similar multiplier effect still applies, Rednour Jr. says.

Many fair events are free, and there is no general admission charge, just a parking fee. While striving to keep the fair "affordable for people to come with their kids and show them a good time," Rednour Jr. says he's also nudging it toward break-even by cutting some expenses and raising some fees.

Separately, fair managers several years ago began a drive to lure paying events in the year's remaining 50½ weeks. With their 1,200 electrically equipped campsites, the grounds have proved popular for RV rallies lasting a week or more. Other nonfair money-makers have included bull riding, rodeos, monster truck shows, charity events, weddings, picnics, flea markets, demo derbies, horse shows, auto races, motorcycle races and, of course, harness races. Annual revenue from off-season business has grown to between \$650,000 and \$700,000, officials say.

These extra events also boost the local economy, says Thomas Jennings, director of the Illinois Department of Agriculture. As for the fair proper, it's "a good deal for the community," he says. "The state supports all of the communities in Illinois. The fair is our opportunity to support Southern Illinois."

But for how long and how much? Until this year, the fair's future was never in doubt, Emling says. With the state of Illinois facing a deficit of more than \$9 billion for fiscal 2012, all department budgets face cuts. And the fair, like every other expense, will "have to work its way through the legislature," Jennings says. **Ω**

*Susan C. Thomson is a freelance writer.*

## Recovery Continues despite New Risks, Old Problems

By Kevin L. Kliesen

The macroeconomic environment continues to improve, although the pace of economic activity has been bumpy and somewhat lackluster. In particular, the unexpected slowing in real GDP growth during the first quarter (1.8 percent from the fourth quarter's 3.1 percent) occurred against the backdrop of healthy increases in private-sector employment and a modest decline in the unemployment rate.

As policymakers, businesses and consumers grapple with the lingering effects of the financial crisis and recession, some additional risks have emerged. Chief among these are sharply higher energy prices and the uncertainties stemming from developments in Europe, the Middle East and Japan. Still, most forecasters continue to believe that the economy will shake off the first-quarter doldrums of unexpectedly high inflation and subpar output growth and will soon transition to lower inflation rates and a stronger pace of economic activity.<sup>1</sup>

### Help Wanted

Among the most notable developments of late has been the sharp rebound in monthly private-sector payroll employment. Although the pace of hiring slowed in May, private employment increased by 182,000 jobs per month over the first five months of 2011. Average monthly gains in total nonfarm payrolls were a bit smaller because state and local governments reduced employment to help correct their fiscal imbalances. However, the economy's growth has not been brisk enough to bring about dramatic reductions in the unemployment rate, which remained quite elevated in May (9.1 percent). Professional forecasters generally expect total nonfarm job gains to average about 190,000 per month through the first half of 2012, with the unemployment rate slowly falling to about 8.25 percent by June 2012.

### The Return of Oil at \$100 per Barrel

Perhaps surprisingly, the rise in oil prices and the resulting surge in average gasoline prices to near \$4 per gallon nationally have not yet derailed consumer spending or impinged on planned capital expenditures by businesses. The previous surge in oil prices, in 2007-2008, helped push the economy into recession, but today's dynamics are much better: Equity prices are rising, real interest rates are lower, real household incomes are strengthening, and housing construction and household wealth are no longer plunging at a rapid rate. In addition, the rebound in global growth has benefited many firms, especially manufacturers. This development, in conjunction with a weaker dollar, has kept U.S. exports expanding at a rapid clip. Relatively strong business expenditures on equipment and software are a key signal that firms expect solid economic conditions going forward.

The construction sector remains the fly in the ointment, as housing starts and new home sales continue to linger near record lows, and office and commercial construction languishes. Moreover, house prices continue to drift lower because of the large number of unsold houses on the market and high foreclosure rates—although the latter have been trending lower. The growth of federal government outlays has also weakened because of the waning federal stimulus program and pressures to reduce the extraordinarily large budget deficit.

The rise in oil prices and some of the lingering uncertainties spawned by events overseas have not shaken the confidence of financial markets either. Equity prices have risen sharply since late August 2010, and the St. Louis financial stress index has returned to its prefinancial-crisis levels. Improving economic and financial market conditions have begun to increase the demand for bank

loans by businesses, and consumer credit has started to rise modestly.

### Inflation Increases

Sharply higher energy prices, as well as rising food prices, have pushed headline inflation rates to levels last seen during the 2007-08 oil price shock. Over the past year, the CPI rose by 3.4 percent. A key worry associated with an oil shock (or higher food prices) is the impact that "pass-through" effects may have on prices of nonfood and nonenergy goods and services. If long-term inflation expectations are viewed as low and stable and if monetary policy is viewed as credibly committed to long-term price stability, then these pass-through effects tend to be modest and temporary.

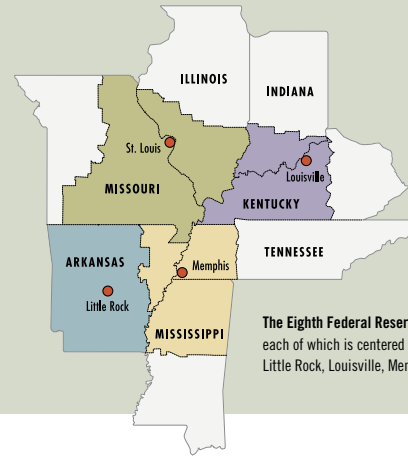
Accordingly, most economists and Federal Reserve policymakers view the sharp rise in inflation as a temporary deviation from a low and stable inflation environment. As long as this expectation persists, the unemployment rate remains high and the pace of growth uneven, most forecasters and financial market participants believe that the Federal Open Market Committee will maintain its existing federal funds rate target of 0 to 0.25 percentage points for the remainder of 2011—and maybe into the first half of 2012. <sup>1</sup>

*Kevin L. Kliesen is an economist at the Federal Reserve Bank of St. Louis. See <http://research.stlouisfed.org/econ/kliesen/> for more on his work.*

### ENDNOTE

<sup>1</sup> References in this article to inflation are to "headline inflation," which factors in food and energy prices.





The Eighth Federal Reserve District is composed of four zones, each of which is centered around one of the four main cities: Little Rock, Louisville, Memphis and St. Louis.

