Economic Trends

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FEDERAL RESERVE BANK
of CLEVELAND

Loans and Leases in Bank Credit

01.26.2012
by Ben R. Craig and Matthew Koepke

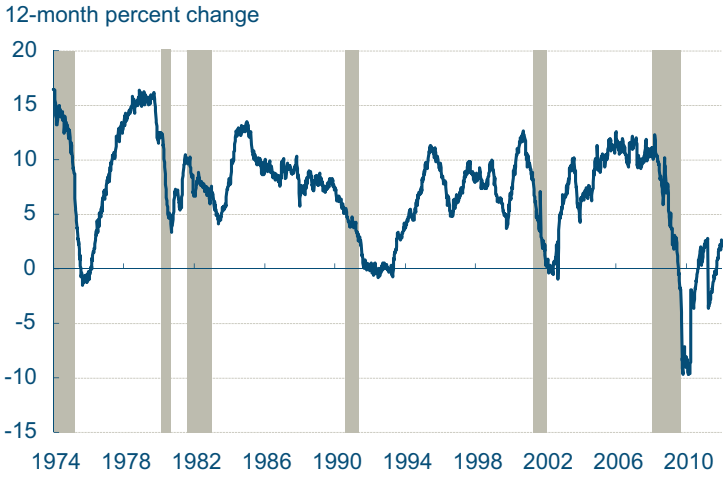
It has been two-and-a-half years since the National Bureau of Economic Research (NBER) declared that the severe recession that began in early 2007 had ended. Since then, the U.S. has endured such a slow recovery that many question if we are in a recovery at all.

One important measure of economic strength, loans and leases in bank credit, confirms that the current recovery has been relatively subdued compared to the recoveries after the 2001 and 1990 recessions. While loans and leases tend to be a lagging indicator (due to the time it takes for old loans to be paid off and for banks to reduce lending activity), balances in bank credit do serve as an important indicator of how quickly the general economy is growing and, more importantly, what areas of the economy are expanding.

Loans and leases in bank credit are recovering much more slowly during this recovery than they did in the previous two. One reason for the slower pace this time around is simply the fact that the most recent recession was more severe than the previous two. On a year-over-year basis, total loans and leases declined in the recent recession an average of 5.0 percent for 57 consecutive weeks. They fell a full 9.7 percent in October 2009. Additionally, on a year-over-year basis, they suffered a second significant dip in March 2011 and then continued to fall for an additional 25 weeks before recovering in September 2011. In comparison, total loans and leases fell only 0.2 percent on average in the 2001 recession on a year-over-year basis. In the 1990 recession, the decline in loans and leases was more prolonged (they fell 21 out of 26 weeks), but the declines were never more than 0.8 percent on a year-over-year basis.

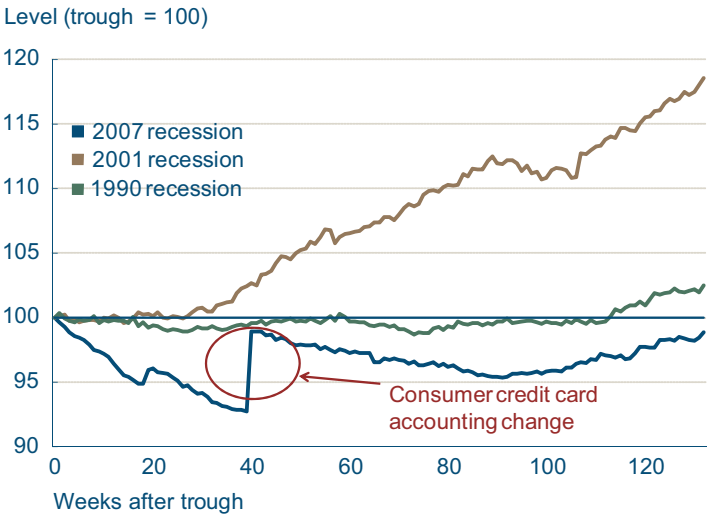
Currently, loans and leases in bank credit remain below their level at the trough of the recession. Furthermore, the largest contributor to the current growth in total loans and leases is likely to be a one-

Loans and Leases in Bank Credit



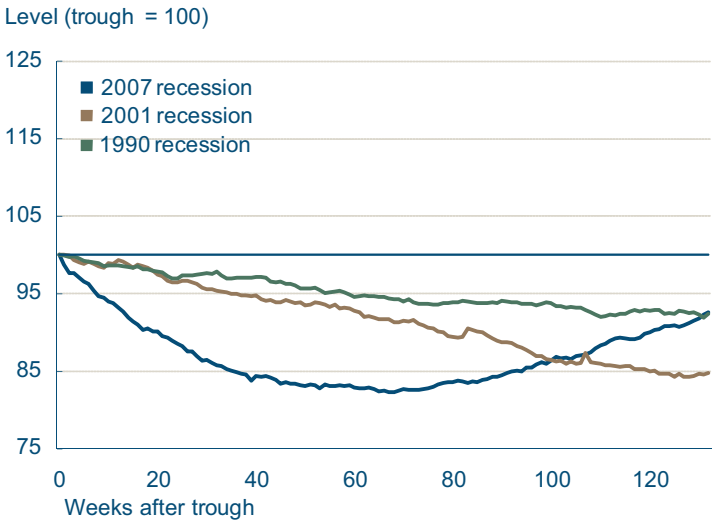
Note: Shaded bars indicate recessions.
Sources: Board of Governors; Haver Analytics.

Total Loans and Leases as Percent of Trough



Sources: Board of Governors; Haver Analytics.

C&I Lending as Percent of Trough



Sources: Board of Governors; Haver Analytics.

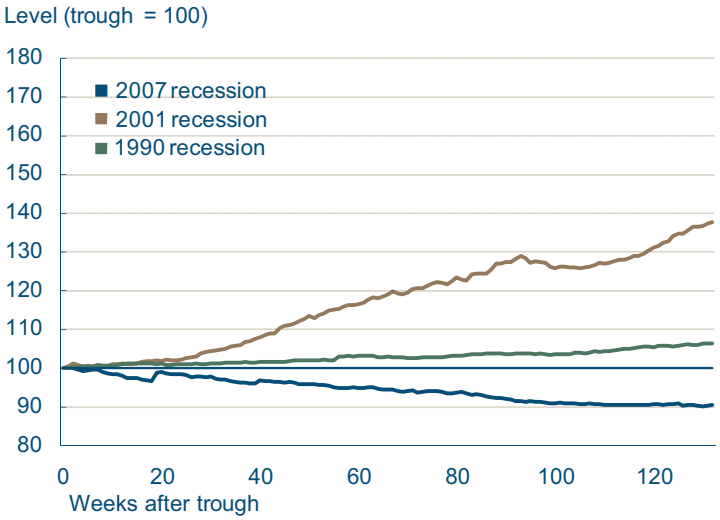
time transfer of credit balances from off-balance-sheet accounts to on-balance-sheet accounts, which caused the level of consumer credit to increase 43.0 percent in March 2010 (week 40). Despite the one-time accounting change, 132 weeks after the recession trough, total balances of loans and leases in bank credit stand at 98.8 percent of their level at the recession trough. At the same point after the 1990 and 2001 recessions, total balances stood at 103 percent and 119 percent, respectively. However, while loan and lease balances have not grown as quickly as they have in past recoveries, they are following a similar trajectory as balances in the recovery after the 1990 recession.

It is interesting to note that balances in one loan category have grown faster during this recent recovery than in the two previous ones. Balances of commercial and industrial (C&I) loans 132 weeks after the recession trough stand at 92.6 percent of the recession trough level, which is approximately the same level as balances after the 1990 recession and significantly above the 84.8 percent level seen at the same point after the 2001 recession. This is despite the fact that C&I balances fell further after the recession trough of the 2007 recession (17.7 percent) than after the troughs of the 1990 recession (8.0 percent) or the 2001 recession (16.0 percent).

Also, while C&I lending fell by similar amounts in the 2001 and 2007 recessions, C&I lending fell faster after the 2007 recession, hitting bottom in week 67 versus week 128 after the 2001 recession. C&I balances began to increase much earlier in this recovery than in the previous two as well. In this recovery, they first increased around 70 weeks, while after the 1990 recession it was around 145 weeks, and after the 2001 recession it was around 125 weeks. The relatively strong performance in C&I lending likely reflects a rebalancing of bank loan portfolios away from real estate loans into C&I loans.

The rebalancing of portfolios is more apparent when examining changes in real estate loan balances since the recession trough. With the exception of a slight increase in November 2011, real estate balances—which include revolving home equity loans, closed-end mortgages, and commercial real estate

Real Estate Lending as Percent of Trough



Sources: Board of Governors; Haver Analytics.

loans—have declined monotonically and currently stand at 91.0 percent of their level at the recession trough. Comparatively, at the same point after the 2001 recession (132 weeks), balances of real estate loans were 1.4 times their recession trough level. So, while C&I loan balances are increasing more quickly than in past recessions, real estate loans, which grew explosively after the 2001 recession, remain stable to trending down. These two trends together suggest that banks may be using the current recovery to rebalance their loan portfolios toward higher levels of C&I loans and lower levels of real estate loans.

Behind the Decline in Labor's Share of Income

02.06.2012

by Margaret Jacobson and Filippo Occhino

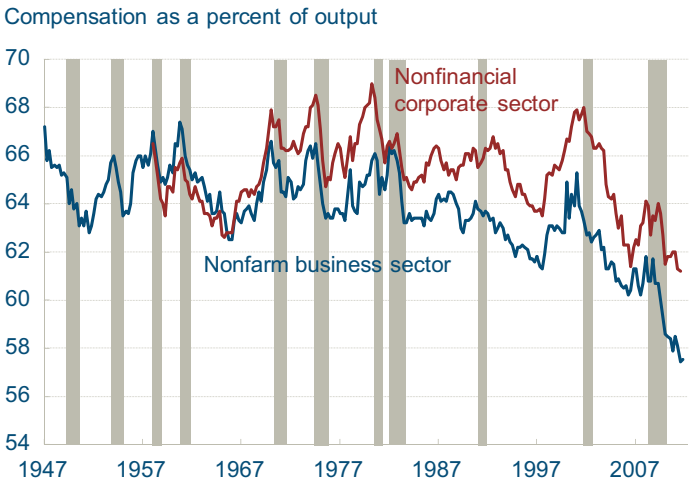
Labor income, which includes wages, salaries, and benefits, has been declining as a share of total income earned in the U.S. Here, we look at the cyclical and long-run factors behind this development.

