

Economic Trends

January 2013 (December 15, 2012-January 9, 2013)

In This Issue:

Banking and Financial Markets

- Bank-Holding Companies and Changing Capital Ratios
- The Changing Composition of Bank-Holding Company Portfolios

Growth and Production

- Was 2012 the Year the Housing Market Recovered?

Households and Consumers

- Recent Changes in National Savings

Inflation and Prices

- Survey Measures of Inflation Expectations

Labor Markets, Unemployment, and Wages

- Employment in Education and Healthcare Services

Monetary Policy

- Yield Curve and Predicted GDP Growth, December 2012

Regional Economics

- By Most Measures, Changes in District Employment Are Closely Following the U.S. Average

FEDERAL RESERVE BANK
of CLEVELAND

Bank-Holding Companies and Changing Capital Ratios

01.08.13

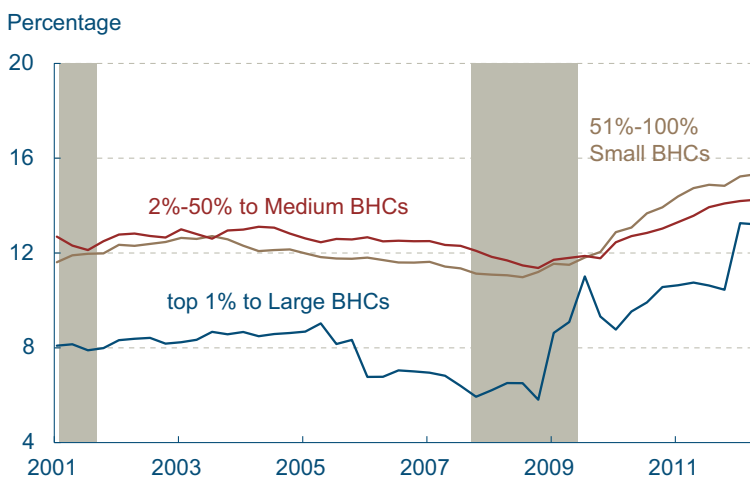
by William Bednar and Mahmoud Elamin

The last financial crisis serves as a clear reminder of the importance of having a banking sector that can withstand a downturn in the economy or a drop in the value of its assets. One of the best protections from such a downturn is capital. Generally speaking, capital is what remains when bank liabilities are subtracted from assets; that is, it's the difference between what the bank owns and what it owes. Regulators use more precise definitions, and two of these have been steadily improving for bank-holding companies (BHCs) since the financial crisis.

Two standard regulatory measures of capital adequacy are the leverage ratio and the tier 1 risk-based capital ratio. The leverage ratio, or more precisely, the tier 1 leverage ratio, is simply the ratio of tier 1 capital to total assets. The tier 1 risk-based capital ratio is the ratio of tier 1 capital to risk-weighted assets. Tier 1 capital is a regulatory measure of capital that excludes intangibles like goodwill and includes, among other things, the two major components of capital, common stock and perpetual preferred stock. Risk-weighted assets are computed by dividing a bank's total assets into four categories according to their level of riskiness, then multiplying the value of assets in each group by a risk weight and summing all the groups. The more risky an asset is, the higher the category it falls under. Categories get one of the following risk weights: 0 percent, 20 percent, 50 percent, or 100 percent. For example, cash, which is considered the safest asset, falls under the 0 percent risk-weight category, while unsecured commercial loans fall under the 100 percent category.

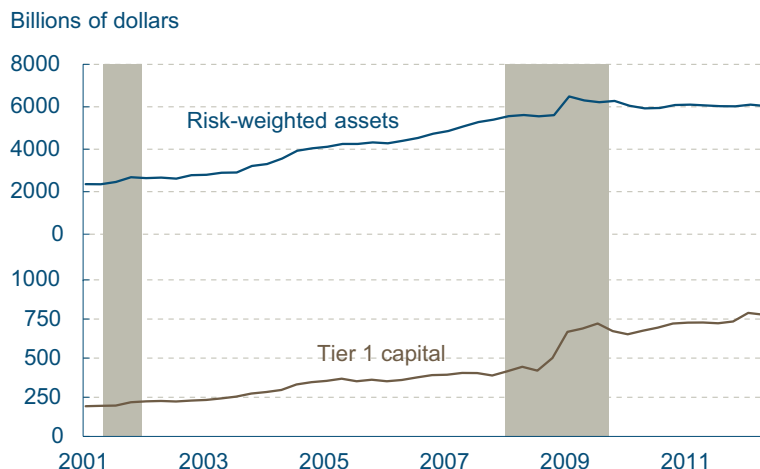
We divide BHCs with assets above \$500 million into three groups based on the size of their assets. The first group includes BHCs in the top first percentile in terms of asset size, the second group contains banks with assets between the second and 50th percentiles, and the third group is the bottom 50th percentile. We analyze the average leverage ratio and the average tier 1 risk-based capital ratio

Average Tier 1 Risk-Based Capital Ratio



Notes: Shaded bars indicate recessions. Large BHCs are those in the top 1 percent of BHCs in terms of asset size, medium-size BHCs are those in the second to the 50th percentiles, and small BHCs are in the lower 50th percentile.
Source: Call Reports.

Risk and Capital Adjustment, Large BHCs

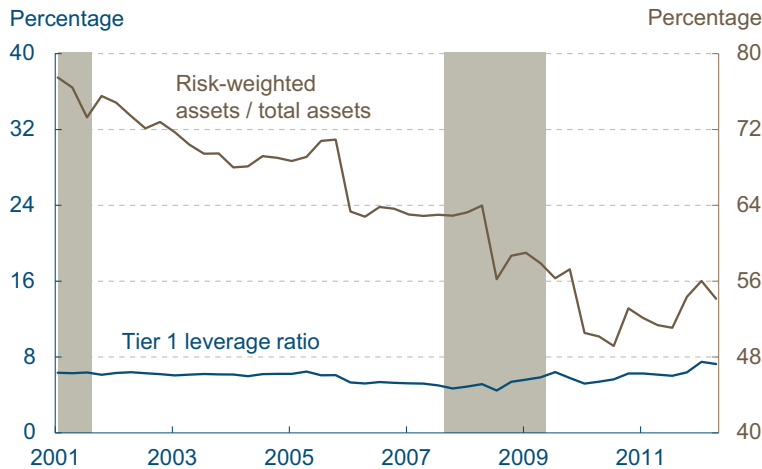


Notes: Shaded bars indicate recessions. Large BHCs are those in the top 1 percent of BHCs in terms of asset size.
Source: Call Reports.

of each of these groups.

The average tier 1 risk-based capital ratio for the biggest BHCs (top 1 percent) stayed steady with a slight upward trend up to 2005, after which it deteriorated, bottoming out in the crisis, and reversing course afterwards. A clear increasing trend can be seen since 2009. Medium and small BHCs (2 percent to 50 percent percentiles and 51 percent to 100 percent percentiles) saw only a slow decline before the crisis and a sharp reversal afterwards. The average ratios for both have been trending up since then.

Risk and Capital Adjustment, Large BHCs



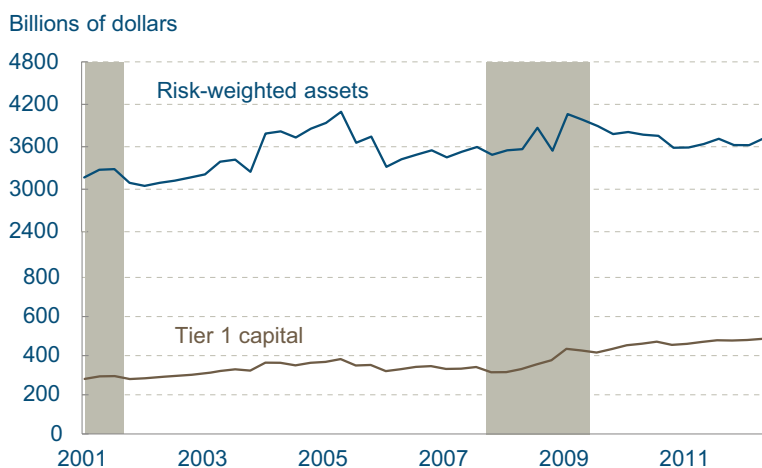
Notes: Shaded bars indicate recessions. Large BHCs are those in the top 1 percent of BHCs in terms of asset size.
Source: Call Reports.

We break each ratio down into its components to understand the factors that are causing this upward trend after the crisis. For the largest BHCs, tier 1 capital has almost tripled since 2001. The crisis shows a particular uptick in the average tier 1 capital of these banks. The trend seems to be flattening recently. On the other hand, we see an increase in risk-weighted assets up to the crisis, with a slight drop afterwards and the trend steadying since then. We conclude that the uptick in the average tier 1 capital ratio during and after the crisis is due to an increase in tier 1 capital.

The leverage ratio for the largest BHCs appears to have fluctuated slightly in the last decade, dropping slightly up to the crisis and reversing course afterwards. But when we look at the ratio of risk-weighted assets to total assets, we see a decline up to the crisis and a steepening of the decline after the crisis until it bottoms out around 2010. There does seem to be a slightly subdued upward trend since 2010. If we assume that the regulatory weighting of assets serves as a proxy of actual asset riskiness, this shows that the average riskiness of the largest banks' portfolios went down until it bottomed out in 2010, with only a slight reversal afterwards.