# Hispanics Play Different Role in District's Growth than in Nation's

By Rubén Hernández-Murillo and Christopher J. Martinek

The U.S. Census Bureau recently released the 2010 redistricting data for the nation. These data are the first to provide local-level information on population, race/ethnicity, age and housing unit counts from the 2010 census. Aside from helping define

congressional district boundaries, the data reveal interesting trends over the past decade across various demographic groups. One trend that has received a lot of attention is the dramatic growth of the Hispanic population, which in 2010 represented 16.3

percent of the nation's population.<sup>1</sup> The demographic trends in the Eighth Federal Reserve District in terms of population growth by racial and ethnic categories were quite different from the national trends.<sup>2</sup> The table provides a snapshot of population

## Detailed Data on 2010 Census

| United States and Eighth District Comparison | 2000 Population | 2010 Population | Change since 2000 | Percentage Change | Hispanic Contribution to Growth | Non-Hispanic White Alone Contribution to Growth | Non-Hispanic Black Alone Contribution to Growth | Non-Hispanic Asian Alone Contribution to Growth | Non-Hispanic Other Single Race Contribution to Growth | Non-Hispanic Multiple Race Contribution to Growth |
|--|-----------------|-----------------|-------------------|-------------------|---------------------------------|---|---|---|---|---|
| United States                                | 281,421,906     | 308,745,538     | 27,323,632        | 9.7%              | 5.4%                            | 0.8%  | 1.3%  | 1.5%  | 0.2%  | 0.5%  |
| Rural  | 48,040,217      | 50,130,733      | 2,090,516         | 4.4               | 2.4                             | 0.8   | 0.2   | 0.2   | 0.2   | 0.5   |
| Urban  | 233,381,689     | 258,614,805     | 25,233,116        | 10.8              | 6.0                             | 0.8   | 1.6   | 1.8   | 0.2   | 0.5   |
| Eighth District Counties                     | 13,720,816      | 14,569,665      | 848,849           | 6.2               | 2.0                             | 1.7   | 1.3   | 0.5   | 0.1   | 0.6   |
| Rural  | 5,603,261       | 5,690,716       | 87,455            | 1.6               | 1.2                             | 0.0   | -0.3  | 0.2   | 0.0   | 0.4   |
| Urban  | 8,117,555       | 8,878,949       | 761,394           | 9.4               | 2.5                             | 2.9   | 2.4   | 0.8   | 0.1   | 0.7   |

### Metro Area Population Growth

|  |           |           |         |       |       |       |      |      |      |      |
|--|-----------|-----------|---------|-------|-------|-------|------|------|------|------|
| Fayetteville-Springdale-Rogers, Ark.-Mo. | 347,045   | 463,204   | 116,159 | 33.5% | 11.6% | 15.9% | 1.3% | 2.0% | 1.6% | 1.1% |
| Bowling Green, Ky.                       | 104,166   | 125,953   | 21,787  | 20.9  | 2.6   | 13.2  | 2.3  | 1.8  | 0.2  | 0.8  |
| Columbia, Mo.                            | 145,666   | 172,786   | 27,120  | 18.6  | 1.7   | 11.9  | 2.3  | 1.5  | 0.1  | 1.2  |
| Springfield, Mo.                         | 368,374   | 436,712   | 68,338  | 18.6  | 1.5   | 14.6  | 0.8  | 0.6  | 0.1  | 1.0  |
| Little Rock-N. Little Rock-Conway, Ark.  | 610,518   | 699,757   | 89,239  | 14.6  | 3.4   | 5.3   | 4.3  | 0.7  | 0.1  | 0.7  |
| Jonesboro, Ark.                          | 107,762   | 121,026   | 13,264  | 12.3  | 2.5   | 2.8   | 5.7  | 0.6  | 0.1  | 0.7  |
| Elizabethtown, Ky.                       | 107,547   | 119,736   | 12,189  | 11.3  | 2.2   | 6.4   | 0.8  | 0.4  | 0.2  | 1.3  |
| Louisville-Jefferson County, Ky.-Ind.    | 1,161,975 | 1,283,566 | 121,591 | 10.5  | 2.7   | 4.0   | 2.2  | 0.7  | 0.1  | 0.8  |
| Fort Smith, Ark.-Okla.                   | 273,170   | 298,592   | 25,422  | 9.3   | 4.4   | 2.0   | 0.4  | 0.6  | 1.1  | 0.8  |
| Memphis, Tenn.-Miss.-Ark.                | 1,205,204 | 1,316,100 | 110,896 | 9.2   | 3.1   | -1.4  | 6.3  | 0.7  | 0.1  | 0.4  |
| Hot Springs, Ark.                        | 88,068    | 96,024    | 7,956   | 9.0   | 2.7   | 4.3   | 0.8  | 0.3  | 0.1  | 0.9  |
| Jackson, Tenn.                           | 107,377   | 115,425   | 8,048   | 7.5   | 1.8   | -0.8  | 5.5  | 0.3  | 0.1  | 0.6  |
| Jefferson City, Mo.                      | 140,052   | 149,807   | 9,755   | 7.0   | 1.0   | 4.4   | 0.8  | 0.3  | 0.0  | 0.5  |
| Texarkana, Texas-Ark.                    | 129,749   | 136,027   | 6,278   | 4.8   | 1.9   | -0.2  | 2.1  | 0.3  | 0.1  | 0.6  |
| Evansville, Ind.-Ky.                     | 342,815   | 358,676   | 15,861  | 4.6   | 1.1   | 1.2   | 0.8  | 0.4  | 0.1  | 0.9  |
| Owensboro, Ky.                           | 109,875   | 114,752   | 4,877   | 4.4   | 1.6   | 1.2   | 0.6  | 0.3  | 0.1  | 0.7  |
| St. Louis, Mo.-Ill.                      | 2,721,491 | 2,837,592 | 116,101 | 4.3   | 1.2   | 0.3   | 1.4  | 0.8  | 0.0  | 0.6  |
| Pine Bluff, Ark.                         | 107,341   | 100,258   | -7,083  | -6.6  | 0.6   | -7.7  | 0.2  | 0.1  | 0.0  | 0.2  |

SOURCE: U.S. Census Bureau.

growth by race and Hispanic origin in the U.S. and the Eighth District. The top panel summarizes differences in rural and urban areas, while the bottom panel illustrates population trends across metropolitan areas in the Eighth District.

### Overall Population Growth

Between 2000 and 2010, the nation's population grew by 9.7 percent to 308,745,538. About 56 percent of the growth in U.S. total population was accounted for by individuals who identified themselves as Hispanic or Latino (5.4 out of 9.7 percent). In the Eighth District, total population between 2000 and 2010 increased by 6.2 percent to 14,569,665. Hispanics represented 3.6 percent of the District's total population. Although the contribution to growth of the Hispanic population was the largest among all groups, it accounted for only about a third of total population growth (2.0 out of 6.2 percent). Almost 50 percent of the total growth in the Eighth District was accounted for by the combined growth of non-Hispanic individuals who identified themselves as non-Hispanic white alone or non-Hispanic black alone (1.7 and 1.3, respectively, out of 6.2 percent). Growth in the non-Hispanic Asian population was the second largest contributor to national population growth, representing about 15 percent of overall growth (1.5 out of 9.7 percent), but in the Eighth District, the population growth of non-Hispanic Asians accounted for only about 8 percent of overall growth (0.5 out of 6.2 percent).

### Rural and Urban Growth

Although Hispanics' contribution to overall growth was less dramatic in the Eighth District than in the nation as a whole, breaking up total population across urban and rural counties reveals that Hispanic population growth was a more important contributor to rural population growth in the Eighth District than in the nation. This distinction is important because the Eighth District is more rural than the nation as a whole.