Labor and capital both contribute to the production of goods and services in the economy, and each gets compensated with income in return. The share of total income accruing to labor, the labor income share, is a closely watched indicator because it can affect a wide range of other important macroeconomic variables, such as income distribution, human capital accumulation, the composition of aggregate demand, and tax revenue.

For decades, the labor income share has been fluctuating around a long-run value of approximately two-thirds. More recently, however, the share has been trending down. In the nonfarm business sector, which accounts for roughly 74 percent of the output produced in the U.S. economy, the share has decreased from values around 65 percent before 1980 to the current level of 57.6 percent. This decline has accelerated during the last decade. Excluding the financial sector, the labor income share was more stable up to the year 2000, but it has been trending down since.

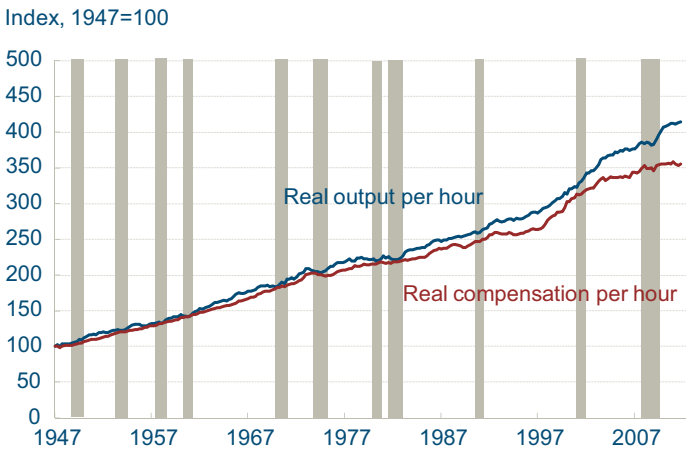
It is interesting to look at this decline from a different angle. When the share of income accruing to labor declines, it means that labor income grows at a lower rate than total income. In other words, the compensation that workers receive in return for their labor grows at a lower rate than the output that they contributed to producing. Another way of saying this is that workers' compensation per hour worked—the wage rate—grows at a lower rate than the output produced per hour worked—labor productivity. In short, when labor's share of income declines, the wage rate grows less than labor productivity. In the business sector, the gap between compensation per hour and productivity—the wage-productivity gap—remained quite stable

Labor Income Share



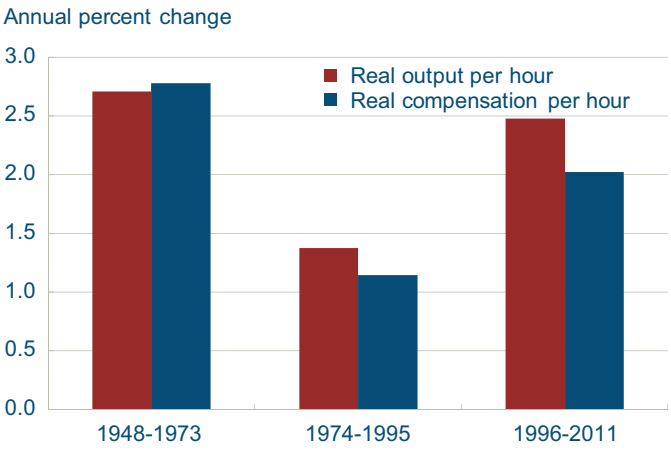
Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics.

Real Wage and Productivity



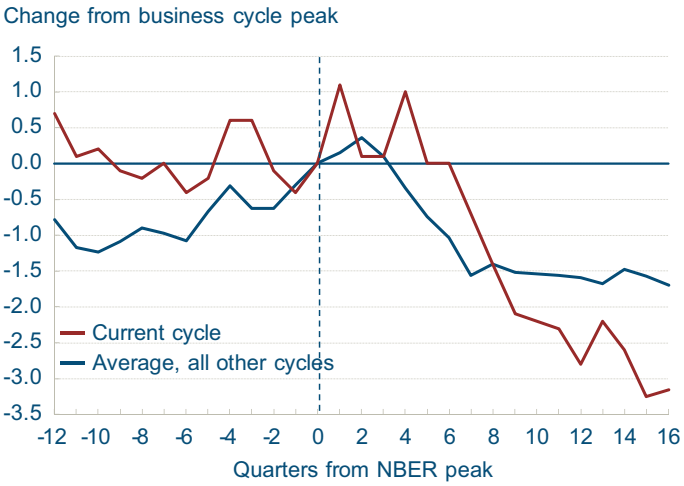
Notes: Shaded bars indicate recessions. Data are for the nonfarm business sector. Real calculations are based on the implicit output deflator.
Source: Bureau of Labor Statistics.

Average Growth Rates in Select Periods



Notes: Data are for the nonfarm business sector. Real calculations are based on the implicit output deflator.
Source: Bureau of Labor Statistics.

Labor Income Share



Note: Data are for the nonfarm business sector.
Source: Bureau of Labor Statistics.

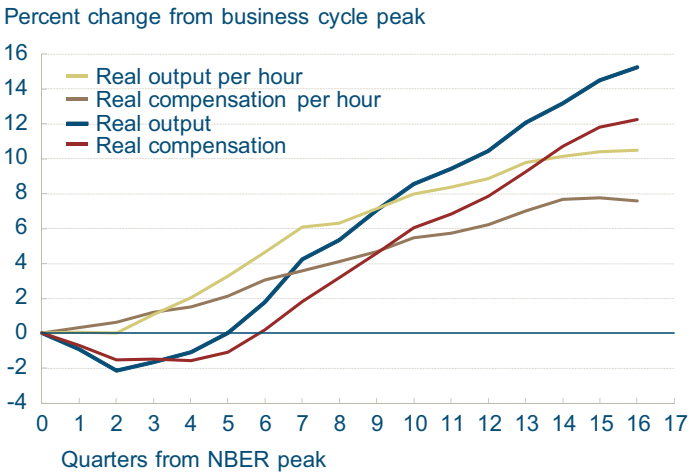
before 1980, began widening during the 1980s and 1990s, and opened up more visibly during the last decade.

Productivity growth in the nonfarm business sector averaged 2.7 percent before 1973, then 1.4 percent during the 1974-1995 slowdown, and 2.5 percent after the 1995 acceleration. Compensation per hour lagged behind productivity during the slowdown and more so during the acceleration, when it averaged 2 percent, almost half a percentage point less than productivity.

Economists have identified three long-term factors that can explain why the wage-productivity gap has widened and the share of income accruing to labor has declined. The first is the decrease in the bargaining power of labor, due to changing labor market policies and a decline of the more unionized sectors. Another factor is increased globalization and trade openness, with the resulting migration of relatively more labor-intensive sectors from advanced economies to emerging economies. As a consequence, the sectors remaining in the advanced economies are relatively less labor-intensive, and the average share of labor income is lower. The third factor is technological change connected with improvements in information and communication technologies, which has raised the marginal productivity and return to capital relative to labor.

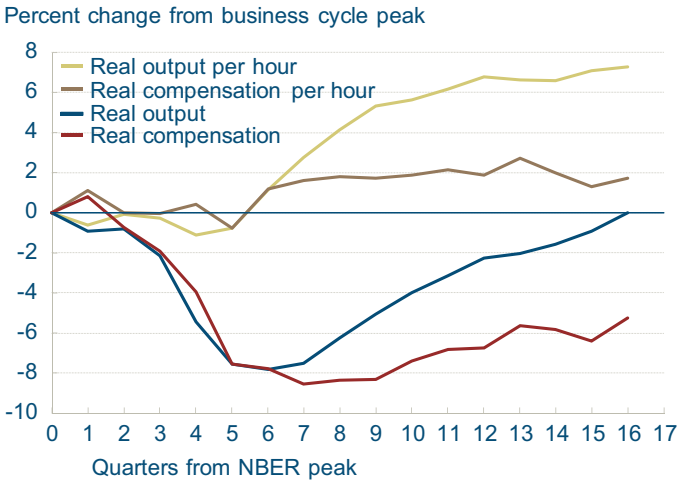
In addition to these long-run factors, some cyclical factors are behind the current low level of the labor income share. Over the cycle, the labor income share tends to increase during the early part of recessions, because businesses lower labor compensation less than output, and compensation per hour continues to increase even as productivity slows down. Then, after reaching a peak sometime during the recession, the labor income share tends to decrease during the rest of the recession and the early part of the recovery, as output picks up at a faster pace than labor compensation, and compensation per hour grows at a slower pace than productivity. Only later in the recovery, as the labor market tightens, does labor compensation catch up with output and productivity, and the labor income share recovers.

Average Business Cycle



Note: Data are for the nonfarm business sector. Real calculations are based on the implicit output deflator.
Source: Bureau of Labor Statistics.

Current Business Cycle



Note: Data are for the nonfarm business sector. Real calculations are based on the implicit output deflator.
Source: Bureau of Labor Statistics.

The current cycle has followed a similar pattern, with output initially falling more than compensation and then picking up at a faster pace. There have been some notable differences though. This time, the losses of output and compensation during the recession have been much larger, about 8 percent. It took four years for output to recover, while compensation is still 5 percent below its pre-recession peak. Productivity recently slowed down and has barely grown in the past year. Compensation per hour slowed down even more and has been roughly flat for two years. The weak labor market may be one reason why compensation is growing so slowly. The labor market needs to make further progress before we see compensation growing at rates more in line with past cycles.