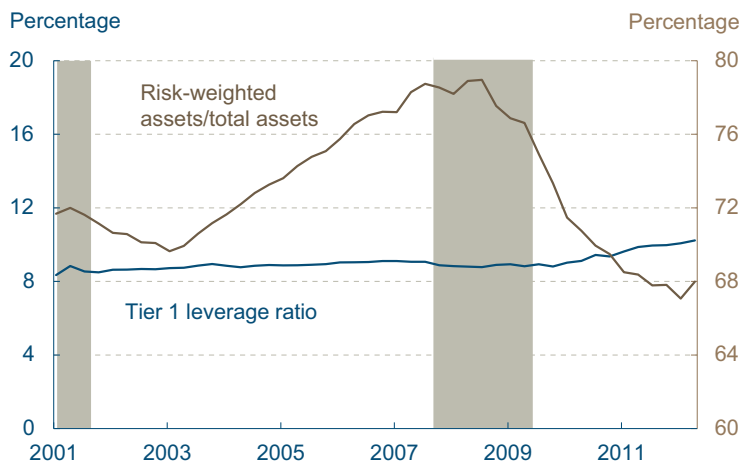
Medium-sized BHCs' risk-weighted assets rose until they peaked in 2005, and then they dropped and rose to a second peak during the crisis. After the crisis, they declined and then steadied. On the other hand, tier 1 capital was on the rise. Particularly after the crisis, we see that the drop in risk-weighted assets, combined with an increase in tier 1 capital, is what caused the uptick in the average

Risk and Capital Adjustment, Medium-Size BHCs



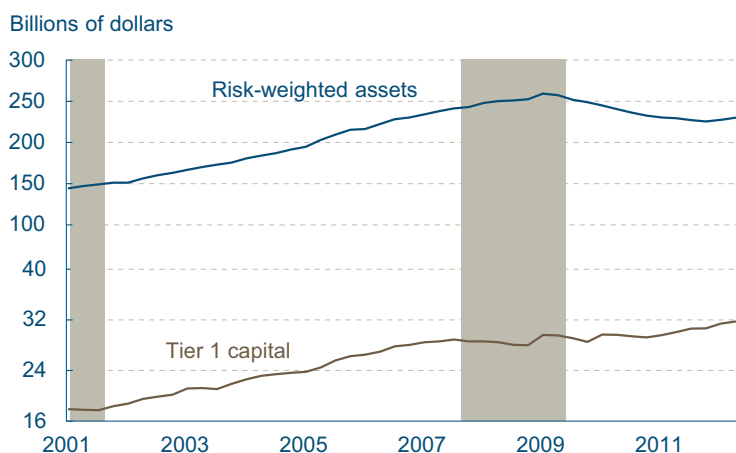
Notes: Shaded bars indicate recessions. Medium-size BHCs are those in the second to the 50th percentiles of BHCs in terms of asset size.
Source: Call Reports

Risk and Capital Adjustment, Medium-Size BHCs



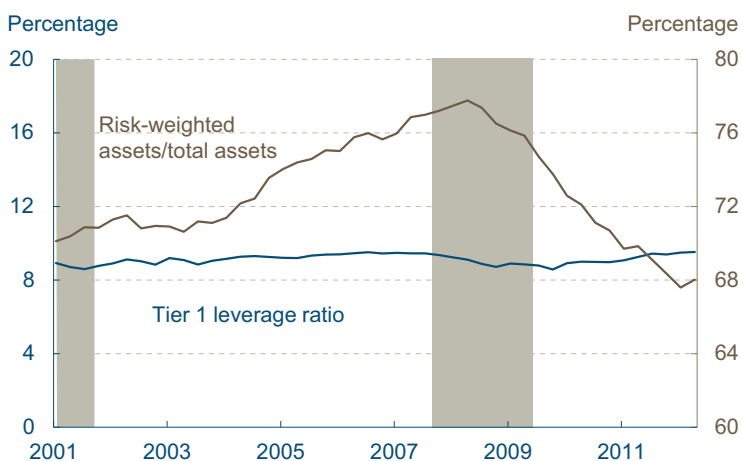
Notes: Shaded bars indicate recessions. Medium-size BHCs are those in the second to the 50th percentiles of BHCs in terms of asset size.
Source: Call Reports

Risk and Capital Adjustment, Small BHCs



Notes: Shaded bars indicate recessions. Small BHCs are those in the lowest 50 percent of BHCs in terms of asset size.
Source: Call Reports.

Risk and Capital Adjustment, Small BHCs



Notes: Shaded bars indicate recessions. Small BHCs are those in the lowest 50 percent of BHCs in terms of asset size.
Source: Call Reports.

risk-based tier 1 capital ratio that we noted before.

The rise of tier 1 capital is reflected in a rise in the leverage ratio after the crisis. The riskiness of banks' portfolios, reflected in the ratio of risk-weighted assets to total assets, experienced a sharp rise in the run-up to the crisis, with a sharp drop afterwards. This shows two trends in the way BHCs have managed their capital after the crisis—they are increasing their tier 1 capital, and at the same time, they are decreasing the risk-weightings that regulators assign to it.

The smallest-sized BHCs experienced a smoother path than the medium-sized ones. We see less sharpness in the transitions from one quarter to the next. Risk-weighted assets grew up to the crisis and have declined since. Tier 1 capital has been growing, and the crisis does not seem to have had a significant effect on the trend.

The leverage ratio for the smallest BHCs seems to have held steady all along, while the average asset risk-weighting of their portfolios increased sharply up to the crisis and decreased sharply thereafter.

The Changing Composition of Bank-Holding Company Portfolios

01.08.13

by William Bednar and Mahmoud Elamin

One test of the health of the banking sector is to evaluate how risky the assets in banks' portfolios are. Regulators typically do this by considering banks' risk-weighted assets. Here we will look at bank riskiness through the lens of the current regulatory system, where assets are risk-weighted according to a preset procedure established by regulators. We use a simple ratio—the ratio of a bank's risk-weighted assets to its total assets—as a proxy for the riskiness of the bank's portfolio. We analyze this ratio for bank holding companies (BHCs) over the past decade and find that BHCs have been reducing their risk-weighted assets since the financial crisis by changing the composition of their asset holdings. At least part of this trend may be explained by banks trying to get in line with Basel III liquidity requirements, which are expected to come into effect soon.

We divide BHCs with assets above \$500 million into three categories according to their asset size. A bank falls either in the top first percentile in terms of asset size, between the second and 50th percentile, or in the lower 50th percentile.

Risk-weighted assets are calculated by dividing each bank's assets into four categories according to their level of risk, then multiplying the value of assets in each category by a risk weight and summing all the categories. The four risk weights are 0 percent, 20 percent, 50 percent, and 100 percent, with the highest weight being applied to the riskiest assets.

The 0 percent risk-weight category mainly includes cash, direct claims guaranteed by central governments of OECD countries and U.S. government agencies (including GNMA securities), and claims collateralized by cash or OECD government securities with a margin. The 20 percent risk-weight category includes cash items in the process of collection, short-term claims guaranteed by U.S. and foreign banks, long-term claims guaranteed by U.S. and OECD banks, claims guaranteed by U.S.

states and OECD political subdivisions, claims guaranteed by U.S. government-sponsored agencies (FHLMC, FNMA, SLMA and others), and an array of repo transactions.

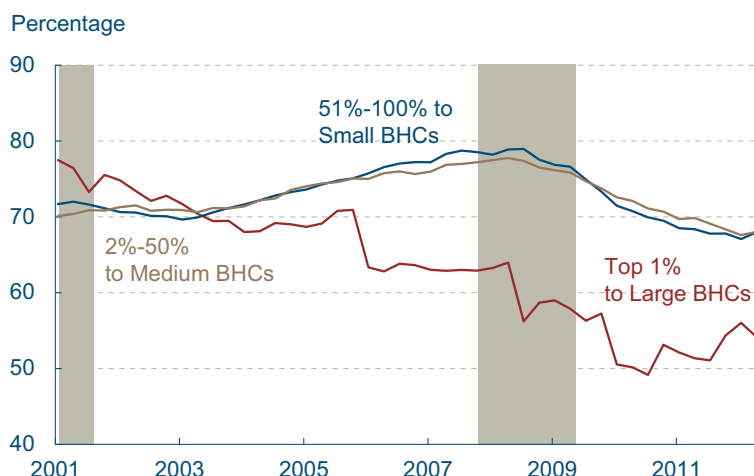
The 50 percent risk-weight category includes loans fully secured by first liens on one- to four-family residential properties or on multifamily residential properties, privately issued mortgage-backed securities (MBS) that satisfy some criteria, revenue bonds from U.S. states or OECD political subdivisions, and the credit amount of derivative contracts.

The 100 percent risk-weight category includes all assets not in the other categories. Also, off-balance sheet assets are treated by a two-step process. First, the “credit equivalent amount” of the item is computed, usually by multiplying the item by a credit conversion factor. Second, the resulting amount is treated as a usual asset.

The average ratio of risk-weighted assets to total assets for the largest BHCs (top 1 percent) has been declining for the last decade. The decline deepened during the crisis, but it appears to be leveling off since then, albeit with strong fluctuations. Medium-sized and small BHCs experienced similar trends; their ratios climbed until the crisis when they peaked, after which they fell off and only lately have begun to steady.

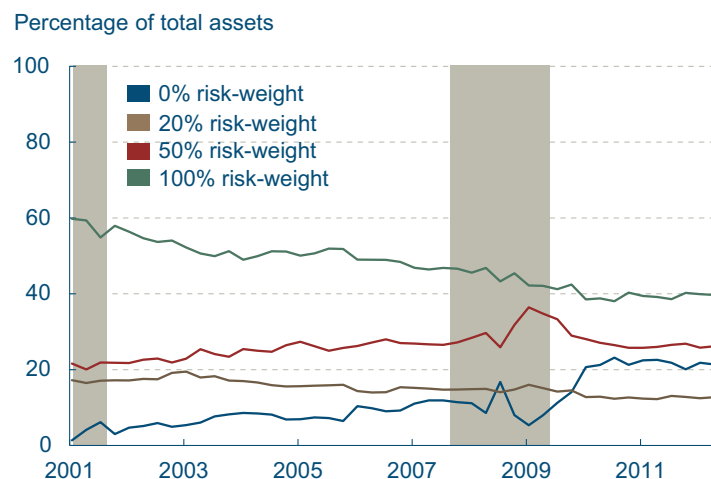
For the big BHCs, the composition of the riskiest assets (100 percent risk weight) in their portfolios has been declining for almost all of the decade, and steadying since the crisis. The 20 percent risk-weight category was on a slight upward trend up to the crisis where it peaked, after which it experienced a slight decline and a recent leveling off. The 50 percent risk-weight category has been declining slightly over the whole decade, with the crisis having no strong effect on the trend. We also see an increase in the percentage of the least risky asset (0 percent risk weight). This analysis shows that banks are increasing their exposures to assets with low risk weights (0 percent and 20 percent) and decreasing their exposure to assets with high risk weights (50 percent and 100 percent). This is particularly strong for the riskiest and the least risky asset.