The 2010 census indicates that 39.1 percent of the District's population lives in rural counties, while only about 17 percent of the nation's population lives in rural counties.<sup>3</sup> The growth in rural population of the nation was 4.4 percent, while the growth in urban population was 10.8 percent. The population

in rural counties of the Eighth District grew by 1.6 percent, while population in urban counties grew by 9.4 percent.<sup>4</sup>

In terms of contributions to growth, Hispanic population growth accounted for about 55 percent of the nation's population growth for both rural and urban counties (2.4 of 4.4 percent in rural counties and 6 of 10.8 percent in urban counties). In contrast, Hispanic population growth accounted for 75 percent of relatively modest rural population growth in the Eighth District (1.2 of 1.6 percent) and slightly more than 25 percent of urban population growth (2.5 of 9.4 percent).

### MSA Population Growth

Across the Eighth District's metropolitan statistical areas (MSAs), with the exception of Pine Bluff, Ark., population increased in every metropolitan area from 2000 to 2010. Fayetteville-Springdale-Rogers, Ark.-Mo., led the District MSAs with a 33.5 percent population growth. The largest contributions to growth in this location came from the Hispanic population, with about 34 percent of overall growth (11.6 of 33.5 percent) and from non-Hispanic white individuals, with about 47 percent of overall growth (15.9 of 33.5 percent).

Population growth in most of the District MSAs was driven predominantly by growth in the non-Hispanic white population. The exceptions were Memphis, Tenn.-Miss.-Ark.; Texarkana, Texas-Ark.; Jackson, Tenn.; and most notably, Pine Bluff, Ark., where decreases in the non-Hispanic white population subtracted from overall growth. In contrast, growth in the St. Louis, Mo.-Ill., and Jonesboro, Ark., areas can be predominantly attributed to growth in the non-Hispanic black population. Growth in the non-Hispanic Asian population also made up a significant proportion of total population growth in the St. Louis MSA. Fort Smith, Ark.-Okla., and Owensboro, Ky., more closely resembled the national trend of Hispanic population growth accounting for the largest share of total population growth. 

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*Rubén Hernández-Murillo is an economist and Christopher J. Martinek is a research associate, both at the Federal Reserve Bank of St. Louis. See <http://research.stlouisfed.org/econ/hernandez/> for more on Hernández-Murillo's work.*

## ENDNOTES

- <sup>1</sup> The census collects race and Hispanic origin information in accordance with the U.S. Office of Management and Budget's (OMB) 1997 Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity, which prescribe that race and Hispanic origin be considered distinct concepts necessitating the separate questions.
- <sup>2</sup> For the purposes of this article, we compare Hispanics with individuals who reported non-Hispanic origin and only one race (white, black or Asian) to form mutually exclusive categories.
- <sup>3</sup> Urban counties, here, are defined as those making up part of a census-designated metropolitan statistical area.
- <sup>4</sup> Some counties of MSAs listed in the lower portion of the table are located outside of the District and are not included in the figures presented in the upper portion. For example, in the Fort Smith, Ark.-Okla., MSA, Sequoyah County, Okla., is located outside of the District. Similarly, some counties located in MSAs considered outside the District and not included in the lower portion of the table are included in the tabulation for the upper portion of the table, for example, Greene County, Ind., in the Bloomington, Ind., MSA.

## CENSUS CHANGES

Unlike previous censuses, the 2010 census did not include a "long form" questionnaire. Previously, the long form was given to roughly one in six households to gather information on such things as educational attainment, income, housing costs and other socio-economic characteristics of the population. (The long form continues to be administered every year as part of the American Community Survey.)

One of the reasons for eliminating the long form was to improve return rates. The mail participation rate for the 2010 census was 74 percent of occupied households, the same rate that was achieved for the 2000 census short form. However, when the elimination of the long form is factored in, a larger portion of questionnaires was returned in 2010.

The Census Bureau makes an attempt to follow up with households that do not respond by mail; the bureau will call, visit the household or contact neighbors and building managers. As a last resort, the bureau will impute counts using statistical models that reflect the characteristics of the neighborhood. By the time all the methods of filling in missing forms are exhausted, the bureau determines the proportion of records that provide usable information. Last year, this proportion was 99.62 percent, slightly higher than the 2000 proportion of 99.43 percent.

In addition to the response rates, the bureau considers several other measures of accuracy of the data-collection process. One of the most important post-census process indicators is the Census Coverage Measurement survey, a quality-check survey of 300,000 households. Results from this survey will be matched to census responses to estimate overcounts and undercounts by geography, ethnicity, race, gender and age. The bureau will publish the results next year but will not revise existing population count estimates.

# Black/White Segregation in the Eighth District: A Look at the Dynamics



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By Alejandro Badel and Christopher J. Martinek

Based on a popular index, racial segregation decreased in the Eighth District's four major metropolitan areas between 1970 and 2000. This decline was not particular to the Eighth District; for example, a similar decline occurred in Chicago.

To help explain what happened, we created a simple way to decompose the decline in the index; by doing so, we found that the decline can be explained by opposing forces that are the same in all metro areas. The force that lowered the index of segregation was an increase in racial integration in historically highly black and highly white communities. The forces that partly offset this decrease were the suburbanization of the white population into new, highly white communities and, to a lesser extent, the increased segregation in communities that experienced “tipping” from highly white in 1970 to highly black in 2000.

## The Basics of Our Study

Racial segregation exists in a city to the extent that people of different races do not share the same areas.<sup>1</sup> Different types of areas can be analyzed, such as blocks, neighborhoods or counties. For this article, we documented the extent and evolution of black/white segregation across census tracts of the Eighth District between 1970 and 2000.<sup>2</sup> Although 1970 is a good starting point (since it was the first decennial census year after the Civil Rights Act of 1964), we focused on the 1970-2000 period mainly because there exist adequate data for it.

The data we used come from the Neighborhood Change Database (NCDB).<sup>3</sup> This dataset is built by transforming the original Census Bureau data in such a way that tract borders do not vary between 1970 and

2000.<sup>4</sup> Using it, we could observe segregation changes within fixed plots of land. (Data from the 2010 census are not yet available in the NCDB format.) We used the Index of Dissimilarity (IOD), a popular measure of segregation among sociologists and economists, because it has a straightforward interpretation.

## The Index of Dissimilarity

The IOD varies from zero to 100 percent. An IOD of 90 implies that at least 90 percent of one of the two groups (in this case, either black or white) would need to move to a different neighborhood to make all neighborhoods end up with the same racial mix.

Consider a dessert party in which two buckets of vanilla ice cream and one bucket of chocolate ice cream are to be served. To serve all guests with the same vanilla-chocolate mix, each guest would need to be served two scoops of vanilla with each scoop of chocolate. If each bucket contains 100 scoops, all one ends up doing is serving 1 percent of the total amount of vanilla ice cream together with each 1 percent of the total chocolate ice cream. The IOD captures how far the party is from the homogeneous distribution by comparing the percentages of the total chocolate and vanilla ice cream served onto each plate. For example, a plate that contains 5.7 percent of the chocolate ice cream and 1.3 percent of the vanilla ice cream contributes (5.7% – 1.3%) to the IOD (i.e., 4.4 percentage points). Adding up the contributions from all plates with excess chocolate gives the total index. (The calculation is identical if we consider plates with excess vanilla instead.) When the percentages are equal on all plates, the index is zero. When no plate contains both flavors, the

index is 100 percent—full segregation.