Are Consumers More Eager to Borrow?

01.25.2012
by Yuliya Demyanyk and Matthew Koepke

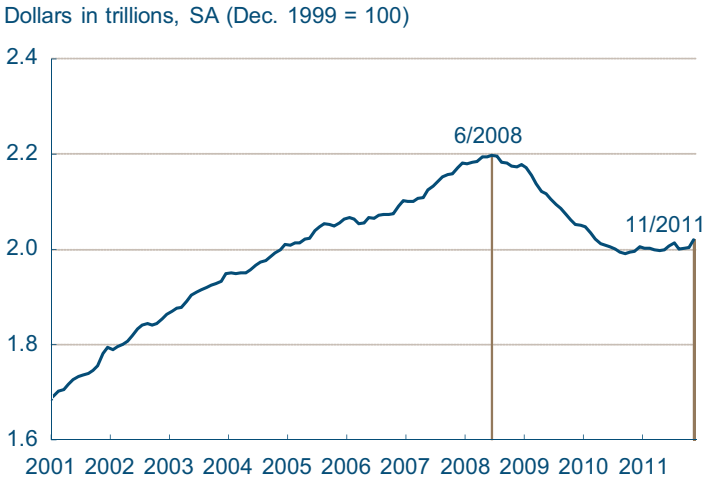
Consumer credit serves as an important indicator as to where the economy is heading. Generally, consumers borrow more when they are more certain about their financial prospects and less when they are less certain. Consequently, changes in consumer credit may indicate how confident consumers are about the economy and their desire to consume in the future.

Recent data from the Federal Reserve suggests that consumers may be becoming more confident in the economy and increasing their willingness to consume. According the Board of Governors' November release, consumer credit grew 0.8 percent to an inflation-adjusted level of $2.0 trillion. That is the largest one-month increase since November 2001, when total consumer credit grew 1.4 percent (note that the Board's measure does not take loans secured by real estate into account). November's dramatic monthly increase was highlighted by many news organizations as a sign that consumers are quickly releveraging their balance sheets; however, a closer examination of consumer credit, adjusted for inflation, reveals that the level of total consumer credit remains well below the June 2008 peak.

Inflation-adjusted nonmortgage consumer credit outstanding peaked in June 2008 at $2.2 trillion. Since then, total real consumer credit has fallen 8.0 percent to just over $2.0 trillion. Revolving accounts—credit card loans and unsecured lines of credit—led the decline in consumer credit, falling 21.3 percent since the peak. On a year-over-year basis, revolving accounts have fallen continuously from February 2009 to October 2011—albeit at a decreasing rate.

November's flat performance was the first time in nearly two years where revolving credit did not decline. It is clear from the Board of Governors' data that consumers' holdings of revolving debt declined far more dramatically in the wake of the financial crisis than their holdings of nonrevolving debt. It is

Total Consumer Credit Outstanding (Monthly)



Sources: Federal Reserve Board; Haver Analytics.

unclear from the data, however, if those reductions in revolving credit were driven by consumers seeking to deleverage or banks cutting limits on credit cards and unsecured credit lines.

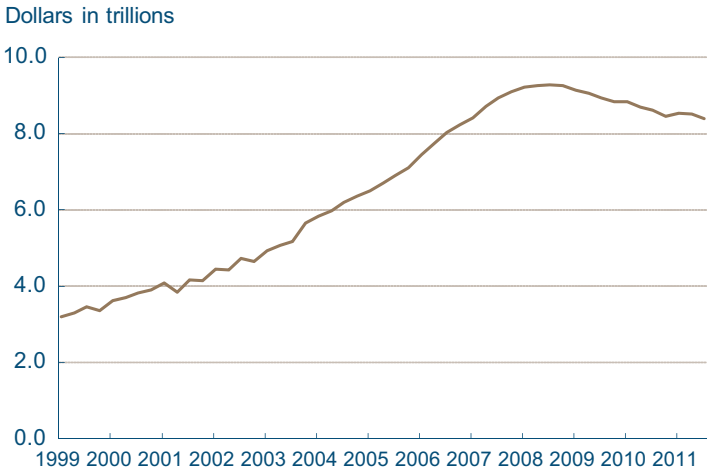
Nonrevolving credit—secured and unsecured loans for automobile purchases, mobile homes, durable goods, etc.—fell less significantly through the recession and subsequent recovery. Likely buoyed by relatively strong auto sales, nonrevolving consumer credit has fallen only 0.1 percent, to an inflation-adjusted level of $1.4 trillion, since June 2008. Moreover, while year-over-year revolving consumer credit growth has declined persistently since the financial crisis, nonrevolving credit growth hit an inflection point in October 2010 and has grown every month since then. Nevertheless, it is difficult to know if consumers will be interested in increasing their leverage based on the Board of Governors' data, since it does not include mortgage debt.

However, data from the Federal Reserve Bank of New York's Consumer Credit Panel suggests consumers may still be deleveraging. Those data show that while consumers have been taking on nonrevolving debt, they have been reducing their balances of mortgage debt.

Moreover, the Panel confirms that consumers have been dramatically reducing their revolving balances. According to the Panel's third-quarter results, the amount of mortgage debt held by consumers has fallen nearly 10 percent since September 2008, to $8.4 trillion. Bank card debt (mostly credit cards) has fallen even more dramatically, declining nearly 20.0 percent to $690 billion. Thus, while nonrevolving credit has been rising throughout the economic recovery, consumers have been reducing their holdings of mortgage and credit card debt.

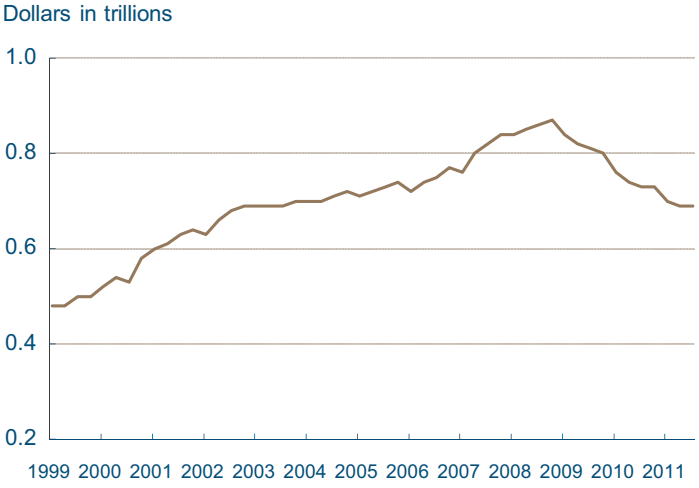
While the growth in consumer credit in November was impressive, it is difficult to tell if consumer credit will be able to grow at a similar rate going forward. One measure we can examine to gauge if consumer credit growth is sustainable going forward is the household financial obligation ratio. The household financial obligation ratio measures the amount of debt service—including auto lease payments, rental payments on tenant-occupied

Home Mortgages (Quarterly)



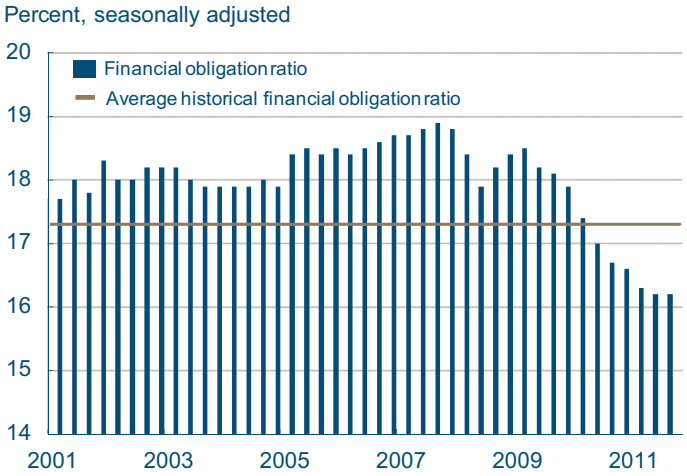
Note: Includes installment home equity lines of credit.
Sources: Federal Reserve Bank of New York; Equifax.

Bank Card Outstanding Balances (Quarterly)



Sources: Federal Reserve Bank of New York; Equifax.

Household Financial Obligation Ratio (Quarterly)



Note: Financial obligation ratio includes automobile lease payments, rental payments on tenant-occupied property, homeowners' insurance and property tax payments.
Sources: Federal Reserve Board; Haver Analytics.

property, homeowners' insurance, and property tax payments—relative to disposable income. The average household financial obligation ratio over the past 30 years has been 17.2 percent. For the past decade, the average household obligation ratio stood at 18.0 percent, 103 basis points higher than the 30-year average. However, since the first quarter of 2009, the ratio has dropped monotonically, falling from a high of 18.5 percent to its current level of 16.2 percent. For now, it appears that the ratio has stabilized. Moreover, given its relatively low level, there may be some room for consumers to grow their balance sheets going forward.

Pass-Through and the Renminbi's Appreciation

01.24.2012
by Owen Humpage and Margaret Jacobson

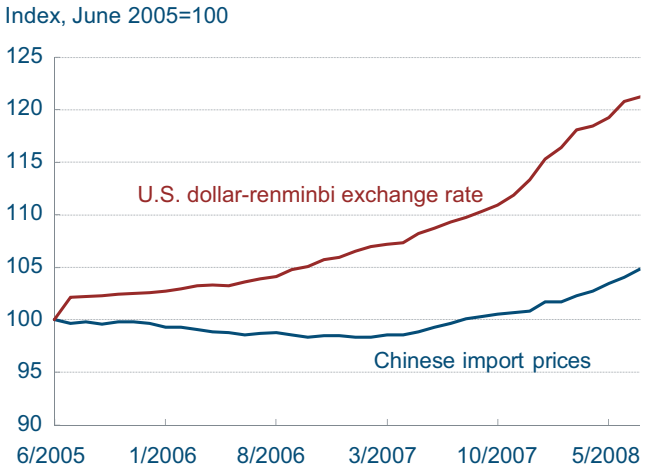
Since mid-2010, the Chinese renminbi has steadily appreciated against the dollar. Many here in the United States hope that a more expensive renminbi will induce a proportional rise in the prices of Chinese goods and take some of the sting out of China's competitive bite. They may, however, be disappointed. The relationship between exchange-rate changes and import prices is often loose—more like a swing dance than a tango.