Risk-Weighted Assets and Total Assets



Notes: Shaded bars indicate recessions. Large BHCs are those in the top 1 percent of BHCs in terms of asset size, medium-size BHCs are those in the second to the 50th percentiles, and small BHCs are in the lower 50th percentile.
Source: Call Reports.

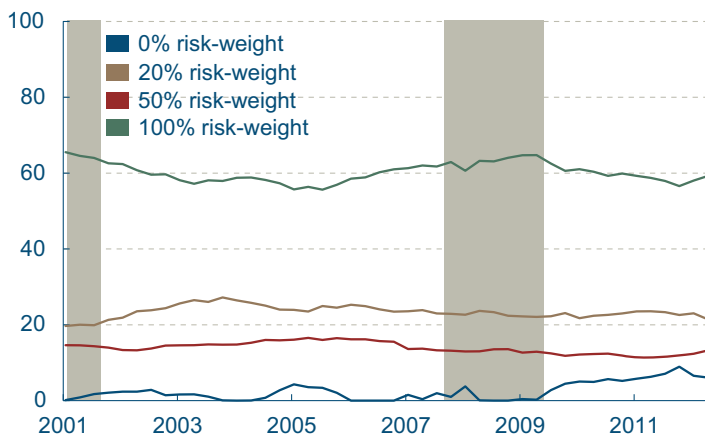
Assets in Risk Weight Categories, Large BHCs



Notes: Shaded bars indicate recessions. Large BHCs are those in the top 1 percent of BHCs in terms of asset size.
Source: Call Reports.

Assets in Risk Weight Categories, Medium-Size BHCs

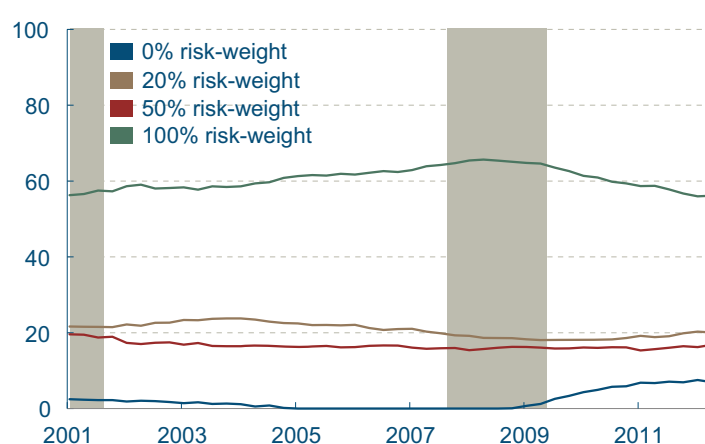
Percentage of total assets



Notes: Shaded bars indicate recessions. Medium-size BHCs are those in the second to the 50th percentiles of BHCs in terms of asset size.
Source: Call Reports.

Assets in Risk Weight Categories, Small BHCs

Percentage of total assets



Notes: Shaded bars indicate recessions. Small BHCs are those in the lowest 50 percent of BHCs in terms of asset size.
Source: Call Reports.

For the medium-sized BHCs, the composition of the riskiest assets (100 percent risk weight) in their portfolios declined slightly after the crisis. The crisis seems to have caused these banks to substitute the least risky assets for the riskiest assets. This is not as pronounced as for the biggest BHCs though. The middle two risk-weighted categories remain at almost the same level with no clear trend.

For the smallest BHCs, the composition of the riskiest assets (100 percent risk weight) in their portfolios grew up to and peaked during the crisis. It declined significantly after the crisis. Again we see that the crisis seems to have caused a significant increase in the percentage of the least-risky asset (0 percent risk weight). This is interesting because it shows that the smallest BHCs are also substituting the least risky assets for the riskiest assets. The remaining two risk-weighted categories remain at almost the same level with no clear trend.

The conclusion we draw from this analysis is that all BHCs appear to be substituting 0 percent risk-weighted assets for 100 percent risk-weighted assets in their portfolios. This trend, though true for all sizes of BHCs, is strongest for the largest.

Was 2012 the Year the Housing Market Recovered?

01.09.13

by Daniel Carroll and Samuel Chapman

On many occasions during the past few years, housing market conditions have been cited as a key factor contributing to the slow recovery. For a typical household, the largest component of wealth is house value. As house prices fell and sales were depressed, household wealth shrank. The decline in house values has been indicted as leading cause of restrained consumption, as households saved from current income to recoup the loss in housing wealth. The decline in house values has also been suggested as partly responsible for stubbornly high unemployment due to “lock-in,” where a household that is underwater on its mortgage limits its job search because it cannot afford to move.

Fortunately, over this past year there have been signs of modest, yet sustained, improvement in the housing market. According to the latest report, sales of single-family units, both of new and existing, have been up year-over-year from January to November. The latest month shows new and existing sales up by 15.3 and 12.4 percent, respectively, compared to their values in November 2011. Since April 2012, monthly sales of existing multifamily units have also been positive relative to the previous year, with the November data turning in a whopping 33 percent increase.

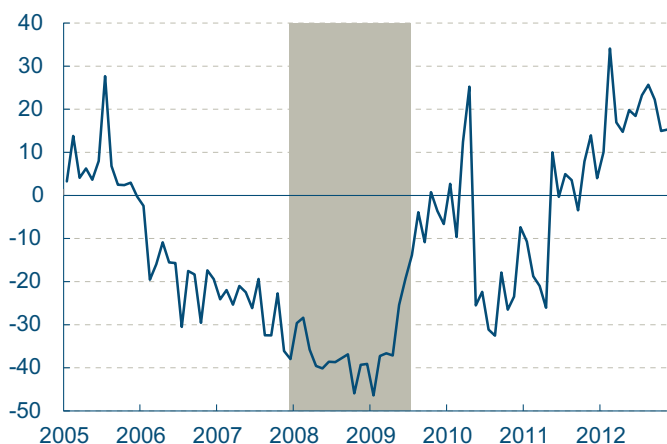
After several years of weakness in the home construction sector, 2012 has also been marked by large increases in home starts. For single-family units, the change each month from its counterpart in 2011 has averaged 23.6 percent; for multifamily units the average is 38.0 percent.

The descent of home prices has leveled off, and prices have begun to move upward again.

During 2011, home price indexes reported negative year-over-year changes each month; however in 2012, these changes have been increasing each month. As of October, house prices were roughly 5 percent greater than the previous year. Price increases are a welcome sign as they point to a steady

Sales of New Single Homes

Year-over-year percentage change

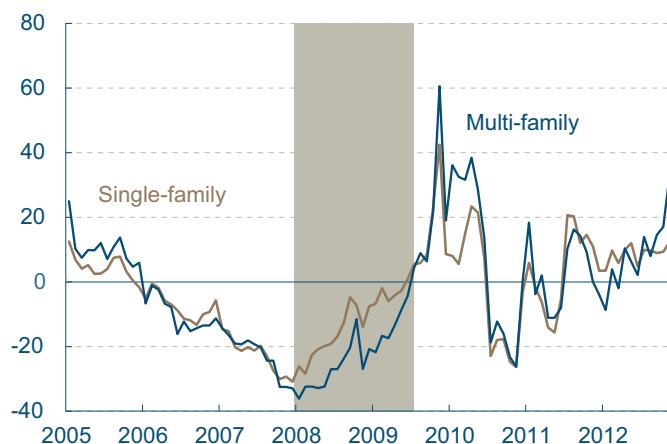


Note: Shaded bar indicates a recession. Data are seasonally adjusted annual rates.

Sources: Haver Analytics, Census Bureau.

Sales of Existing Single Homes

Year-over-year percentage change

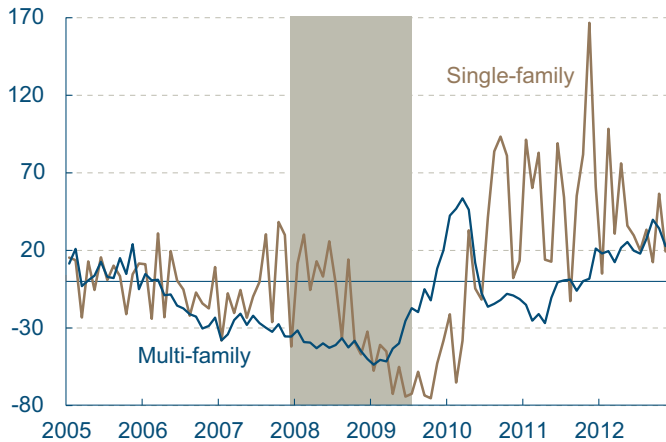


Note: Shaded bar indicates a recession. Data are seasonally adjusted annual rates.

Sources: Haver Analytics, National Association of Realtors.

Housing Starts

Year-over-year percentage change



Note: Shaded bar indicates a recession. Data are seasonally adjusted annual rates.

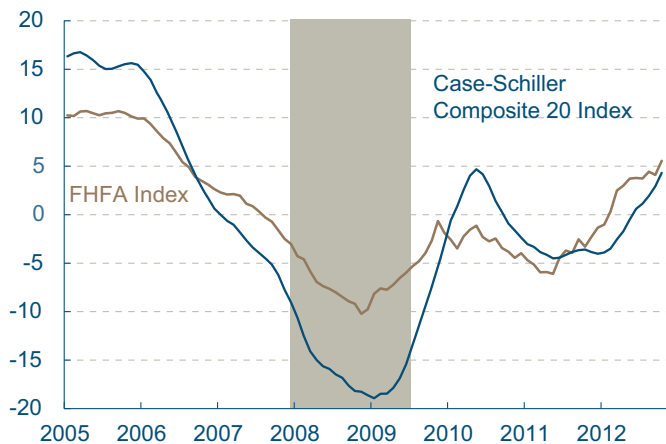
Sources: Haver Analytics, Census Bureau.

return of demand and suggest household conditions are improving both in terms of income and credit. The recovery also has a positive implication for general aggregate activity as it increases household net worth, thereby stimulating consumption.