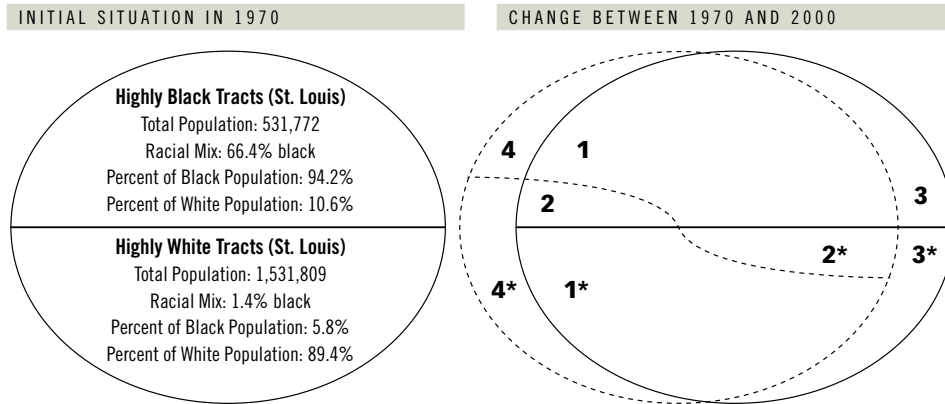
For a concrete example, consider St. Louis in 1970. In that year, the population of St. Louis was 2,071,043. Of those, 375,090 persons were black and 1,688,491 were white.<sup>5</sup> St. Louis as a whole was 18.2 percent black.

The left panel of the diagram summarizes segregation in St. Louis by joining all tracts that were more than 18.2 percent black into what we call the “highly black” (HB) area and by joining all tracts that were less than 18.2 percent black into what we call the “highly white” (HW) area. The diagram shows that 94.2 percent of the black persons in St. Louis lived in HB tracts while only 10.6 percent of the white persons lived in those tracts. (Recall that these two percentages would have needed to be equal for the neighborhood to have been exactly 18.2 percent black.) One hypothetical way for the HB area to become fully integrated would be to reduce its percentage of blacks in that area to 10.6 percent, which would be equal to the percentage of whites in that area. To achieve this reduction, the equivalent of 83.6 percent of all black people in St. Louis would have needed to move out of the HB area. If this amount of black people would have moved into the HW area, the percentage of all black persons living in the HW area would have risen from 5.8 percent in the diagram to 89.4 percent—exactly equaling the percentage of all white persons living in the HW area. Therefore, this movement would have sufficed to achieve perfect integration in HW and *also* in HB areas.

In summary, 83.6 percent of all black persons in St. Louis would have needed to change neighborhoods in 1970 in order to make all areas fully integrated. This percentage was the IOD for St. Louis in 1970. This exercise could be repeated with the white



## Diagram of a Segregated City and Its Change over Time



NOTE: We report some statistics for St. Louis in the "Initial Situation in 1970" panel, but a similar partition can be done for any MSA. We do not report statistics directly on the "Change between 1970 and 2000" panel. Statistics for each of this panel's numbered areas are reported in the table.

population moving out of HW areas, and the resulting IOD would be unchanged.

### IOD's Change over Time

In 1970, the IOD in District metropolitan statistical areas (MSAs) was very high, ranging from 73.3 percent in Little Rock to 83.6 percent in St. Louis, while it was slightly above 90 percent in Chicago. The IOD fell for all MSAs in our table between 1970 and 2000. The largest declines happened in Louisville (20 percentage points) and Little Rock (15 percentage points), while Chicago, St. Louis and Memphis observed milder declines (approximately 12 percentage points).

To get some notion as to why the IOD fell in all of our MSAs, consider the right panel of

the diagram. The diagram shows how cities change between two points in time—say 1970 and 2000. In 1970, the city is represented by solid lines, and area types 1, 2 and 3 are HB, while 1\*, 2\* and 3\* are HW, just like in the left panel of the diagram. In 2000, the city is represented by dotted lines. Each area represents neighborhoods that experienced different kinds of changes between 1970 and 2000. We can name each kind of change using popular terminology:

**White Resegregation:** Tracts that stay HW, represented by area 1.

**Black Resegregation:** Tracts that stay HB, represented by area 1\*.

**Tipping Black to White:** Tracts that switched

*continued on Page 26*

### Index of Dissimilarity in 1970 and 2000, Eighth District and Chicago (Percent)

|                             | Little Rock | Louisville | Memphis | St. Louis | Chicago |
|-----------------------------|-------------|------------|---------|-----------|---------|
| Index of Dissimilarity 1970 | 73.33       | 81.42      | 82.31   | 83.58     | 90.17   |
| Index of Dissimilarity 2000 | 58.29       | 60.77      | 70.23   | 71.95     | 77.74   |
| Change 1970 to 2000         | -15.05      | -20.66     | -12.07  | -11.64    | -12.43  |

| Decomposition: Contribution to Change by Each Type of Tract (Percentage Points) |               |               |               |               |               |
|---|---------------|---------------|---------------|---------------|---------------|
| Black Resegregation (1)   | -15.0         | -14.3         | -22.4         | -15.1         | -18.2         |
| Tipping B to W (2)  | 0.0           | -0.1          | 0.1           | 0.0           | 0.0           |
| Black Depopulation (3)  | -2.6          | 0.0           | -0.3          | -0.1          | -0.1          |
| Black Suburbanization (4)   | 0.0           | 0.1           | 0.7           | 0.1           | 0.3           |
| White Resegregation (1*)  | -12.7         | -12.0         | -6.3          | -4.3          | -5.7          |
| Tipping W to B (2*)   | 2.8           | 0.2           | 0.6           | 1.1           | 5.3           |
| White Depopulation (3*)   | -0.9          | -1.1          | 0.0           | -0.2          | 0.0           |
| White Suburbanization (4*)  | 13.3          | 6.5           | 15.4          | 6.8           | 6.0           |
| <b>TOTAL</b>  | <b>-15.05</b> | <b>-20.66</b> | <b>-12.07</b> | <b>-11.64</b> | <b>-12.43</b> |

NOTES: Each line of the decomposition represents an area of the right panel of the diagram. Negative numbers represent a decrease in segregation. Not all columns add up exactly because of rounding.

## ENDNOTES

- <sup>1</sup> The U.S. pattern of racial residential segregation has been studied by economists since the mid-20th century, following the seminal works of Gunnar Myrdal and, later, Thomas Schelling. Sociologists have also made important contributions to the measurement and theory of racial segregation. For an overview of segregation measurement, see [www.census.gov/hhes/www/housing/ereseg/app\\_b.html](http://www.census.gov/hhes/www/housing/ereseg/app_b.html)
- <sup>2</sup> Census tracts are small units of land delineated by the Census Bureau. These units subdivide a county and usually contain between 2,500 and 8,000 people.
- <sup>3</sup> Tract level data come from the Neighborhood Change Database (NCDB) by Geolytics Inc. The database contains tract-level population counts from the 1970, 1980, 1990 and 2000 U.S. decennial censuses.
- <sup>4</sup> The Census Bureau redefines tract boundaries for each decennial census.
- <sup>5</sup> In this population count, we only consider black and white population. We also consider tracts with population density of fewer than 100 people per square kilometer as empty and normalize their population to zero.
- <sup>6</sup> Note that an empty tract contains zero percent of each of the populations, so that it contributes 0 percent to the Index of Dissimilarity. The change in segregation in these areas is the new level of segregation (zero) minus the old level.