Between 1995 and 2005, China pegged the renminbi at roughly 8.28 per dollar—a rate that undervalued the renminbi and allowed China to accumulate a substantial portfolio of dollar-denominated assets. In July 2005, as complaints about China's exchange-rate practices mounted, China undertook a controlled appreciation of the renminbi. Over the next three years, the renminbi appreciated 19.1 percent against the dollar, but the dollar price of U.S. imports from China rose only 4.7 percent. Only one-quarter of the renminbi appreciation seemed to pass through to higher import prices.

In mid-2008, as the global financial meltdown chilled its economic activity, China once again pegged the renminbi at roughly 6.83 per dollar. Again, complaints about China's exchange-rate practices proliferated, and in mid-2010, when its economic outlook brightened a little and inflationary pressures began to build, China once more allowed the renminbi to appreciate. Since then, the renminbi has appreciated 7.1 percent against the dollar, a slightly slower pace than earlier. This time around, import prices have risen 4.5 percent; roughly 64 percent of the renminbi's appreciation has passed through to import prices.

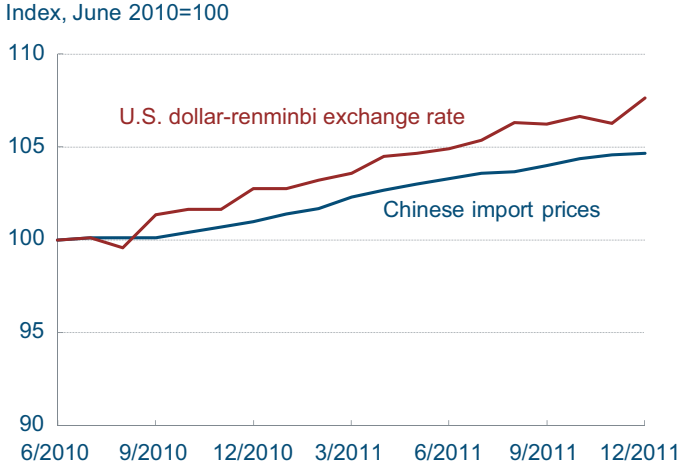
This variation in the rate of pass-through results because renminbi appreciations can induce secondary adjustments that offset their main price impacts. In China's case, the distinction between the "domestic content" and the "foreign content" of exports to

Renminbi Appreciation and Import Prices: 2005-2008



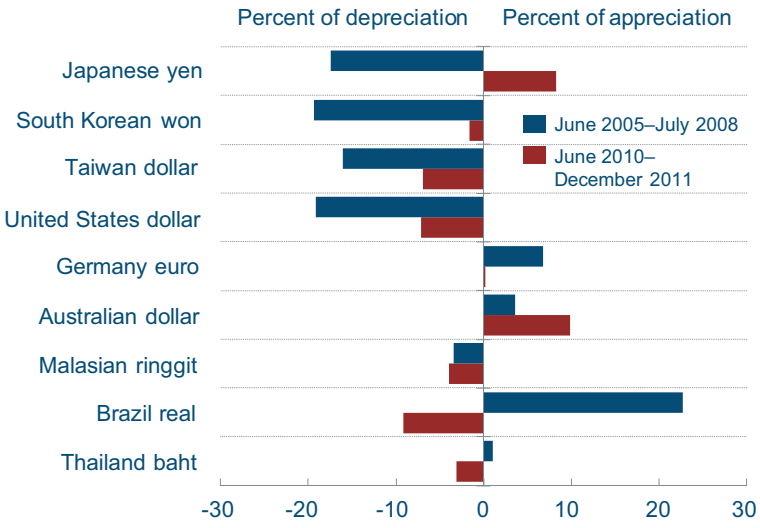
Sources: Bureau of Labor Statistics, Bloomberg, China National Bureau of Statistics, and Haver Analytics.

Renminbi Appreciation and Import Prices: 2010-2011



Sources: Bureau of Labor Statistics, Bloomberg, China National Bureau of Statistics, and Haver Analytics.

Exchange-Rate Movements against the Chinese Renminbi



Source: Haver Analytics.

the United States is important. The former refers to the value of Chinese goods that directly emanates from Chinese economic activity. This would include such things as the wages of Chinese labor, the cost of Chinese resources, and the depreciation of Chinese capital used in the production process. China, however, produces many of the goods that it exports to the United States with hefty amounts of foreign content, that is, with goods imported from other countries, even from the United States. While very difficult to estimate, the domestic content of Chinese exports to the United States is probably no more than 60 percent.

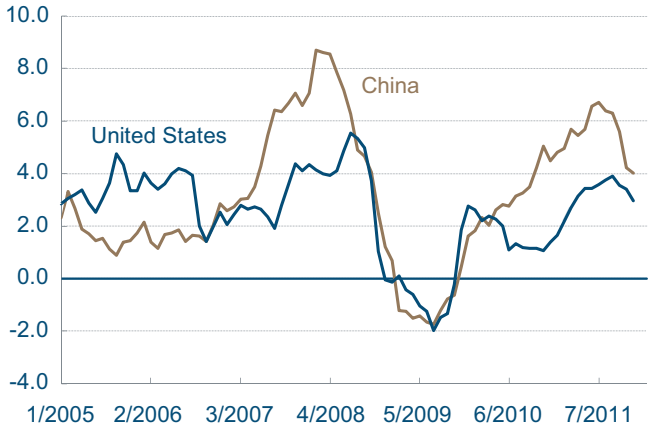
A renminbi appreciation against the dollar would raise the dollar cost of the domestic content of China's exports to the United States. This appreciation, however, could simultaneously lower the renminbi price of the foreign content of those same goods, if the appropriate foreign exchange rates remained unchanged vis-à-vis the dollar. This seems unlikely.

In the end, the net effect of a renminbi appreciation on the price of Chinese exports to the United States depends largely on how those other foreign currencies might change against the renminbi. Between June 2005 and July 2008, the currencies of those countries that supply the lion's share of China's imports depreciated by 10.3 percent against the renminbi overall, or about 0.3 percent per month. This lowered the renminbi price of China's foreign content and helped China maintain its competitive edge. Since June 2010, those key foreign currencies depreciated 0.4 percent, or about 0.02 percent per month. So the offset effect of the current renminbi appreciation has been smaller than the previous renminbi appreciation, and more of the renminbi's strength has now passed through to higher import prices.

Besides exchange-rate changes, the U.S. price of imports from China reflects underlying inflation trends in that country and the pricing strategies of Chinese exporters. Since June 2005, China's inflation rate has generally outpaced inflation in the United States. While productivity in the trade goods sector is undoubtedly higher than in other sectors of the Chinese economy, the higher overall rate of inflation is still corrosive to China's competi-

Inflation Rates

Four quarter percent change in CPI



Sources: Bureau of Labor Statistics, Bloomberg, China National Bureau of Statistics, and Haver Analytics.

tiveness. China's exporters also might respond by cutting profit margins as the renminbi appreciates, but the scope for this type of adjustment is probably narrow.

Even if all of the renminbi appreciation passed through to Chinese export prices, the development might only reshuffle competitive pressures instead of damping them. The Congressional Budget Office conservatively estimates that one-third of the Chinese import penetration into the United States between 1998 and 2005 came at the expense of imports from other—mostly Asian—countries and not at the expense of U.S. manufacturers. In many cases, firms moved final assembly operations into China from their home countries. If China's competitive position should deteriorate because of higher domestic price pressures or from a renminbi revaluation, these firms might shift operations out of China, say, to Viet Nam or Mexico or to other low-wage countries. A renminbi appreciation might then only change the source of U.S. imports, not the level.

So to those relying on appreciation, here's a tip: Many's the slip twixt cup and lip.

Job Creation by Small and Large Firms over the Business Cycle

02.06.2012
by Murat Tasci and Emily Burgen

The Great Recession caused establishments of all sizes to make significant cuts in their employment. To get a picture of those losses, we turn to the Business Employment Dynamics (BED) data collected by the Bureau of Labor Statistics (BLS), the best data to look at for employment gains and losses at the establishment level. BED data provides gross job gains and losses at the establishment level going back to the early 1990s and breaks down the data to several size categories. We aggregate those categories into three classes to simplify our analysis: small firms (1-49 employees), medium size firms (50-499), and large firms (500 and more employees).

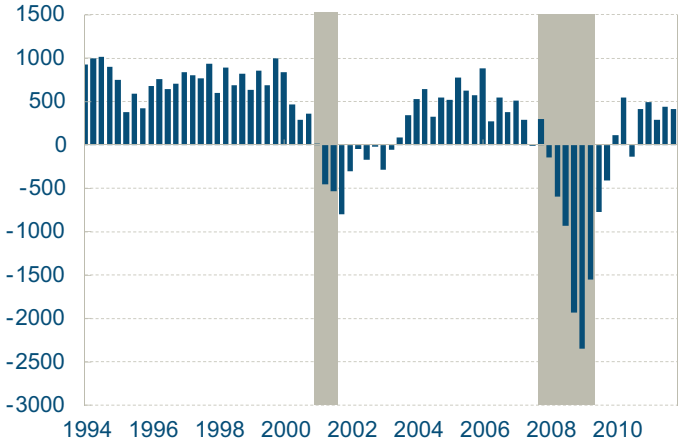
Between the first quarter of 2008 and the second quarter of 2009, firms in every size class destroyed more jobs than they created, implying negative rates of job creation throughout the recession. Small firms, on net, cut their workforces by 485,000 per quarter on average. Medium size firms cut theirs by 329,000, and large firms cut theirs by 538,000. These net job losses contrast sharply with the average quarterly net gains in the years leading up to the recession (2003:Q2 to 2007:Q4): small firms added 124,000 new jobs over this period, medium size firms added 118,000, and large establishments added 145,000. The subsequent negative trend in net job creation did not stop until further into the recovery. It was not until mid-2010 that firms of all size classes started to report positive quarterly net job creation figures.