Finally, while the good news discussed above is certainly encouraging, it should be noted that it is unclear at what point we should declare the housing market “fully recovered.” The data on sales, starts, and prices were all well above trend before they began to plummet in 2005. Therefore, the previous peak level is not likely the correct baseline by which to judge recovery. Nevertheless, any recovery must begin with a sustained increase in housing activity, and 2012 has, so far, appeared to deliver just that.

Home Price Indexes

Index

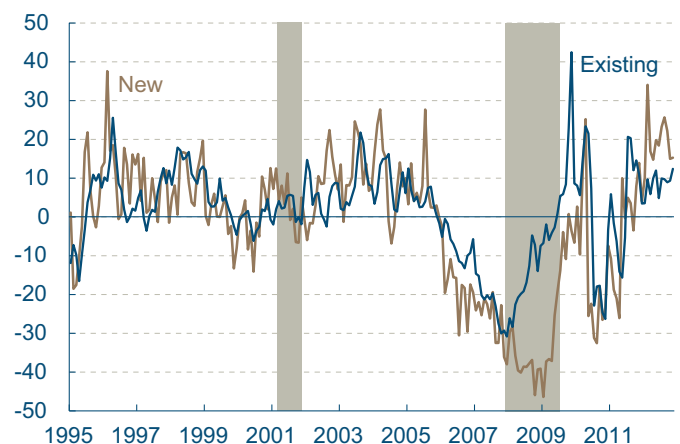


Note: Shaded bar indicates a recession. Data are seasonally adjusted annual rates.

Sources: Haver Analytics, Mortgage Bankers Association, Standard and Poor's.

Sales of Single Homes

Year-over-year percentage change



Notes: Shaded bars indicate recessions. Data are seasonally adjusted annual rates.

Sources: Census Bureau, Haver Analytics, National Association of Realtors.

Recent Changes in National Savings

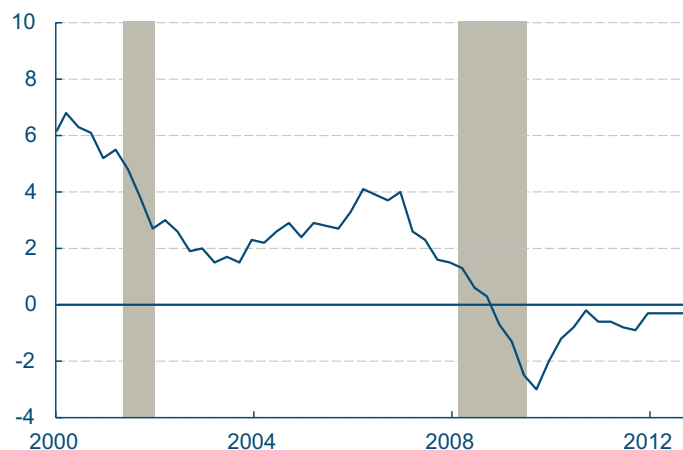
01.07.13

by O. Emre Ergungor and Patricia Waiwood

Economists study national savings—the share of national output not consumed by households, businesses, or the government—because it is the main source of funds available for domestic investment in new capital goods (used to produce other goods and services). Capital accumulation, in turn, is a key driver of productivity gains and rising living standards. Put simply, saving finances investment. This article examines recent trends in national savings, and household savings in particular.

Net National Savings

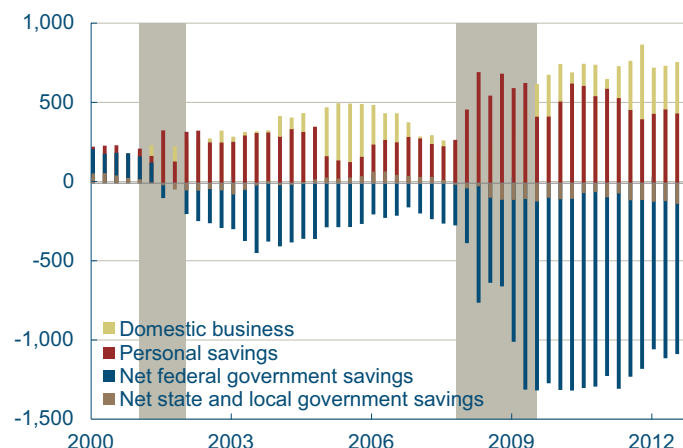
Percent of Gross National Income



Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis.

Select Components of Net National Savings

Billions of dollars



Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis.

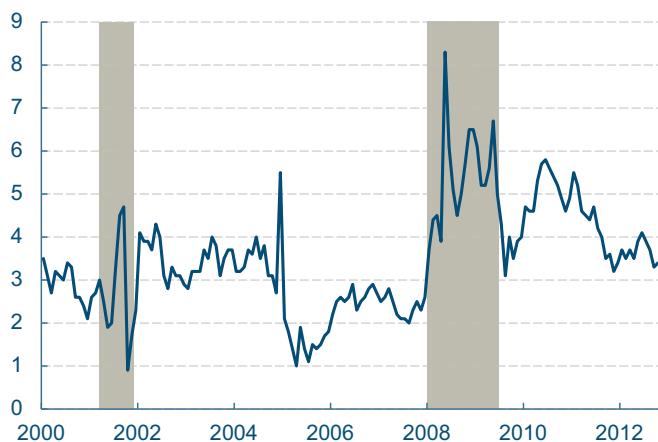
National savings began to decline long before the start of the recession in 2007. Net national savings (national savings minus the estimated deterioration of the existing capital stock) fell below 6 percent of national income in the early 2000s and continued to fall through the end of the recession, changing course just briefly in 2006 to brush against 4 percent. Since the beginning of 2009, net national savings have been negative, which means that as an economy, the United States is a net borrower. The borrowed funds are supplied by foreigners, who invest their savings in U.S. assets.

There is a simple way to identify the sources of the decline in national savings. Total national savings can be divided into its constituent parts: private and government savings. Private savings, in turn, can be divided into the savings of households and businesses.

Looking at these constituent parts suggests that the biggest source of decline in national savings over the past few years is lower savings at all levels of government. In the case of government savings, a negative number means that spending is exceeding revenues. State and local as well as federal government savings have been securely in the red since the early 2000s, although state and local government savings rose into low positive territory between 2004 and 2007. On the other hand, private savings have been positive over the same time frame.

Personal Savings

Percent of disposable personal income



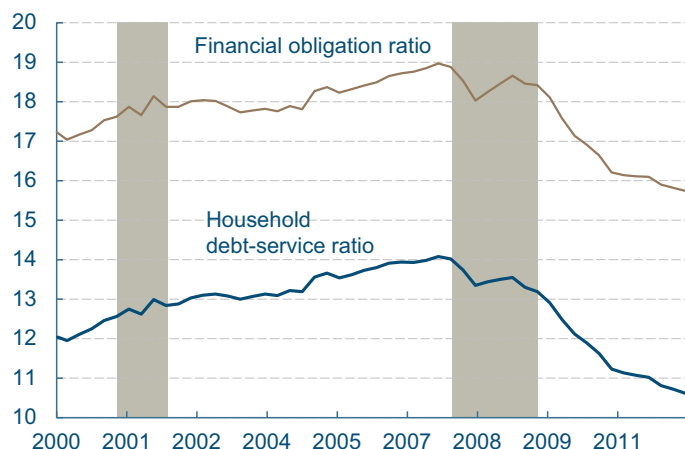
Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis.

Looking more closely at household savings, we see that they have been positive in recent years. Savings as a percent of disposable personal income have lingered around 3 percent recently and now sit at 3.4 percent.

Two closely watched measures of household leverage have been declining recently, suggesting that households have been more inclined to deleverage as they save. The New York Fed's most recent Household Debt and Credit Report shows that aggregate consumer debt fell in the third quarter of 2012 by \$74 billion, continuing a nearly four-year downward trend. As of September 30, 2012, total consumer indebtedness was \$11.31 trillion, 0.7 percent lower than its level in the second quarter of 2012 and down \$1.37 trillion from the peak in the third quarter of 2008.

Household Leverage Ratios

Percent

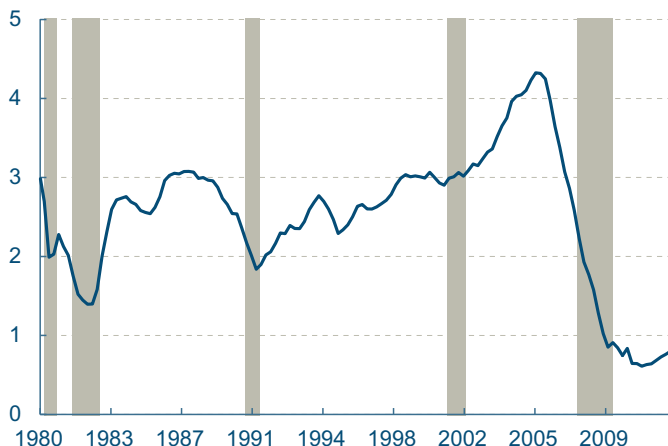


Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis.

The data also suggest that households have not been as inclined to invest as to deleverage. Household investment as a percent of GDP is currently 0.8 percent, a level that seems normal relative only to where it has been since the end of the recession. However, 0.8 percent is significantly lower than prior to the start of the recession, when it was 2 percent.