## REFERENCES

- Schelling, Thomas C. "Dynamic Models of Segregation." *Journal of Mathematical Sociology*, May 1971, Vol. 1, No. 2, pp. 143-86.
- Myrdal, Gunnar. "An American Dilemma: the Negro Problem and Modern Democracy." New York: Harper & Brothers, 1944.
- Massey, Douglas; and Denton, Nancy. "The Dimensions of Racial Residential Segregation," *Social Forces*, December 1988, Vol. 67, No. 2, pp. 281-315.

continued from Page 25

from HB to HW, represented by area 2.

**Tipping White to Black:** Tracts that switched from HW to HB, represented by area 2\*.


**Depopulation:** Tracts that became vacant, represented by areas 3 and 3\*.

**Suburbanization:** Tracts that were empty in 1970 but became populated by 2000, represented by areas 4 and 4\*.

For any city, each area described by the right panel of the diagram contributes to the change in the IOD over time. This contribution depends on the size of the area and on the change in segregation within the area. Therefore, we can decompose time changes of the IOD by calculating the portion that accrues to each area. The table presents this decomposition, and we describe its contents below.

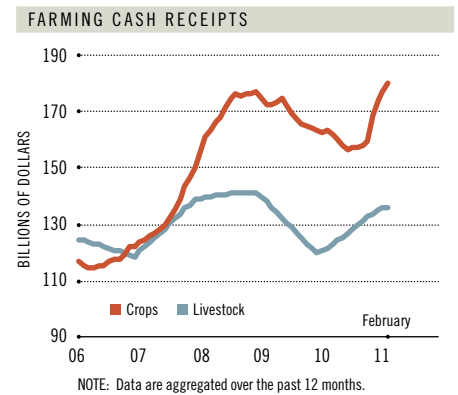
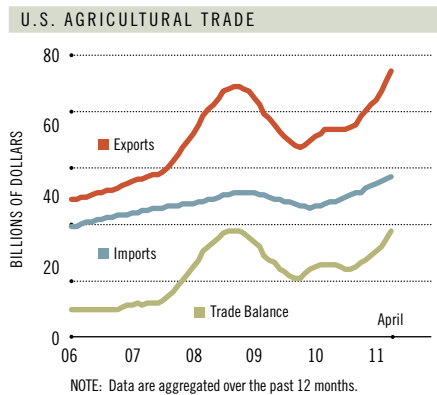
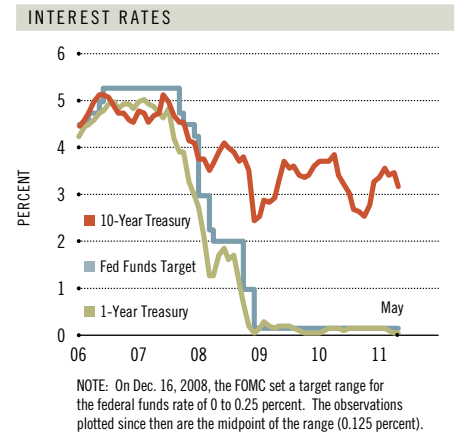
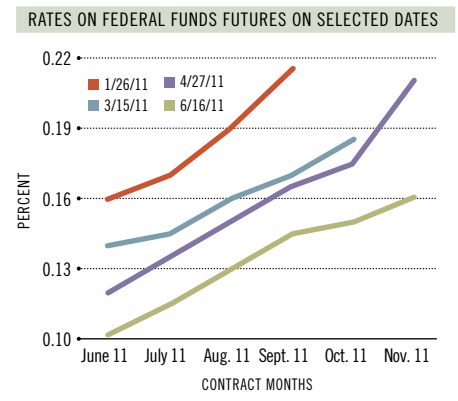
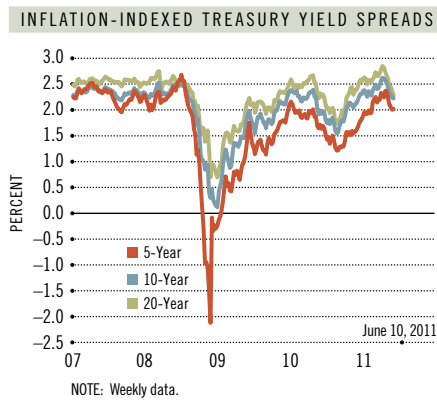
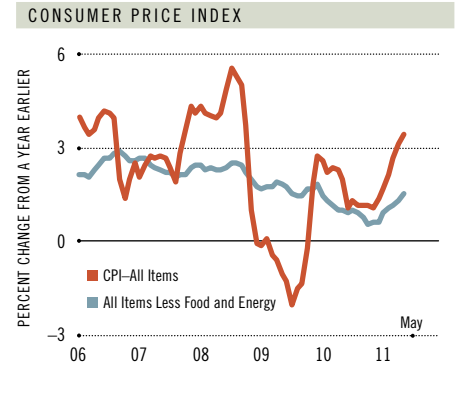
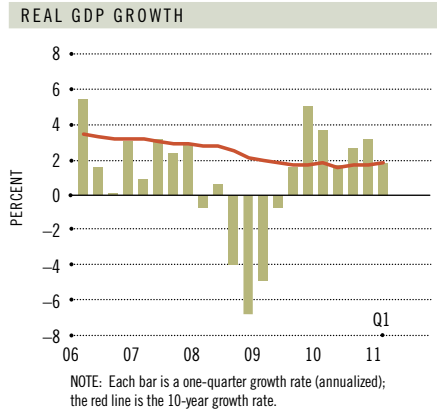
Both White Resegregation and Black Resegregation had large negative effects on the IOD. This means that although many tracts stayed HB or HW between 1970 and 2000, these types of tracts became more mixed.

Tipping White to Black appreciably helped to increase the IOD in Chicago (5.3 percentage points) and Little Rock (2.8 percentage points). This implies that the tipping tracts became at least as segregated after becoming HB as they were when HW. Tipping Black to White did not have a large effect on the index in any MSA.

Depopulation of HB tracts reduced the IOD in Little Rock by 2.6 percentage points, while the effect in other MSAs was below one percentage point. This means that the tracts that were HB in 1970 and were empty or very sparsely populated by 2000 were highly segregated in 1970.<sup>6</sup> In contrast, Depopulation of HW tracts did not appreciably change the IOD. Suburbanization into new HB tracts did not impact the index appreciably, except in Memphis, where it increased the index by 0.7 percentage points. In contrast, Suburbanization into HW tracts had a large positive effect on the index in all MSAs, with the largest effects in Little Rock and Memphis. 