Net job creation did vary somewhat across establishments of different size over time, but the divergence was never significant. What is more striking is that the net job creation levels of all three sizes of establishment moved together over the business cycle, especially during the recessions.

It would be useful to know whether a specific size class leads the employment loss during the recession or the overall job gains during the recoveries, but

Payroll Employment Quarterly Change

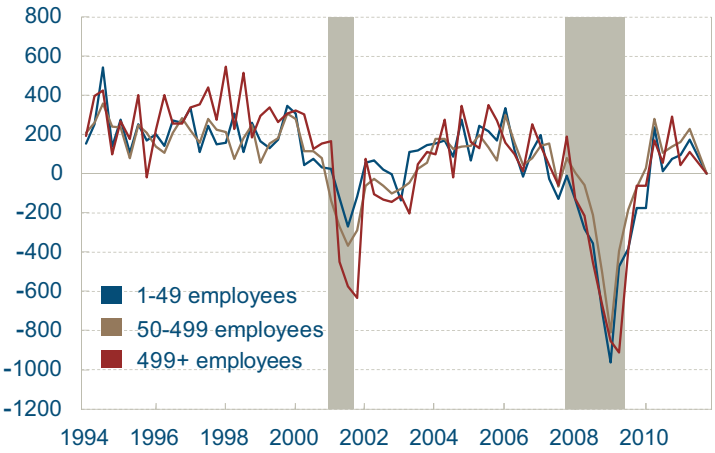
Seasonally adjusted, thousands



Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics.

Net Job Creation

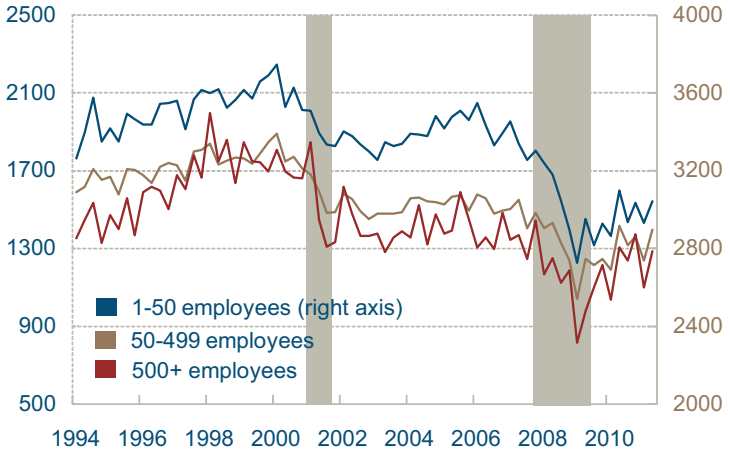
Seasonally adjusted, thousands



Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics.

Gross Job Gains

Seasonally adjusted, thousands



Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics.

it is not possible to determine this from the chart above. Looking at the underlying gross job gains and losses separately for different size firms sheds more light on the question.

Looking at gross job gains from 1994 to 2011 reveals that in any given quarter, U.S. establishments generated millions of jobs. Even during the worst-performing period—the Great Recession—establishments created around 5.3 million jobs per quarter. This is significantly less than the average of 6.3 million jobs per quarter over the entire period. Nevertheless, it clearly shows the underlying dynamism in the U.S. labor market.

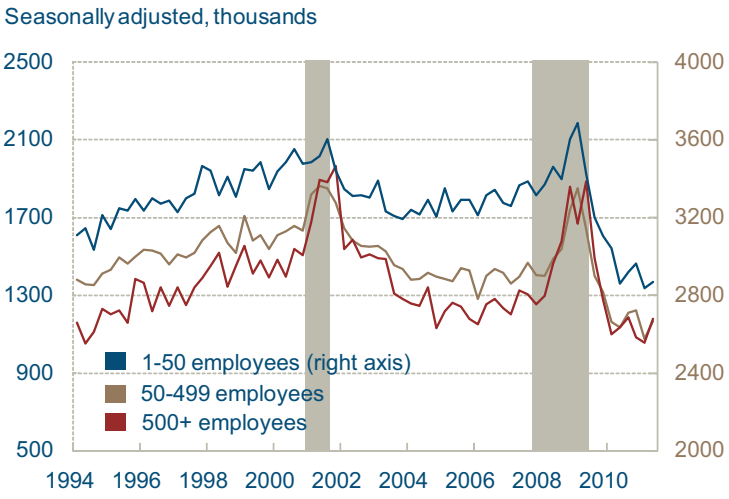
Another feature we observe in the data is that small firms account for more than half of the gross job gains in every period. Medium-size and large establishments each contribute about a quarter of total gains.

Finally, it is clear that all establishments experienced significant declines in gross job gains over the course of the last recession. Large establishments cut the most, reducing gross job gains by about 43 percent from their pre-recession peak to their recession trough. The relative decline was almost 30 percent for medium-size firms and only 17 percent for small firms. The rebound in gross job gains after the recession seems to also differ by establishment size: Large firms recovered much faster than the others.

On the flip side, we observe that small firms also account for slightly more than half of the aggregate job losses at the establishment level over time—about 3.3 million of the 6.1 million jobs destroyed every quarter since 1994. Once again, the sheer size of the gross job losses highlights the significant degree of churning that goes on at the establishment level in the United States. Even in good times, for instance, between the second quarter of 2003 and the fourth quarter of 2007, job losses averaged around 5.9 million per quarter.

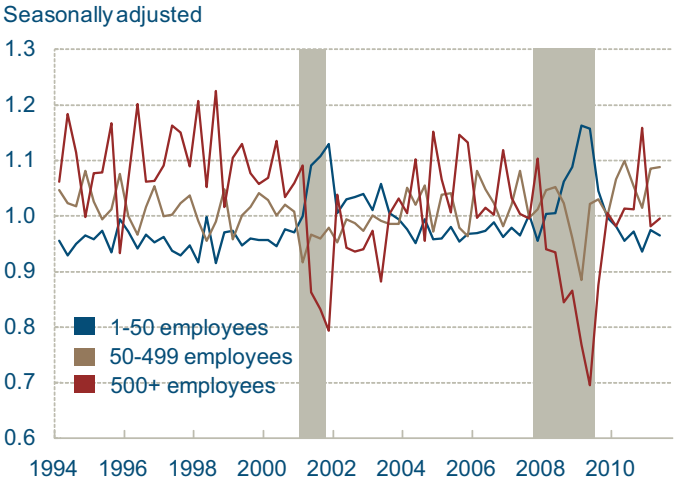
Finally, the pattern of gross job losses for different size firms resembles the picture of gross job gains: Large firms led the pack with a relatively large increase of around 50 percent of their pre-recession trough to their recession peak.

Gross Job Losses



Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics.

Contribution to Job Gains Relative to Job Losses



Note: Shaded bars indicate recessions.
Source: Bureau of Labor Statistics.

The overall picture of gross job flows shows that behind the relatively small numbers of net job creation there are large gross flows with a lot of labor market churn. Moreover, there are cyclical changes that affect every establishment regardless of size. Even though small firms in general account for more than half of the total job gains and losses each quarter, large firms seem to lead the timing of employment adjustment, contributing significantly to gross job losses early in recessions and rebounding relatively quickly afterwards.

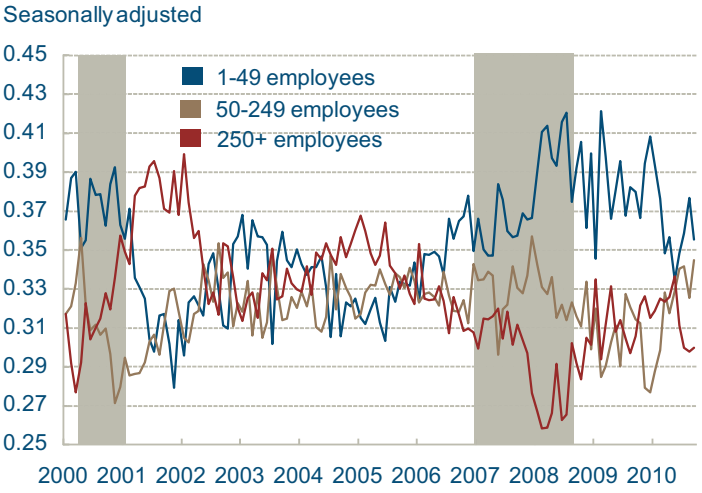
However, all these differences are not immediately clear from the data on net employment changes across establishments. This is due to the fact that the contribution of job gains and losses by each size class to the overall gains and losses is remarkably constant over time. For instance, while small firms create a lot of jobs, they also tend to shed a lot at the same time, implying that their contribution to net job creation stays proportionately the same relative to large and medium size firms.

One alternative way of looking at this issue is to compare the share of job gains in each size class relative to the class's share of losses. If the ratio is more than one, it means that establishments of that size are contributing more to gross gains than to gross losses. Looking at this ratio over time for the three size classes shows that small firms in fact contribute a lot more toward gross job gains during recessions, implying that they are dampening overall net losses during downturns. However, this role turns around during recoveries, when they tend to contribute more to losses. This relationship has held so far during the current recovery.