Net Household Investment

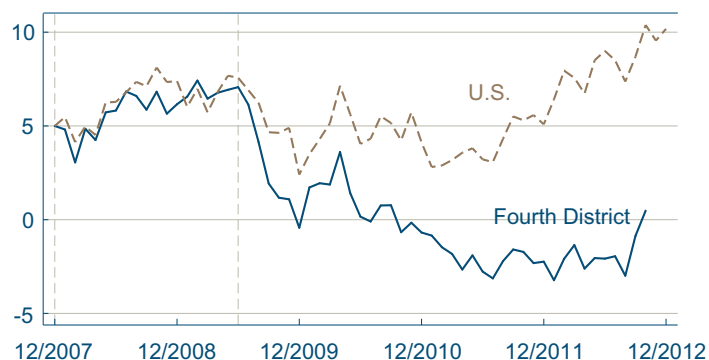
Percent of GDP



Note: Shaded bars indicate recessions.
Source: Bureau of Economic Analysis.

Labor Force During Recession and Recovery

Index, December 2007 = 100



Note: Dashed lines identify business cycle turning points.
Source: Bureau of Labor Statistics.

Survey Measures of Inflation Expectations

01.09.13

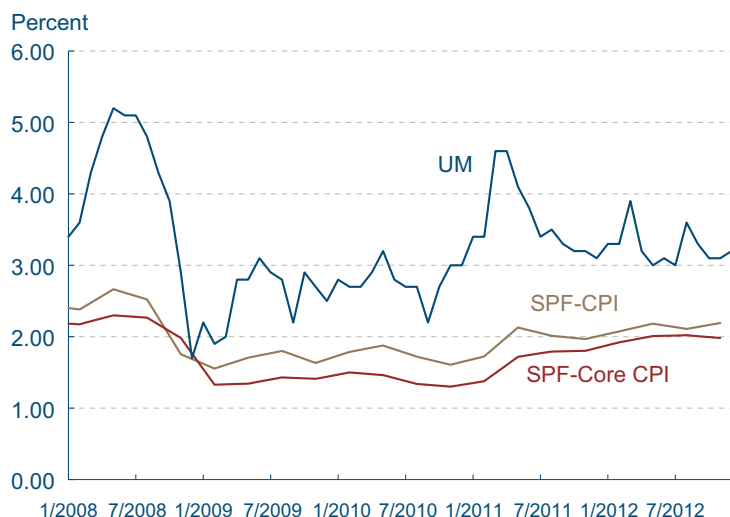
by Mehmet Pasaogullari and Patricia Waiwood

The annual inflation level as measured by the CPI was 1.8 percent as of November 2012, whereas the CPI excluding food and energy, usually referred to as the “core CPI,” was 1.9 percent. These latest figures, along with developments over the past year, show that the inflation scare of recent years has yet to be supported by the data.

To shed light on the future pace of inflation, we present survey results on inflation expectations. Inflation expectations reflect what economic agents think about the inflation outlook. Survey measures of inflation expectations are one of the most successful predictors of future inflation (see this Commentary for more detail). The surveys that we report are the University of Michigan’s Survey of Consumer Attitudes and Behavior (UM Survey) and the Philadelphia Fed’s Survey of Professional Forecasters (SPF). The UM Survey does not specify a particular measure of inflation for its questions on inflation expectations, whereas professional forecasters are asked their opinions specifically on the CPI and the core CPI. The UM Survey is monthly, and the SPF is quarterly. The most recent UM survey was released in December, and the most recent SPF was released in November for 2012:4.

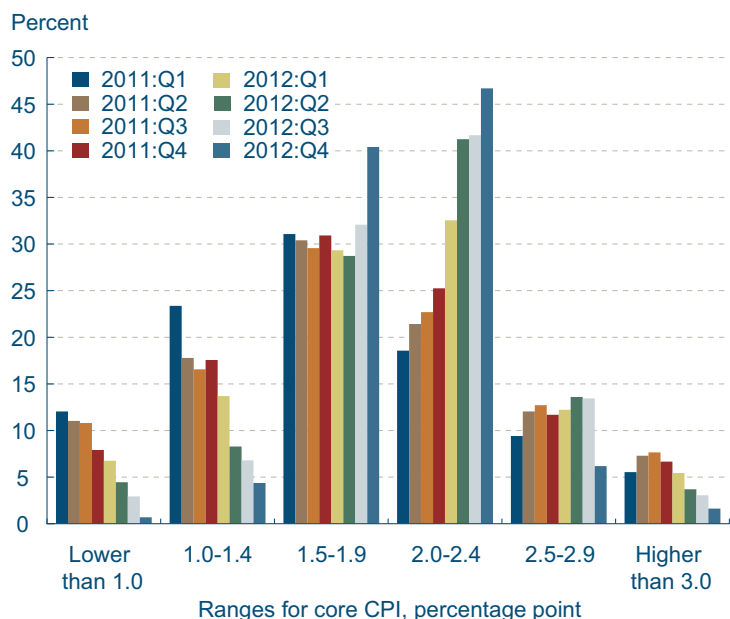
One-year inflation expectations from the UM Survey were at or above 3 percent in every month of 2012. They spiked in March at 3.9 percent and then in August at 3.6 percent. Note that energy prices were rising relatively rapidly at these times. Since August though, UM expectations have hovered between 3.1 percent and 3.3 percent, and they ended the year at 3.2 percent. On the other hand, SPF expectations for one-year inflation expectations were much more stable over 2012. One-year expectations for the CPI varied between 2.07 percent in the first quarter and 2.19 percent in the fourth. Similar ranges were reported for the core CPI (1.92 percent in the first quarter and 2.02 percent in the third). As of November, SPF expectations point to

One-Year Inflation Expectations



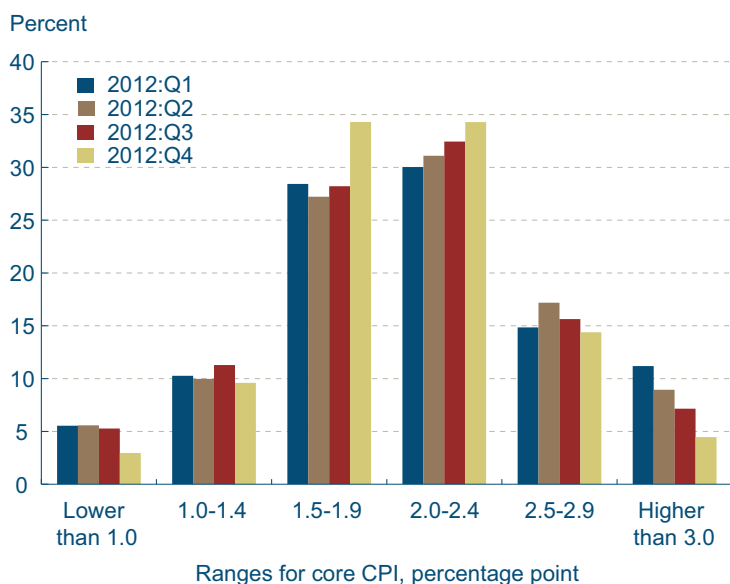
Sources: Federal Reserve Bank of Philadelphia’s Survey of Professional Forecasters (SPF); University of Michigan’s Survey of Consumers (UM).

Core CPI Probabilities, 2012:Q4



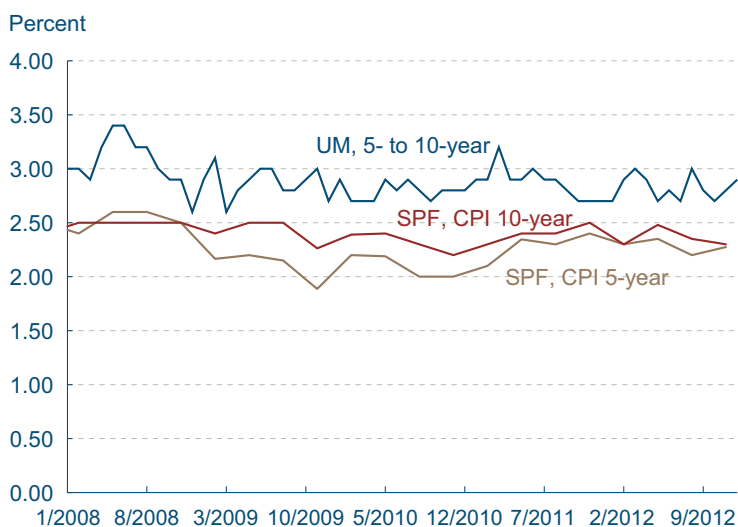
Sources: Federal Reserve Bank of Philadelphia’s Survey of Professional Forecasters (SPF); University of Michigan’s Survey of Consumers (UM).

Core CPI Probabilities: 2013:Q4



Sources: Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters* (SPF); University of Michigan's *Survey of Consumers* (UM).

Survey Long-Term Inflation Expectations



Sources: Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters* (SPF); University of Michigan's *Survey of Consumers* (UM).

an annual inflation level of around 2 percent (2.19 percent for the CPI and 1.98 percent for the core CPI).

The SPF survey also asks respondents to assign probabilities to particular ranges of the current and next year's annual core CPI inflation rate. We report the mean of their probabilities for 2013. The 1.5-1.9 percent range and the 2.0-2.4 ranges are the two most likely outcomes anticipated for annual core CPI inflation. These two ranges receive about 68.6 percent of the probability from the SPF respondents (each with about 34.3 percent probability).

Both the median figures for CPI and the core CPI and the inflation expectation measures regarding the probabilities for different ranges for core CPI point to a level of inflation that is consistent (if not a little lower) with the Fed's medium-term target of 2 percent inflation. On the other hand, the UM survey points to a higher level of inflation but notice that in the last four years this measure is almost always higher than the SPF measures.

Finally, we check long-term inflation expectations. Both UM (5- to 10-year) and SPF (5-year and 10-year) expectations were quite stable over 2012. The former hovered between 2.7 percent and 3 percent, ending the year at 2.9 percent. The 5-year SPF expectation fluctuated between 2.2 percent and 2.3 percent and ended the year at 2.28 percent. Ten-year SPF expectations ranged between 2.3 percent and 2.48 percent. These data support the claim of anchored long-term inflation expectations.