*Alejandro Badel is an economist and Christopher J. Martinek is a research associate, both at the Federal Reserve Bank of St. Louis. See <http://research.stlouisfed.org/econ/badel/> for more on Badel's work.*

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 see these charts, go to [stlouisfed.org/economyataglance](http://stlouisfed.org/economyataglance)



**ASK AN ECONOMIST**

**Yi Wen** is an economist and assistant vice president in the Research division at the Federal Reserve Bank of St. Louis. He joined the St. Louis Fed in 2005 after teaching at Cornell University for six years as an assistant professor. His research field is in macroeconomics with a focus primarily on the business cycle. His hobbies include walking, swimming and playing badminton. To read more on his work, see <http://research.stlouisfed.org/econ/wen/>



Yi Wen in Leshan, China.

**Q. Why does the U.S. have such a large trade deficit with China?**

Prices of consumer goods in the United States have been remarkably low and stable for decades. One of the most important reasons for this, besides sound monetary policies conducted by the Fed, is international trade with developing countries, such as China.

Each year, China sells goods to us at very low prices. For example, Chinese workers need to use 16 million T-shirts to exchange for one Boeing 737-800 airplane from us (at about \$5 per T-shirt). More than that, they even lend goods to us by keeping our paper money for a long time.

The result is a huge trade deficit with China: For every dollar Americans spend on Chinese goods, Chinese spend 30 or fewer cents on American goods. China currently holds a total of \$3 trillion in foreign reserves, mostly in U.S. dollars or U.S. government bonds. This means that U.S. consumers have been enjoying huge quantities of low-cost goods by borrowing cheaply from China at negative real interest rates.

The question is why Chinese people are willing to lend goods to us when they are still struggling with very low per capita income and consumption levels. One answer from economic theory is that they have a strong need to save for a rainy day. At their current stage of economic development, Chinese workers do not have a well-developed financial market and social safety net, both of which would reduce their need to save and would allow them to borrow when needed. Hence, even though their general economy is growing very fast, the rising uncertainty for each individual in both spending needs (such as the rising costs in health care, education and housing) and income prospects (such as unemployment risk) induces them to save excessively to provide the self-insurance that is not available to them from the market. Therefore, for every dollar a Chinese worker makes in trading with the U.S., he or she feels the need to save at least a quarter. The remaining part of the dollar is not even spent entirely on U.S. goods because Chinese workers (firms) also need dollars to buy raw materials from other countries to produce consumption goods, as China is a resource-poor country. This implies that the total imports of China from us will be *substantially less than its total exports to us, leading to the U.S.-China trade imbalance.*

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

**LETTERS TO THE EDITOR**

This is in response to “A Closer Look: Assistance Programs in the Wake of the Crisis” in the January 2011 issue of *The Regional Economist*.

**Dear Editor:**

Thank you for this excellent article on the “great recession.” It cuts through quite a bit of mythology and lays out the facts in a clear and coherent way. The graphics and use of the Blinder and Zandi simulations provide a reasonable picture of the but-for world without intervention. Personally, I think that without U.S. assistance programs in place, the off-shore reverberations would have been far more reaching than the simulations suggest. Additionally, aggressive assistance in Europe and Asia was probably as valuable as the U.S. programs in helping to stave off global disasters that go beyond what the simulation can predict. Somehow in some way, the global political machinery gave way to common sense at a time that it absolutely had to.

**Kyle Stiegert**, professor of agricultural economics at the University of Wisconsin in Madison

This is in response to “Are Small Businesses the Biggest Producers of Jobs?” in the April 2011 issue. This letter has been edited for space reasons. To read it in its entirety, see [www.stlouisfed.org/publications/re/letters/index.cfm](http://www.stlouisfed.org/publications/re/letters/index.cfm)

**Dear Editor:**

The article is directed at making the very salient point that we should look at net job creation, not gross, when assessing the dynamics of labor demand by small businesses. Unfortunately, the article presents an incomplete picture of the U.S. labor market that leaves the reader with the impression that firms with 500+ employees are the main drivers of employment.

Using 1992 as a baseline, it is clear why the authors can say that nearly 40 percent of jobs created have been at the largest firms. I would argue, however, that the heady years of the 1990s (a period that included an expansion of technology and free-trade agreements that we have not seen since) do not provide a reasonable baseline from which to derive long-term labor market expectations.

Indeed, the more recent decade provides a marked contrast. When we begin this analysis using the year 2000 as our baseline, a different picture emerges—one where small firms not only create more jobs, but where they create jobs that are more robust to economic downturns. It is intriguing to note the trend in the early 2000s (and today), when smaller firms are *increasing* employment, while the largest firms continue to hemorrhage jobs.

It should not be assumed that the distribution of employment in an advanced economy will naturally be biased toward employment at large firms. This is a consequence of *policy*, and I fear that the article by Mr. Kliesen and Ms. Maués could be interpreted as a reason to continue the same policies that have resulted in this labor force distortion. Last year, the German minister of finance, Wolfgang Schäuble, noted that, “The United States lived on borrowed money for too long, inflating its financial sector unnecessarily and *neglecting its small and mid-sized industrial companies*” (emphasis added).

**Andrew Smale**, master’s student in applied economics, University of Minnesota in Minneapolis-St. Paul

To read past issues of *The Regional Economist*, see [www.stlouisfed.org/publications/re](http://www.stlouisfed.org/publications/re)



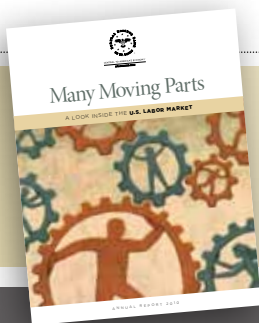
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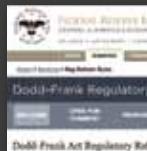
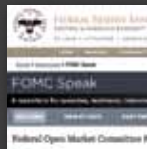
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The essay in the St. Louis Fed's **annual report** focuses on the labor market, shining light on trends that aren't often thought about by the general public; a sidebar shows how U.S. workers fared during the Great Recession compared with workers in other industrialized countries. Also included in the report are financial statements, messages from key leaders and a "getting to know you" section with our boards of directors. Read the report at [www.stlouisfed.org/publications/ar/](http://www.stlouisfed.org/publications/ar/)

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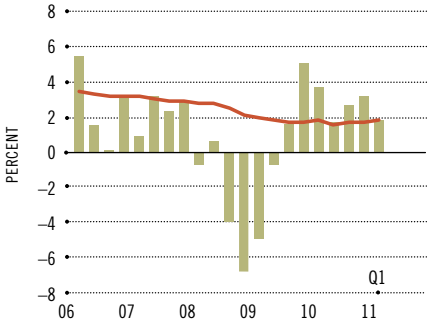
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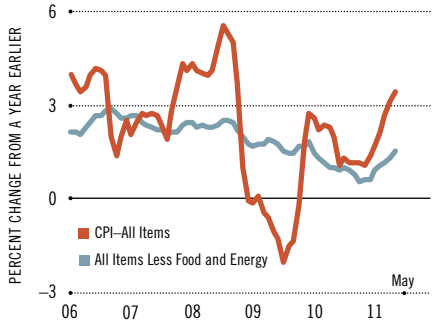
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**REAL GDP GROWTH**

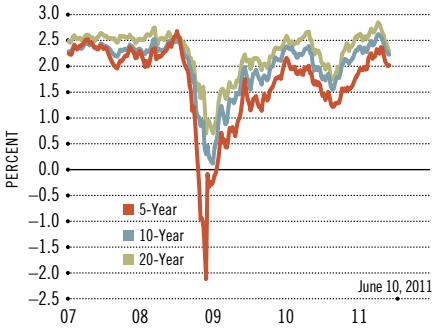


NOTE: Each bar is a one-quarter growth rate (annualized); the red line is the 10-year growth rate.