The fact that small firms are not rebounding as much in terms of gross job gains does not seem to be due to weak demand for labor. For information on this aspect of the labor market, we look at the establishment level data on job openings from the Job Openings and Labor Turnover Survey (JOLTS).

The number of job openings declined sharply in the aggregate economy over the course of the recession, and it is still far below its pre-recession levels. However, labor demand measured this way behaved somewhat differently across size classes. Even though size is classified slightly differently than

Contributions to Job Openings



Note: Shaded bars indicate recessions.
Source: JOLTS.

in the BED data, we can see that small firms have been consistently accounting for more than one-third of the overall job openings since mid-2006, higher than the other size classes. More interestingly, however, is that their demand for labor did not decline (relative to others) until the recession was over. Since then, their share has been declining, whereas the share of large firms has risen significantly.

Yield Curve and Predicted GDP Growth, January 2012

Covering December 17, 2011–January 20, 2012
by Joseph G. Haubrich and Margaret Jacobson

Highlights

	January	December	November
3-month Treasury bill rate (percent)	0.04	0.01	0.01
10-year Treasury bond rate (percent)	1.96	1.94	2.02
Yield curve slope (basis points)	192	193	201
Prediction for GDP growth (percent)	0.7	0.7	0.7
Probability of recession in 1 year (percent)	6.4	6.5	5.8

Overview of the Latest Yield Curve Figures

Starting the new year, the yield curve rose, with both long and short rates rising slightly. The three-month Treasury bill rate rose to 0.04 percent (for the week ending January 20), up from the 0.01 percent seen in November and December. The ten-year rate stayed below 2 percent but rose slightly to 1.96 percent, which is up from December's 1.94 percent, but below November's 2.02 percent. The slope barely decreased, coming in at 192 basis points, a decrease of 1 basis point from December's 193 basis points and 9 basis points below November's 201 basis points.

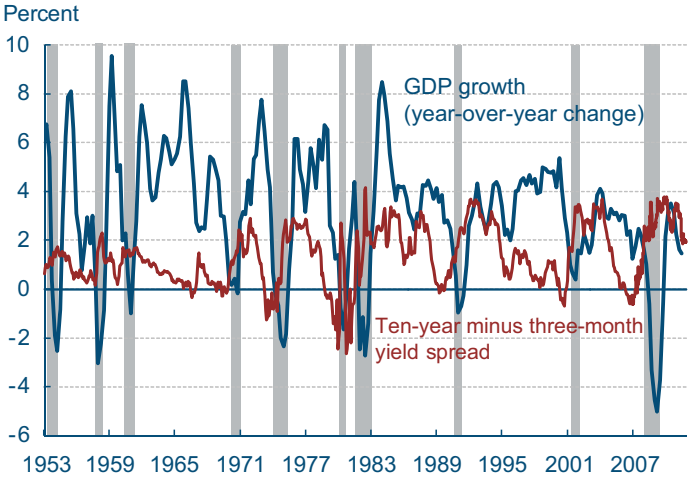
Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 0.7 percent rate over the next year, the same estimate as in the prior two months. The strong influence of the recent recession is leading toward relatively low growth rates. Although the time horizons do not match exactly, the forecast comes in on the more pessimistic side of other predictions but like them, it does show moderate growth for the year.

Using the yield curve to predict whether or not the economy will be in recession in the future, we estimate that the expected chance of the economy being in a recession next January is 6.4 percent, just down from December's 6.5 percent, though up a bit from November's 5.8 percent. So although our approach is somewhat pessimistic as regards the level of growth over the next year, it is quite optimistic about the recovery continuing.

The Yield Curve as a Predictor of Economic Growth

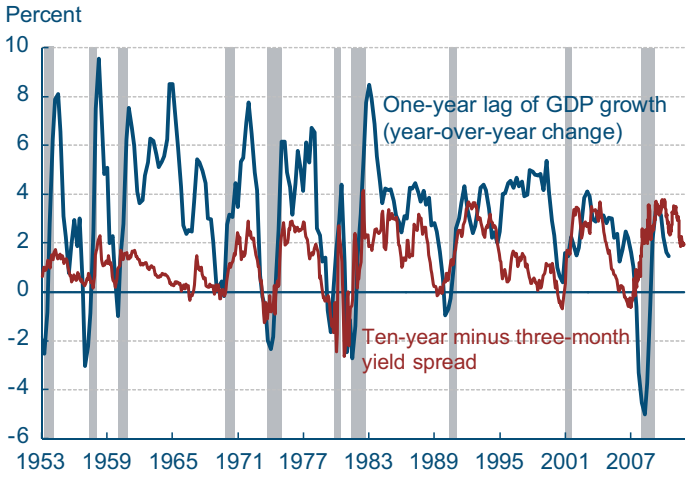
The slope of the yield curve—the difference between the yields on short- and long-term maturity bonds—has achieved some notoriety as a simple forecaster of economic growth. The rule of thumb is that an inverted yield curve (short rates above

Yield Curve Spread and Real GDP Growth



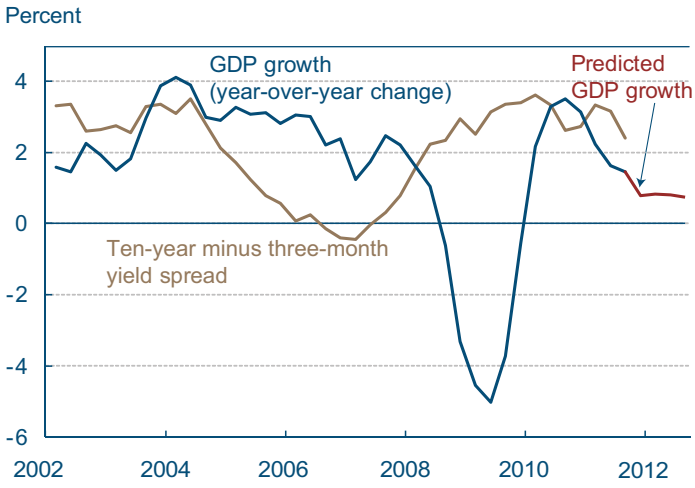
Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis, Federal Reserve Board.

Yield Spread and Lagged Real GDP Growth



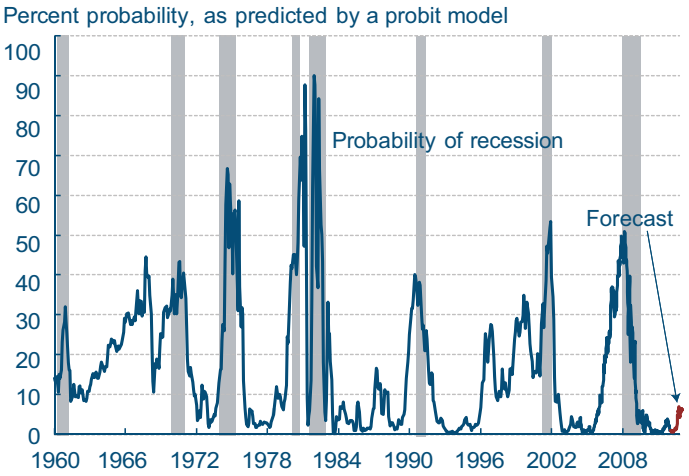
Note: Shaded bars indicate recessions.
Sources: Bureau of Economic Analysis, Federal Reserve Board.

Yield Curve Predicted GDP Growth



Sources: Bureau of Economic Analysis, Federal Reserve Board, authors' calculations.

Recession Probability from Yield Curve



Note: Shaded bars indicate recessions.
Sources: Bureau of Economic Analysis, Federal Reserve Board, authors' calculations.

long rates) indicates a recession in about a year, and yield curve inversions have preceded each of the last seven recessions (as defined by the NBER). One of the recessions predicted by the yield curve was the most recent one. The yield curve inverted in August 2006, a bit more than a year before the current recession started in December 2007. There have been two notable false positives: an inversion in late 1966 and a very flat curve in late 1998.

More generally, a flat curve indicates weak growth, and conversely, a steep curve indicates strong growth. One measure of slope, the spread between ten-year Treasury bonds and three-month Treasury bills, bears out this relation, particularly when real GDP growth is lagged a year to line up growth with the spread that predicts it.

Predicting GDP Growth

We use past values of the yield spread and GDP growth to project what real GDP will be in the future. We typically calculate and post the prediction for real GDP growth one year forward.

Predicting the Probability of Recession

While we can use the yield curve to predict whether future GDP growth will be above or below average, it does not do so well in predicting an actual number, especially in the case of recessions. Alternatively, we can employ features of the yield curve to predict whether or not the economy will be in a recession at a given point in the future. Typically, we calculate and post the probability of recession one year forward.

Of course, it might not be advisable to take these number quite so literally, for two reasons. First, this probability is itself subject to error, as is the case with all statistical estimates. Second, other researchers have postulated that the underlying determinants of the yield spread today are materially different from the determinants that generated yield spreads during prior decades. Differences could arise from changes in international capital flows and inflation expectations, for example. The bottom line is that yield curves contain important information for business cycle analysis, but, like other indicators, should be interpreted with caution. For

more detail on these and other issues related to using the yield curve to predict recessions, see the Commentary "Does the Yield Curve Signal Recession?" Our friends at the Federal Reserve Bank of New York also maintain a website with much useful information on the topic, including their own estimate of recession probabilities.

More Transparency, But Not a Crystal Ball

01.26.2012
by John B. Carlson and John Lindner

On January 3, the Fed released the minutes from the December Federal Open Market Committee (FOMC) meeting and revealed that it will begin publishing the Committee's interest rate projections. The goal of this action is to provide more transparency in the policymaking process. However, there are limitations to the information these types of projections provide. Examining the experiences of some foreign central banks illustrates what conclusions might and might not be drawn from the new data.