Employment in Education and Healthcare Services

01.10.13

by Tim Dunne and Kyle Fee

Last month's employment report showed continued modest expansion in payrolls for the month of December, with the economy adding 155,000 jobs. This is right on the monthly average for the entire year, which stands at 153,000 new jobs per month. About one-quarter of the jobs added in 2012 have been in the education and health services sector, and in December alone the sector accounted for 42 percent of the new jobs.

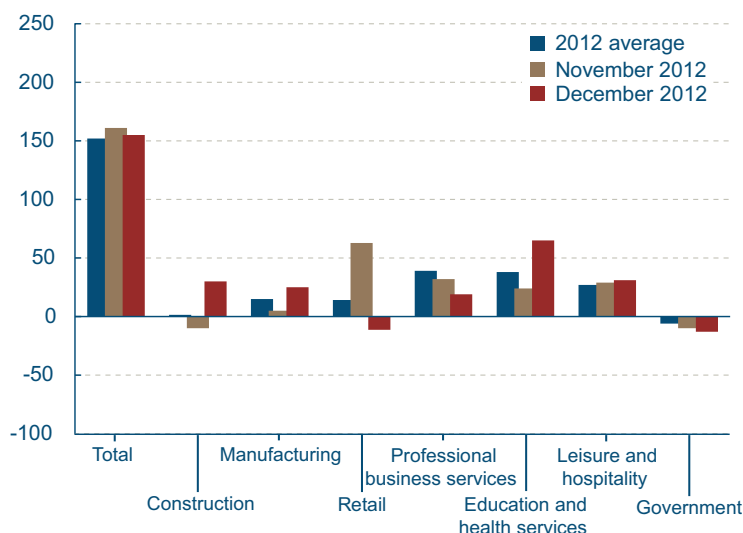
Over the course of the Great Recession and the subsequent recovery (2007:12-2012:12) the education and health services sector has expanded by almost 2 million jobs (10.7 percent), while the rest of economy has lost 5.9 million jobs and remains 5 percent below pre-recession employment levels. In fact, there was only one month in the entire period where education and health services actually showed negative employment growth.

The education and health services sector is composed of three distinct parts—private educational services (including private elementary, secondary, and higher education institutions; trade and technical schools; and other instructional services), healthcare (including doctor's offices, hospitals, nursing home facilities, outpatient services, and diagnostic laboratories) and social assistance (including family services, emergency services, and day care services). Educational services make up 16.3 percent of the sector, healthcare accounts for 70.7 percent, and social assistance contains the remaining 13.0 percent of employment. It is important to emphasize that educational services represent private employers and do not reflect state and local government employees providing educational services.

Each industry within the broad sector grew over the last five years, with education expanding at the highest rate (12.2 percent) and social assistance growing at a somewhat slower rate (7.8 percent). Still, because of its overall size, healthcare industries

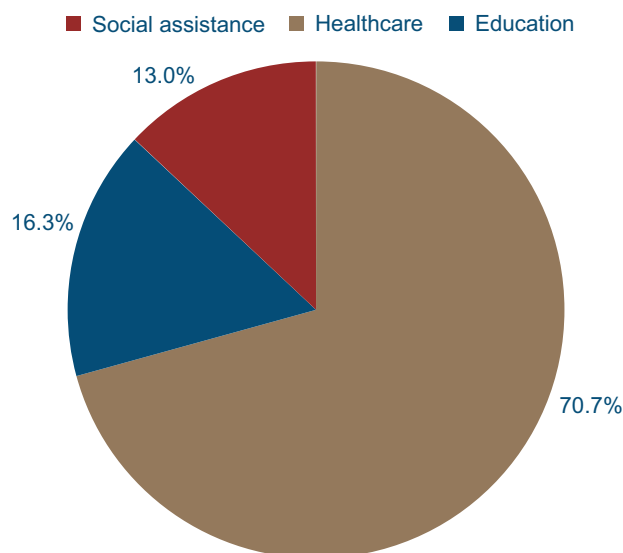
Payroll Employment: December 2012

Monthly change, thousands of workers



Source: Bureau of Labor Statistics.

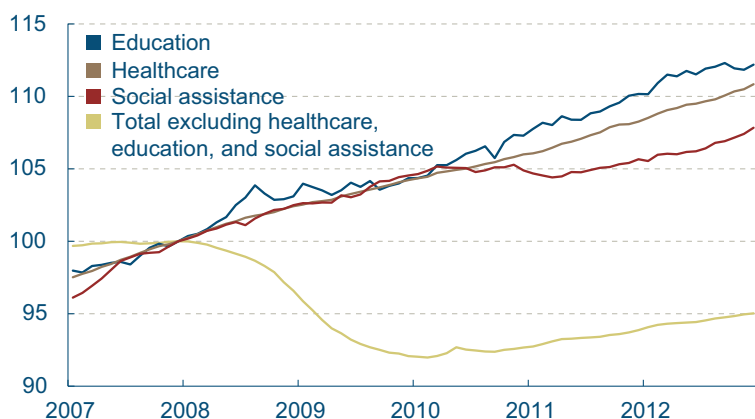
Education and Health Services' Share of Sector Employment, 2012



Source: Bureau of Labor Statistics.

Education, Health Services, and Total Employment

Index, 12/2007 = 100

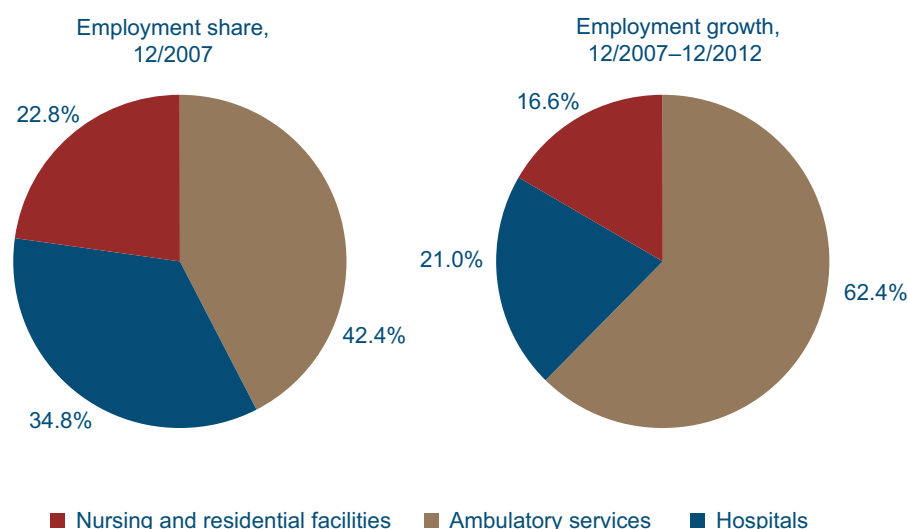


Source: Bureau of Labor Statistics

have added the greatest amount of employment over the period, roughly 1.4 million jobs (a 10.8 percent rise). Within the healthcare industry, the largest gains have come in ambulatory care services. These services include doctor's offices, outpatient services, and home healthcare services, and over the five-year period, ambulatory care industries employment expanded by 15.9 percent. This rate of growth was only slightly below the rate from the prior five-year period of 17.9 percent, so the recession did not slow the growth of ambulatory care services by very much.

Hospital employment expanded but by a much slower rate of 6.6 percent over the period. Part of the slower expansion likely reflects the fact that hospital groups have been substituting outpatient

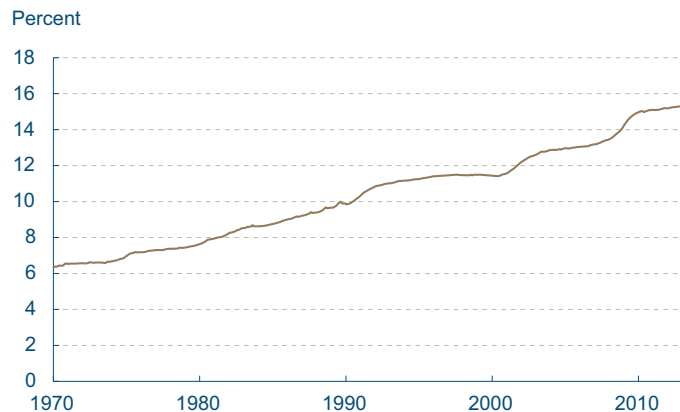
Healthcare Employment Growth Breakdown



Source: Bureau of Labor Statistics.

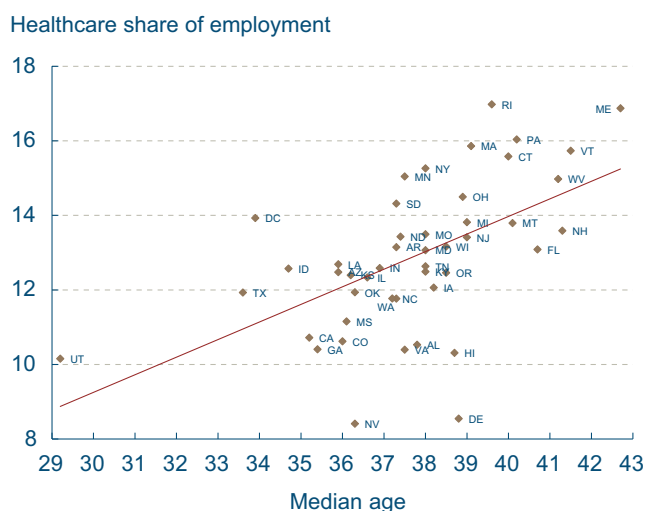
services for traditional inpatient services. These outpatient services are increasingly performed in nonhospital establishments—though clearly, hospitals can also perform a range of outpatient services. Employment in outpatient services (NAICS 6214) has grown by over 29 percent since the end of 2007, making it one of the fastest-growing subindustries within healthcare services. Home healthcare is another rapidly growing subindustry, increasing 30.8 percent over the past five years. In fact, home healthcare has grown 7.1 percentage points faster in the most recent five years than

Education and Health Services' Share of Total Employment



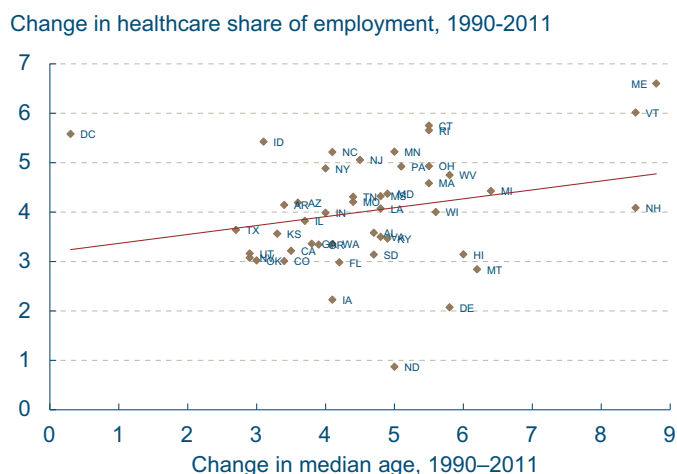
Source: Bureau of Labor Statistics.