**CONSUMER PRICE INDEX**

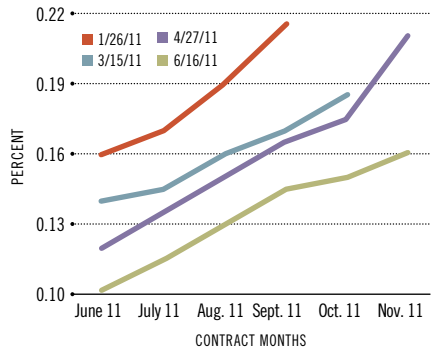


**INFLATION-INDEXED TREASURY YIELD SPREADS**



NOTE: Weekly data.

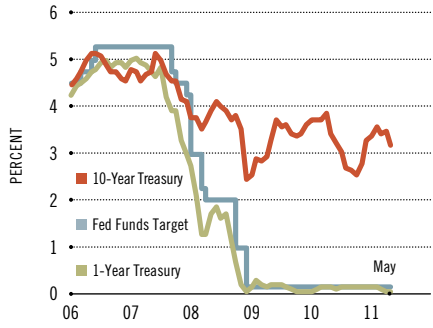
**RATES ON FEDERAL FUNDS FUTURES ON SELECTED DATES**



**CIVILIAN UNEMPLOYMENT RATE**

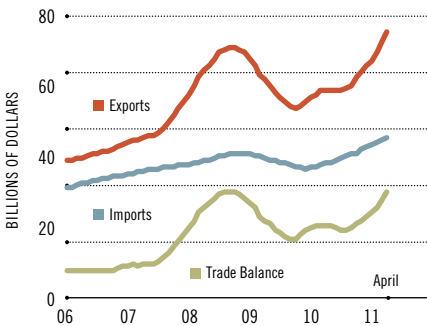


**INTEREST RATES**



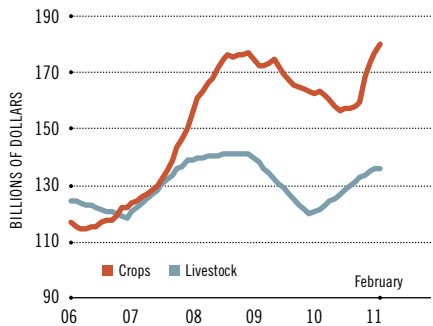
NOTE: On Dec. 16, 2008, the FOMC set a target range for the federal funds rate of 0 to 0.25 percent. The observations plotted since then are the midpoint of the range (0.125 percent).

**U.S. AGRICULTURAL TRADE**



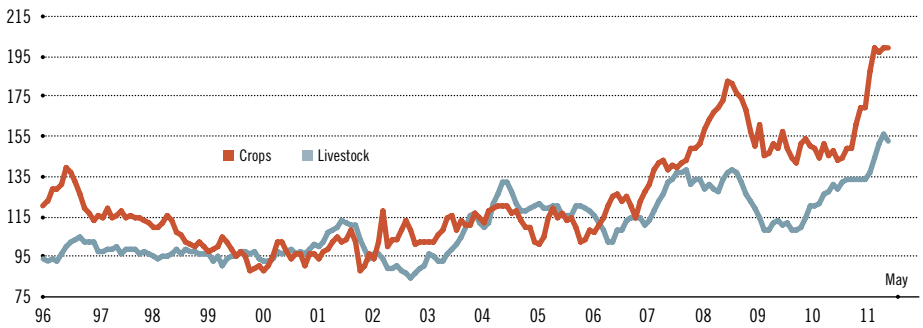
NOTE: Data are aggregated over the past 12 months.

**FARMING CASH RECEIPTS**



NOTE: Data are aggregated over the past 12 months.

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

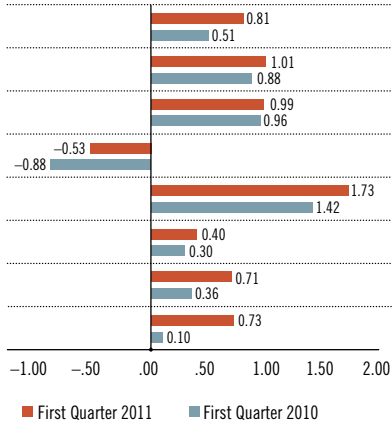


COMMERCIAL BANK PERFORMANCE RATIOS

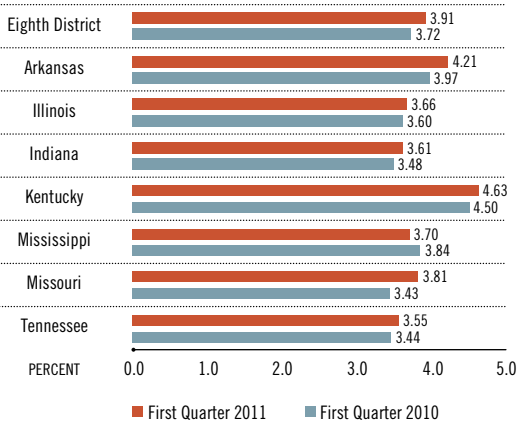
U.S. BANKS BY ASSET SIZE / FIRST QUARTER 2011

|                           | All  | \$100 million-<br>\$300 million | Less than<br>\$300 million | \$300 million-<br>\$1 billion | Less than<br>\$1 billion | \$1 billion-<br>\$15 billion | Less than<br>\$15 billion | More than<br>\$15 billion |
|---------------------------|------|---------------------------------|----------------------------|-------------------------------|--------------------------|------------------------------|---------------------------|---------------------------|
| Return on Average Assets* | 0.86 | 0.57                            | 0.59                       | 0.57                          | 0.58                     | 0.68                         | 0.63                      | 0.92                      |
| Net Interest Margin*      | 3.57 | 3.91                            | 3.91                       | 3.81                          | 3.86                     | 3.90                         | 3.88                      | 3.48                      |
| Nonperforming Loan Ratio  | 4.85 | 3.25                            | 3.11                       | 3.86                          | 3.50                     | 4.16                         | 3.85                      | 5.18                      |
| Loan Loss Reserve Ratio   | 3.19 | 1.96                            | 1.94                       | 2.09                          | 2.01                     | 2.44                         | 2.24                      | 3.51                      |