FOMC participants included three new pieces of information when they submitted their Summary of Economic Projections for January's meeting. In addition to projections for real GDP, the unemployment rate, PCE inflation, and core PCE inflation, participants included projections for the target federal funds rate, a projection of the likely timing of the first increase in the target rate, and a narrative explaining their assessment. Each participant's projections were based on his or her view of the appropriate course of monetary policy.

How these projections would be presented was specified in a press release the week prior to the January meeting. Since participants submitted their interest rate projection for the fourth quarter of each of the next few years, and the longer run, a histogram illustrates the number of participants that expect the initial target federal funds rate increase to occur by the fourth quarter of a given year. In addition, each participant's projected path of the fed funds rate shows the spectrum of appropriate policy views. Perhaps more importantly, though, the summaries that will be released with January's meeting minutes will include a narrative describing how committee participants made their assessments. This should, as we will discuss shortly, provide some of the most meaningful information about the participants' preferences in determining policy.

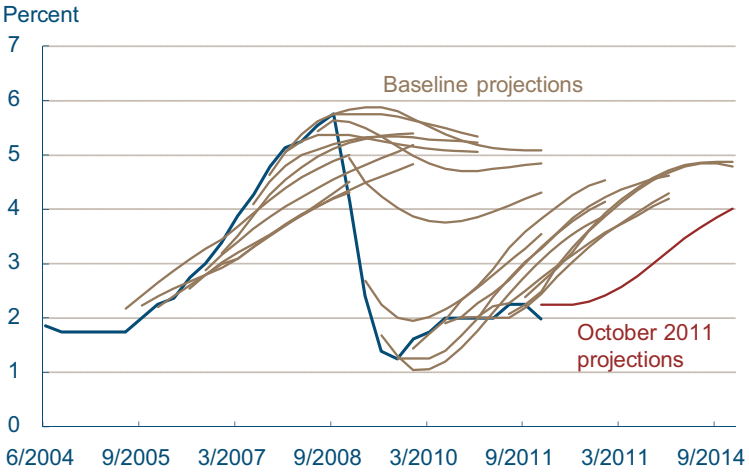
By publishing interest rate projections, the Fed is continuing its recent trend of increased transparency, as well as following in the footsteps of several other central banks. The Reserve Bank of New Zealand began publishing future interest rates in 1997, and Sweden's Riksbank and Norway's Norges Bank followed suit in the mid 2000s. However, it is expected that the FOMC has at least one distinct advantage in providing its projections.

With the other central banks mentioned, the policymaking group (their versions of the FOMC) must come to a consensus on the projected path of policy interest rates. Forming a consensus is a hurdle, and it is one of the main arguments against providing forward guidance on interest rates—and based on the recent dissents within the FOMC for policy decisions, it would seem that forming consensus projections might be difficult. But by asking each participant to provide his or her own projections, this problem is avoided.

A larger concern is that the public will misinterpret the meaning of the projections. For one thing, the projections are not the FOMC's planned path for interest rates, as the December minutes make clear. But that misinterpretation has already been made in the press and pointed out by Dave Altig of Macroblog.

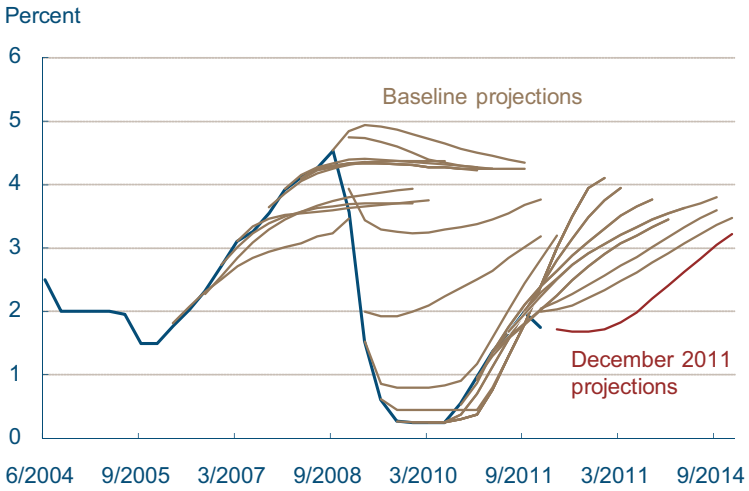
Also, the interest rate projections are based on current projections of future economic conditions, and as we know too well, the future can be pretty unpredictable. Take, for example, the recent experiences of New Zealand, Sweden, and Norway. Each of these countries' central banks released projections that turned out to be wide of the mark because the bank's expectations for future economic conditions were not met. The first and most glaring instance was heading into the recession in the fall of 2008. All three banks made several projections that severely underestimated the decline in economic output that was soon to occur. As a result, in March 2008, New Zealand had projected an official cash rate for March 2009 of nearly 9.0 percent, but the rate was set at 3.0 percent by the time March 2009 arrived. Over the same period, Norway had projected 5.5 percent for its sight deposit rate but instead set a rate of 2.5 percent, and Sweden had

Norway's Sight Deposit Rate



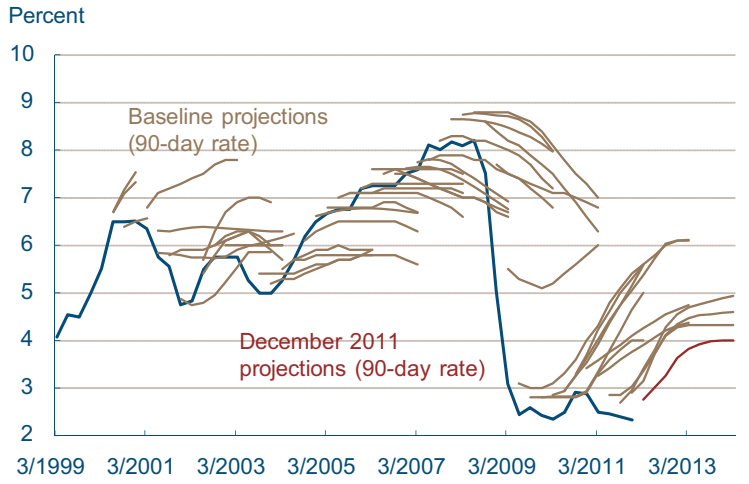
Source: Norges Bank.

Sweden's Repo Rate



Source: Sveriges Riksbank.

New Zealand's Official Cash Rate



Source: Reserve Bank of New Zealand.

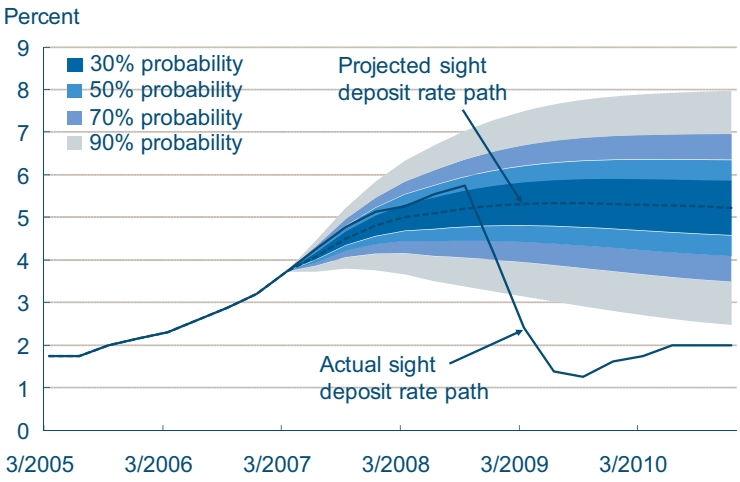
projected 4.3 percent for its repo rate but set a rate of 1.5 percent.

Even more recently, all three countries had projected stronger growth rates of GDP following their recessions. As their recoveries wore on, much like in the United States, it became clear that economic growth was slower than expected, and thus interest rates would need to remain lower than projected. By March 2010, New Zealand was projecting an official cash rate of 5.0 percent at the end of 2011, but the rate was actually set at 2.3 percent. Similarly, the target interest rate projections of 3.3 percent and 2.4 percent outdid the actual policy interest rates of 2.0 percent and 1.8 percent in Norway and Sweden, respectively.

The obvious conclusion to be drawn is that these projections do not represent any sort of definitive path of future policy interest rates. These projections are based on the current set of economic conditions and the way central bankers believe economic conditions will evolve in the future. That means that if the state of the global economy does not follow the path that the central bankers expect, they would likely project an altogether different path of policy interest rates. This is already apparent in the structure of the FOMC's summary of projections, which includes the qualification that the projections presented are the expectations of policymakers "in the absence of further shocks and under appropriate monetary policy." So, any large-scale event, like a sovereign debt crisis, will alter the expectations of FOMC participants, and in turn the path of their projections.

Still, projections of the federal funds rate should provide a guide as to how the FOMC is thinking about economic conditions and how those conditions influence its policy choices. One might characterize this as a basis for the public to infer a policy reaction function. The idea is that the public could see what the participants expect to happen in the economy, and then based on those expectations, how they would respond in their policy decisions. In some respects, the submitted projections will be a set of hypothetical situations, with each element of the set providing an insight into how the FOMC participant would respond to that situation.

Norway's March 2007 Projection



Source: Norges Bank.

By providing these viewpoints, the goal is to inform the public about how the FOMC thinks about the economy. If the public can better predict how the FOMC will respond to changes in economic conditions, people can better incorporate that information into their economic decisions. In a research paper, the economists Glenn D. Rudebusch and John C. Williams showed that this alignment of public and central bank expectations reduced the magnitude of fluctuations in output and the difference between the inflation rate and its target ("Revealing the Secrets of the Temple: The Value of Publishing Central Bank Interest Rate Projections").