Median Age and Healthcare Employment Share, 2011



Sources: Bureau of Labor Statistics; Census Bureau.

Change in Median Age and Healthcare Employment Shares



Sources: Bureau of Labor Statistics; Census Bureau.

it had in the previous five years. Finally, nursing and residential care facilities expanded by 7.9 percent over the last 5 years.

Looking back over the longer term, there has been a steady rise in the employment share of education and health services industries. In 1970 these industries employed a little more than 6 percent of U.S. workers. Currently, these industries employ 15.3 percent of all workers, and as noted above, the majority of these are employed in healthcare industries.

This rise in the demand for healthcare workers is related to a number of factors including demographic trends. States with relatively old populations have a higher share of their employment in healthcare industries, and states that are growing older have tended to experience a rise in the share of workers employed in healthcare industries. It is very likely that the demand for healthcare workers will continue to increase as the baby boomer generation ages. Still other factors will affect the growth of healthcare employment, including healthcare finance, technology, and the supply of healthcare professionals.

The Bureau of Labor Statistics (BLS) projects that employment in healthcare and social assistance will continue to grow at a much faster pace than the rest of the economy, resulting in a net gain of 5.6 million jobs between 2010 and 2020. This is projected to account for almost 30 percent of nonfarm payroll employment growth over the decade.

Yield Curve and Predicted GDP Growth, December 2012

Covering November 24–December 14, 2012
by Joseph G. Haubrich and Patricia Waiwood

Highlights

	December	November	October
3-month Treasury bill rate (percent)	0.07	0.09	0.10
10-year Treasury bond rate (percent)	1.69	1.67	1.79
Yield curve slope (basis points)	162	158	169
Prediction for GDP growth (percent)	0.6	0.6	0.6
Probability of recession in 1 year (percent)	8.6	9.2	8.2

Sources: Board of Governors of the Federal Reserve System; authors' calculations.

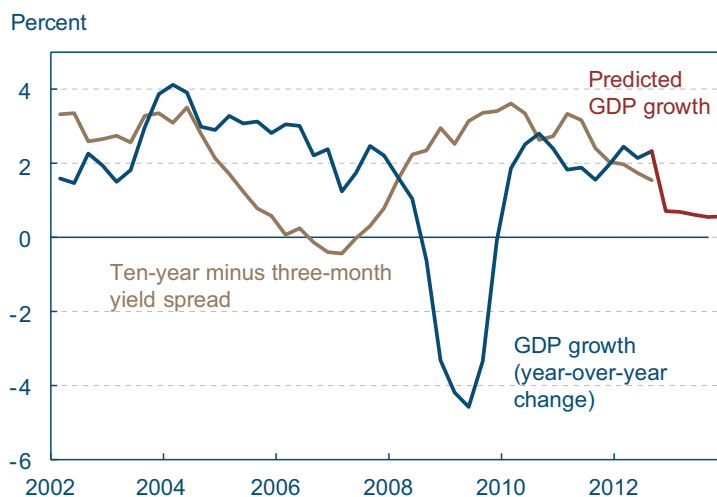
Overview of the Latest Yield Curve Figures

Over the past month, the yield curve has gotten slightly steeper, with long rates edging up and short rates edging down. The three-month Treasury bill fell to 0.07 percent (for the week ending December 14) down from November's 0.09 percent, itself just down from October's 0.10 percent. The ten-year rate, at 1.69 percent, is up a scant two basis points from November's 1.67 percent, but still remains a full ten points below October's 1.79 percent. The slope increased to 162 basis points, up four basis points from November's 158, but still down from the 169 basis points seen in October.

The steeper slope was not enough to have an appreciable change in projected future growth, however. Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 0.6 percent rate over the next year, even with both October and November. The strong influence of the recent recession is still leading towards 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.

The slope change had a bit more impact on the probability of a recession. 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 December is 8.6 percent, down from November's 9.2 percent, and up a bit from October's 8.2 percent. So although our approach is somewhat pessimistic with regard to the level of growth over the next year, it is quite optimistic about the recovery continuing. We're not sure if that lower chance of a recession counts as a gift from Santa, but we'll take it.

Yield Curve Predicted GDP Growth



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

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 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.

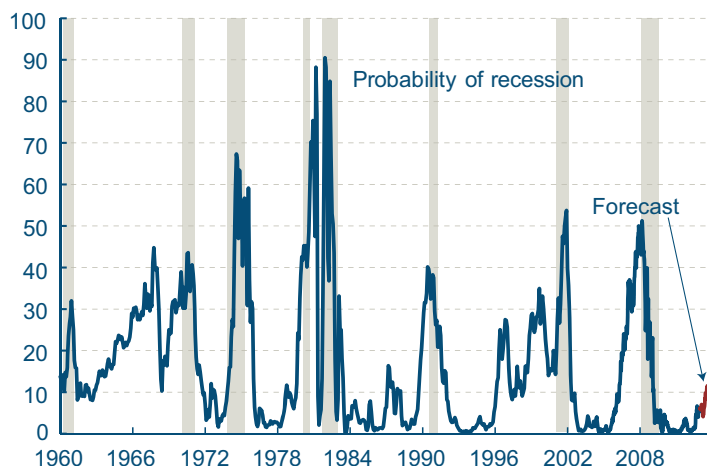
Predicting the Probability of Recession

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 numbers 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 materi-

Recession Probability from Yield Curve

Percent probability, as predicted by a probit model

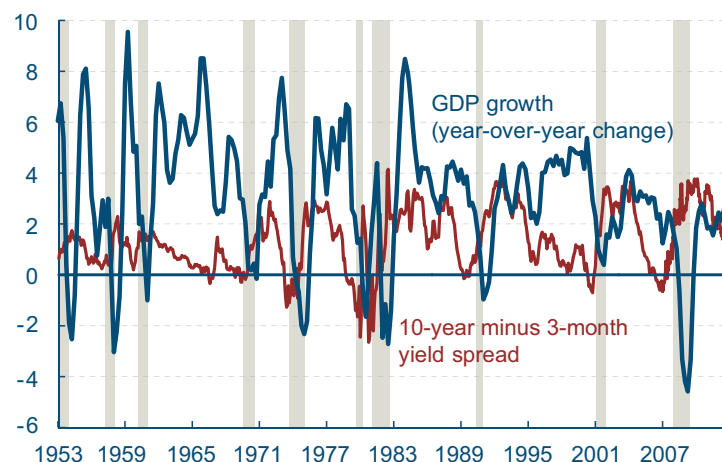


Note: Shaded bars indicate recessions.

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

Yield Curve Spread and Real GDP Growth

Percent

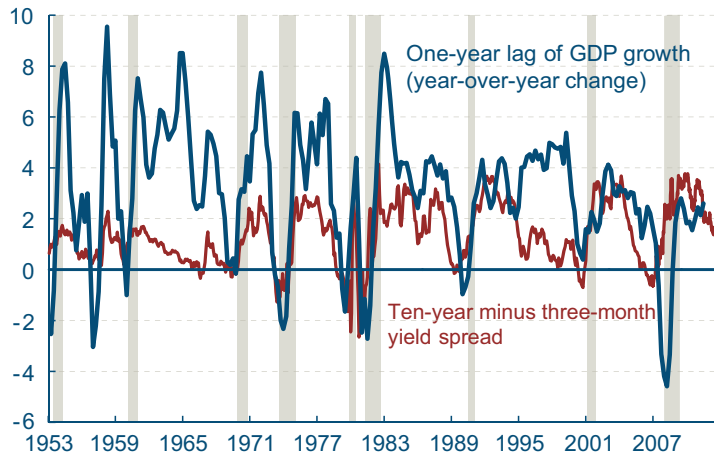


Note: Shaded bars indicate recessions.

Source: Bureau of Economic Analysis, Federal Reserve Board.

Yield Spread and Lagged Real GDP Growth

Percent



Note: Shaded bars indicate recessions.

Sources: Bureau of Economic Analysis, Federal Reserve Board.

ally 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.

By Most Measures, Changes in District Employment Are Closely Following the U.S. Average

01.09.13

by Guhan Venkatu

At the national level, the Labor Department tracks employment using two different surveys. One survey asks business establishments how many people they employ, while the other asks households how many individuals in the home have jobs. Differences in the sample size of each survey and the way they define employment can lead to different estimates for employment. For instance, someone who holds two jobs will show up once in the household survey, but twice in the establishment survey. The establishment survey also can't capture self-employed individuals.