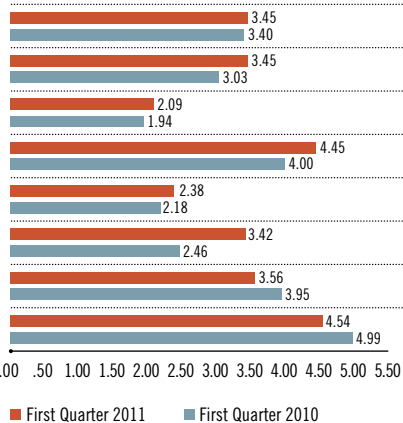
RETURN ON AVERAGE ASSETS\*



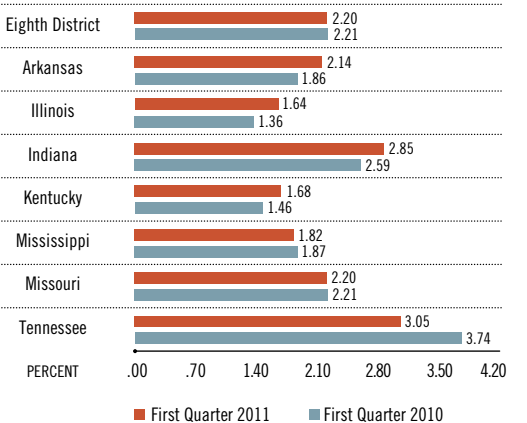
NET INTEREST MARGIN\*



NONPERFORMING LOAN RATIO



LOAN LOSS RESERVE RATIO



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:  
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## REGIONAL ECONOMIC INDICATORS

### NONFARM EMPLOYMENT GROWTH / FIRST QUARTER 2011

YEAR-OVER-YEAR PERCENT CHANGE

|                                  | United States | Eighth District † | Arkansas | Illinois | Indiana | Kentucky | Mississippi | Missouri | Tennessee |
|----------------------------------|---------------|-------------------|----------|----------|---------|----------|-------------|----------|-----------|
| Total Nonagricultural            | 0.9%          | 1.1%              | 1.7%     | 1.3%     | 1.0%    | 1.8%     | 1.2%        | 0.1%     | 1.1%      |
| Natural Resources/Mining         | 10.8          | 4.8               | 5.0      | 7.1      | 2.7     | 4.8      | 5.7         | 0.0      | NA        |
| Construction                     | -1.1          | -0.7              | -3.7     | 0.0      | 3.2     | -7.2     | 4.6         | -3.1     | NA        |
| Manufacturing                    | 1.7           | 1.3               | -0.9     | 1.5      | 2.9     | 2.7      | -1.8        | 1.9      | -0.3      |
| Trade/Transportation/Utilities   | 0.9           | 0.8               | 1.8      | 1.4      | 0.4     | 0.3      | 1.1         | -0.1     | 1.0       |
| Information                      | -1.6          | -2.8              | 2.2      | -3.6     | -2.9    | -1.2     | 1.6         | -4.9     | -1.8      |
| Financial Activities             | -0.7          | -0.5              | 2.5      | -1.8     | 0.3     | -1.0     | -1.6        | 1.6      | -0.6      |
| Professional & Business Services | 2.8           | 3.7               | 5.8      | 3.3      | 5.3     | 6.0      | 11.3        | 0.1      | 3.0       |
| Educational & Health Services    | 2.1           | 2.3               | 1.8      | 2.8      | 2.2     | 1.7      | 2.8         | 1.4      | 2.8       |
| Leisure & Hospitality            | 1.3           | 1.6               | 4.8      | 2.0      | -1.0    | 6.0      | 1.4         | 0.3      | 0.8       |
| Other Services                   | 2.0           | 1.1               | 5.4      | 1.5      | -1.4    | 3.9      | 0.8         | 0.7      | -0.7      |
| Government                       | -1.3          | -0.7              | 0.2      | -0.7     | -2.0    | 1.0      | -1.9        | -1.2     | -0.1      |

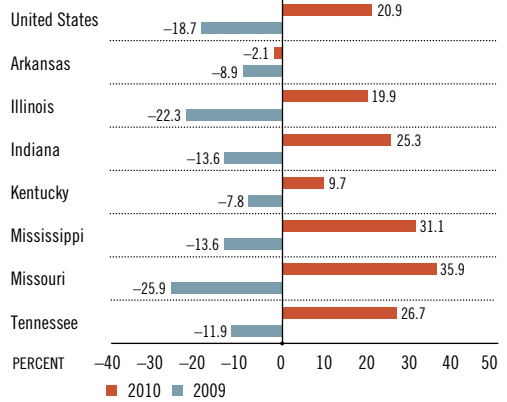
† Eighth District growth rates are calculated from the sums of the seven states. For Natural Resources/Mining and Construction categories, the data exclude Tennessee (for which data on these individual sectors is no longer available).

### UNEMPLOYMENT RATES

|               | I/2011 | IV/2010 | I/2010 |
|---------------|--------|---------|--------|
| United States | 8.9%   | 9.6%    | 9.7%   |
| Arkansas      | 7.8    | 7.9     | 8.0    |
| Illinois      | 8.9    | 9.4     | 11.1   |
| Indiana       | 8.8    | 9.6     | 10.7   |
| Kentucky      | 10.3   | 10.2    | 10.9   |
| Mississippi   | 10.2   | 10.2    | 10.9   |
| Missouri      | 9.3    | 9.6     | 9.6    |
| Tennessee     | 9.5    | 9.4     | 10.3   |

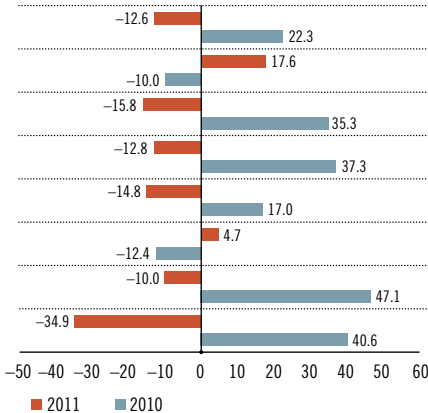
### EXPORTS

YEAR-OVER-YEAR PERCENT CHANGE



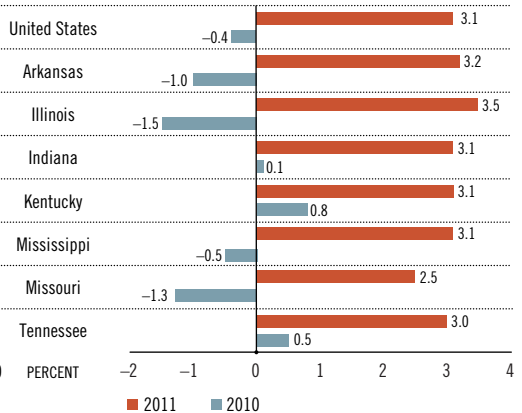
### HOUSING PERMITS / FIRST QUARTER

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



### REAL PERSONAL INCOME\* / FIRST 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.