Other central banks have tried to communicate the conditionality of these projections by producing fan charts, or probability distributions. Below is a chart from the Norges Bank in March 2007. At that time, it predicted that its sight deposit rate would reach 5.0 percent by March 2007 and then level off between 5.5 percent and 5.0 percent until the end of 2010. By the time December 2008 arrived, economic conditions had worsened, so the Norges Bank began lowering its target interest rate. The rate fell below 2.5 percent by March 2009 and eventually settled at 2.0 percent. When the projections were made in March 2008, they were conditional on economic conditions developing according to policymakers' estimations, but policymakers were also uncertain that their expectations would be met. Thus, they included a probability distribution around their projection, which outlines a range of possible monetary policy responses to unexpected changes in economic conditions.

This example may not be illustrative of what the FOMC has provided because the FOMC's Summary of Economic Projections comprises a collection of participants' projections. But based on the practices of other central banks, an observer might expect that each FOMC member is thinking about their projections in a way similar to this fan chart.

Trends in Housing Prices per Square Foot

01.19.2012
by Stephan Whitaker

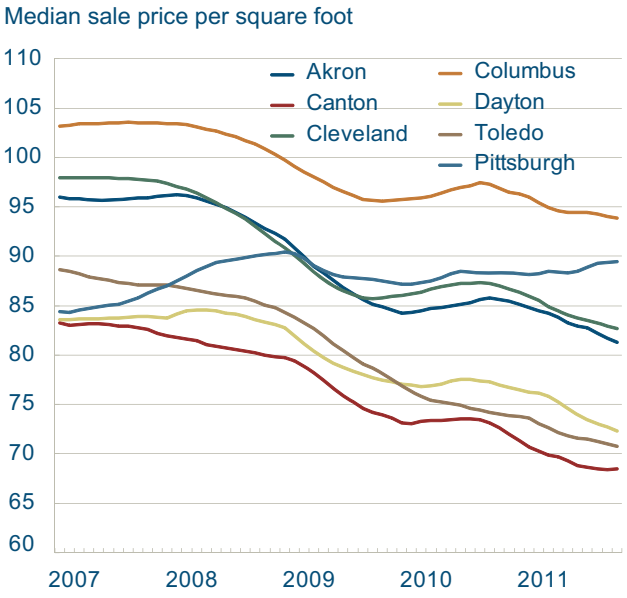
To attract job candidates and firms to a region like the Fourth District, recruiters routinely point out the affordability of living in their area, especially the cost of housing. The pitch that "you can get more house for your dollar here," is aimed especially at growing families with mid-range incomes.

The large coastal metros have long had housing costs above those of inland cities. In 1997, the median price per square foot for a home in the San Francisco area was $158 and the figure for Boston was $104. That same year, homes sold at $76 per square foot in Columbus and $56 in Pittsburgh. These regional price differences widened over the next 10 years until a family's housing budget in San Francisco bought them only a quarter of the square footage that it could buy in Columbus. Rapid appreciation took housing prices in the other "sand states" (Florida, Arizona, Nevada) up over 50 percent above those in the Fourth District.

Where are these trends heading in the wake of the housing bust? The states and metro areas of the Fourth District still enjoy an advantage over places like San Francisco and New York on a price-per-square-foot basis. However, the post-boom prices in formerly expensive cities like Tampa and Las Vegas are now below those of Columbus and Cleveland.

While median sale prices are the most commonly cited measure of housing costs, prices usually are not adjusted for differences in the housing stocks between regions. The median house sold on Long Island will be much smaller (and older, with fewer amenities) than the median home sold near Phoenix, even if their sale prices are similar. As a first step toward seeing how far a housing dollar goes in an area, one can look at the median price per square foot. Looking at trends in this measure also reveals if residential properties are maintaining their value, and if housing demand is high enough

Twelve-Month Moving Average Median Sale Price per Square Foot



Source: Zillow via Haver Analytics.

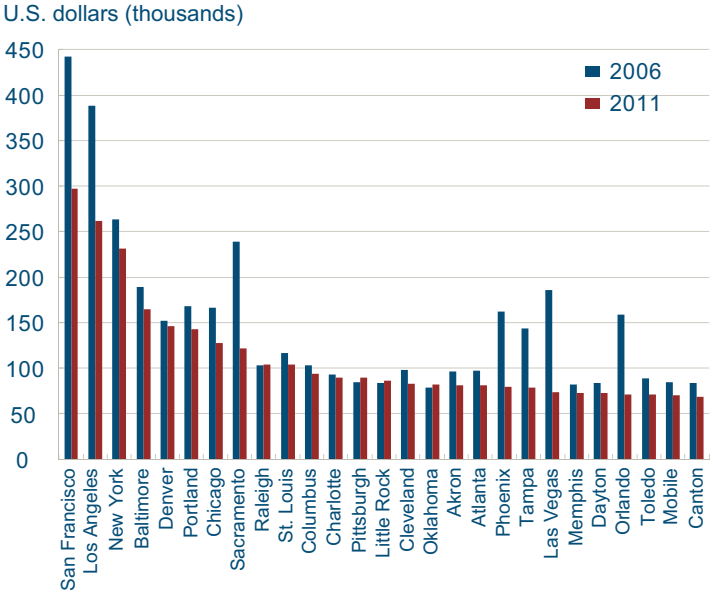
to support a normal level of construction activity. Both questions are important for economic growth prospects in a region.

The median sale price per square foot is charted below for the states of the Fourth District and the nation. The decline from the high of the housing market is clearly visible in the national trend. In the middle of the last decade, the Fourth District was not greatly affected by the run-up in housing prices, and therefore it enjoyed a competitive advantage on this measure. However, as prices have come down nationally, Pennsylvania is now just at the national average. Housing in Ohio is becoming more affordable. This may be good for attracting new residents from outside the state, but it is not good for the Ohio homeowners losing equity. West Virginia's housing costs have remained among the most affordable in the nation on a per-square-foot basis.

Housing prices vary with the season, with higher prices during the spring and summer months, when more buyers are in the market. It is difficult to see past this seasonality at the metro level, so it helps to look at 12-month moving averages. The national figure's recent lows are still above $105 per square foot, and the Fourth District metro area with the highest median, Columbus, is below that level. Prices per square foot are trending down in all the metro areas except Pittsburgh. Canton, Dayton, and Toledo all offer very affordable housing. Residential space in these areas costs around $30 less than the national median.

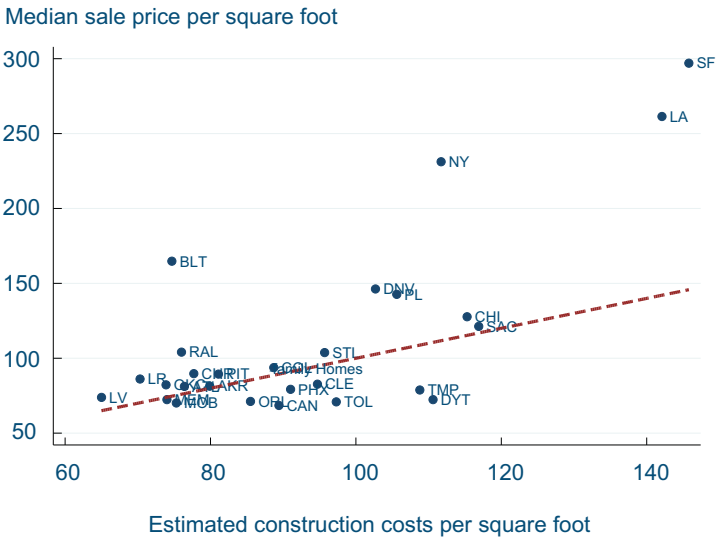
Where the Fourth District metro areas stand relative to other metro areas has changed since the height of the housing boom in 2006. The median cost of housing, on a per-square-foot basis, was more than twice as high in the expensive coastal metro areas in 2006 as in the Fourth District. The gap has narrowed considerably in the last five years. The Fourth District metro areas are on par with cities such as Atlanta, Charlotte, and Oklahoma City. Several boomtown metro areas, such as Phoenix, Orlando, and Tampa, had significantly higher costs per square foot in 2006. These markets now have inventories of new large homes coming out of fore

Median Sale Price per Square Foot



Source: Zillow via Haver Analytics.

Median Sale Price and Estimated Construction Cost for New, Single-family Homes



Note: Construction costs per square foot are estimated using data from the U.S. Census Bureau, which gathers information on new homes from building permits and interviews with developers. To get the average value for new, single-family homes in each metro area, I take the total value of new homes from the permits and divide it by the number of permits. To calculate the construction cost per square foot, I divide the average new-home cost by the 2008-2010 average square footage of new homes in the metro area's census region. (2011 estimates are not yet available).
Sources: Zillow via Haver Analytics, U.S. Census Survey of Construction, and author's calculations.

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closure, which has lowered their price per square foot below that of Cleveland and Akron.

One of greatest economic challenges to come out of the recent recession was the dramatic decline in residential construction activity. Under normal conditions, residential construction is a substantial employer and a contributor to the gross regional product. But if existing homes are selling for low prices, it will be more difficult for builders to market new homes.

To shed some light on the relative costs of new and existing homes, we plot the costs for both against each other in the chart below. If the square footage of existing homes and new homes is similarly priced in a region, then it will show up near the red dashed line. In these areas, new construction should be able to compete with existing homes, especially because home buyers will pay extra for the latest amenities, greater efficiency, lower maintenance, and exclusive locations that new homes can provide. In Dayton, Canton, Toledo, and Cleveland, new construction may have difficulty competing with low-priced existing homes. Likewise, residential space is inexpensive relative to new construction in Phoenix, Orlando, and Tampa. New construction should be able to continue at a normal pace in Columbus and Pittsburgh.

The data we have used here have some limitations. The median price-per-square-foot (like the median price) can be pulled down by unusually frequent turnover of low-value properties. The flipping of foreclosed homes may have a strong influence on recent data in weak housing markets. Also, estimates are not available for all regions. Data are not available for the Cincinnati and Lexington metro areas and the last three months of West Virginia's series.

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