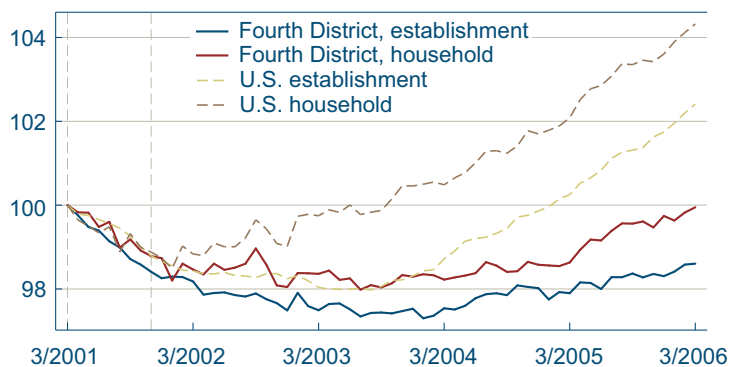
Subtle differences such as these can lead the two series to diverge, especially at transitions in the business cycle. This is evident in the recovery that followed the 2001 recession.

In the most recent recovery, the two series also began to diverge somewhat around the beginning of 2009. A roughly 1 percentage-point gap has persisted since.

For regions within the country, employment measures can be constructed that are conceptually similar to each of the national series. Establishment- and household-based measures for the Fourth District have followed the U.S. measures closely. Toward the end of last year, the establishment-based measures for the U.S. and Fourth District were about 3 percent below their respective December 2007 levels, when the recession began. For the household-based measures, employment in both the U.S. and the District was about 2 percent below December 2007 levels. (Technical note: The smallest geographic area for which establishment-concept employment measures are available is the metropolitan area. Accordingly, the District measure aggregates employment from metropolitan areas that are fully or partially contained in the District, but excludes employment from nonmetropolitan areas.)

Employment during the 2001 Recession and Recovery

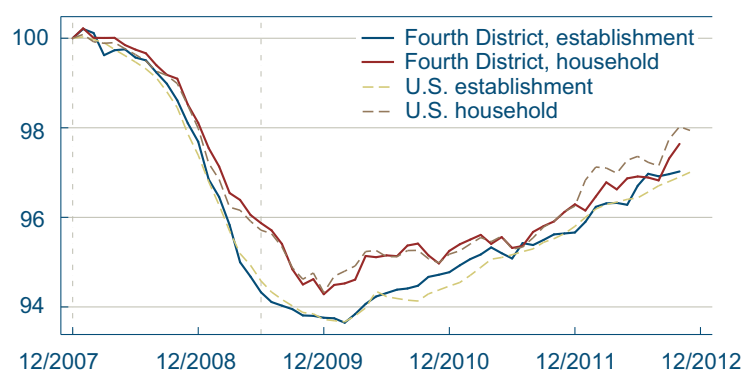
Index, March 2001 = 100



Note: Dashed lines identify business cycle turning points.
Source: Bureau of Labor Statistics.

Employment during the 2007-2009 Recession and Recovery

Index, December 2007 = 100



Note: Dashed lines identify business cycle turning points.
Source: Bureau of Labor Statistics.

It is a little surprising that changes in District employment have so closely followed the national pattern, especially in light of the 2001 recession and recovery episode. Over the roughly five-year span following the business-cycle peak in March 2001—about the same amount of time that has elapsed since the start of the last recession in December 2007—national and District employment measures exhibited much different growth trajectories. Either type of employment measure suggested that the District had seen employment growth that was about 4 percentage points lower than the nation's over this period.

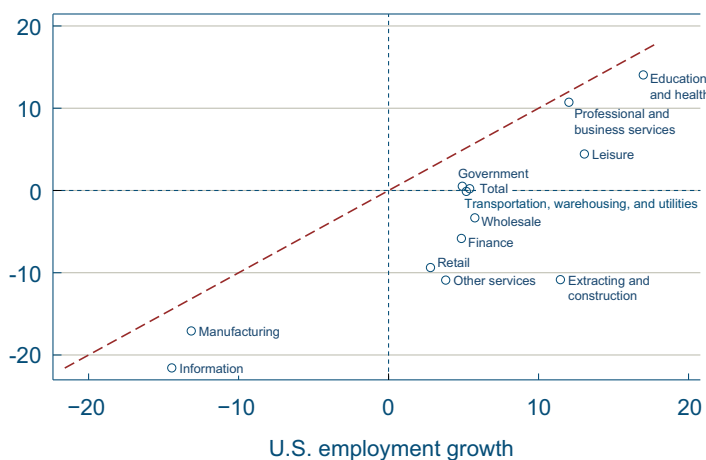
The weaker employment recovery that the District experienced in the 2000s—adding almost no net new jobs during the expansion—was broad based. Essentially every major industry group grew its payrolls faster (or reduced them less aggressively) outside of the District. Employment in industries like education and health care, professional and business services, and leisure grew in the District, but more slowly than outside of the District, while manufacturing and information shed proportionately more workers here. Perhaps most notable is the collection of industries in which employment shrank here but grew in the rest of the country—among which were wholesale and retail trade, extraction and construction, and financial services.

In the current recovery, this pattern has so far not arisen. Instead, there are minor differences in employment growth across industries, with the District sometimes faring better and adding proportionately more workers than the rest of the country, and sometimes not. On balance, the overall change in the establishment-based measure is nearly identical in the District and the nation, rounding to 2.7 percent in both cases.

The very even recent performance suggested by the foregoing comparison of household- and establishment-type employment measures, as well as by the comparison of employment changes across industries during the recovery, is contradicted by the District's unemployment rate. As of October, the latest month for which these data are available, the District's unemployment rate was almost a full percentage point lower than the national aver-

Employment Gains by Sector, 11/2001–12/2007

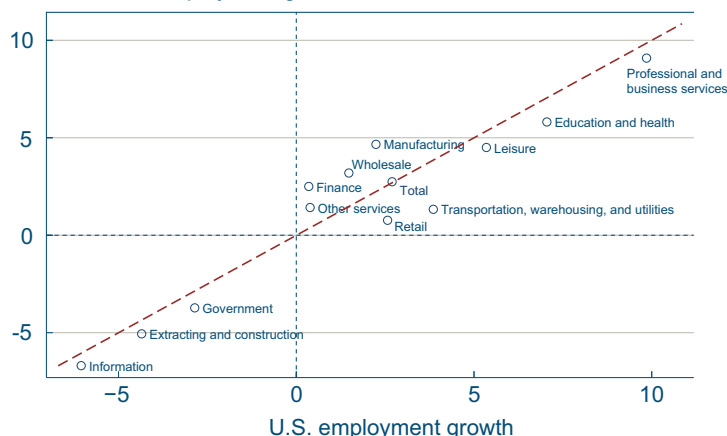
U.S. employment growth



Note: Dashed red line shows 45-degrees.
Source: Bureau of Labor Statistics.

Employment Gains by Sector, 6/2009–10/2012

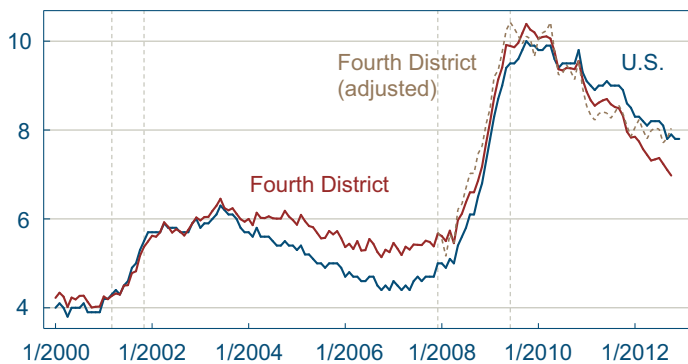
Fourth District employment growth



Note: Dashed red line shows 45-degrees.
Source: Bureau of Labor Statistics.

Unemployment Rate

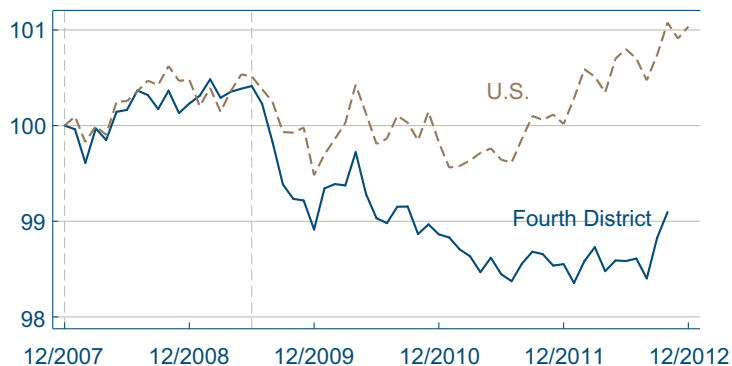
Percent of labor force



Note: Dashed lines identify business cycle turning points.
Source: Bureau of Labor Statistics.

Labor Force During Recession and Recovery

Index, December 2007 = 100



Note: Dashed lines identify business cycle turning points.
Source: Bureau of Labor Statistics.

age—7.0 percent versus 7.9 percent. (The most recent estimate for the U.S. rate is 7.8 percent for December.)

The rates began to diverge in the summer of 2010, and since the summer of 2011, the District's rate has been at least half a percentage-point lower than the national average. How could this be the case, when the household-based employment measures, which are used to calculate the respective unemployment rates, have behaved so similarly? The answer is that the labor force in the Fourth District has followed a different path during the recovery than the nation's labor force. Just as that gap began to widen in the middle of 2010, so too did the unemployment rates. If the District's labor force had followed the same path as the national labor force since December 2007—that is, changed in proportionately the same way since—the two unemployment rates would be almost equal—8.0 percent in October for the District and 7.9 percent for the U.S.

That the divergence between the District's unemployment rate and the national average is being driven largely by labor force declines should give us pause. These declines aren't indicative of a strong labor market. Accordingly, it would be inappropriate to interpret the District's below-average unemployment rate as suggesting as much. Alternatively, perhaps the District's labor force is simply being mismeasured and is tracing a path more like what we're seeing for the nation. In that case, the District looks like an average performer, rather than an above-average performer. Either way, the District's unemployment rate should be interpreted with caution.

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