

Economic Trends

August 2012 (July 12, 2012-August 9, 2012)

In This Issue:

Banking and Financial Markets

- A Slow Recovery in the Banking Sector

Growth and Production

- Is Moderate Growth the New Normal?

Households and Consumers

- A Tale of Two Types of Credit

International Markets and Foreign Exchange

- Troubled Waters and the Bank of England's Funding for Lending Scheme

Labor Markets, Unemployment, and Wages

- Beyond the Unemployment Rate: Long-term Unemployment

Monetary Policy

- The Evolving State of the Fed's Security Holdings
- Yield Curve and Predicted GDP Growth, July 2012

Regional Economics

- Municipal Borrowing Trends in the Fourth District
- A Look at Ohio's Foreign-Born Population

FEDERAL RESERVE BANK
of CLEVELAND

A Slow Recovery in the Banking Sector

07.16.2012

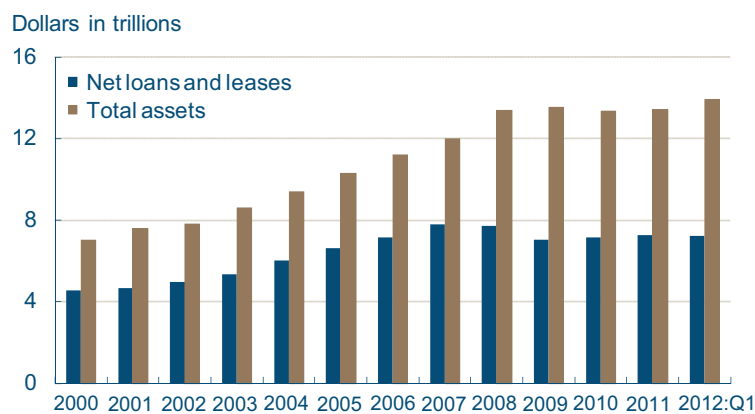
by Matthew Koepke

Ever since the National Bureau of Economic Research called an end to the Great Recession in June 2009, the U.S. banking system has been engaged in a slow and fragile recovery. The most recent data from the Federal Deposit Insurance Corporation (FDIC) shows that while the system is on the mend, FDIC-insured institutions still face headwinds. According to the FDIC, after growing at an average quarterly rate of 1.0 percent through 2011, asset growth at FDIC-insured institutions slowed to 0.3 percent in the first quarter 2012. However, total growth in 2011 (3.8 percent year-over-year) was not driven by growth in net loans and leases. They grew only 2.8 percent over the same period. Moreover, balances of net loans and leases fell for the first time in three quarters, falling 0.7 percent in the first quarter of 2012.

In addition to slow loan growth, the continued elevated level of problem banks points to a fragile recovery in the banking sector. According to the FDIC, year-to-date there are 772 problem banks, with assets of \$292 billion, already close to figures for all of 2011—813 problem institutions with \$319 billion in assets. These problem banks represent banking institutions with substandard risk scores. After peaking in 2010, the number of problem banks has steadily declined but still remains significantly above the pre-recession levels seen in 2007.

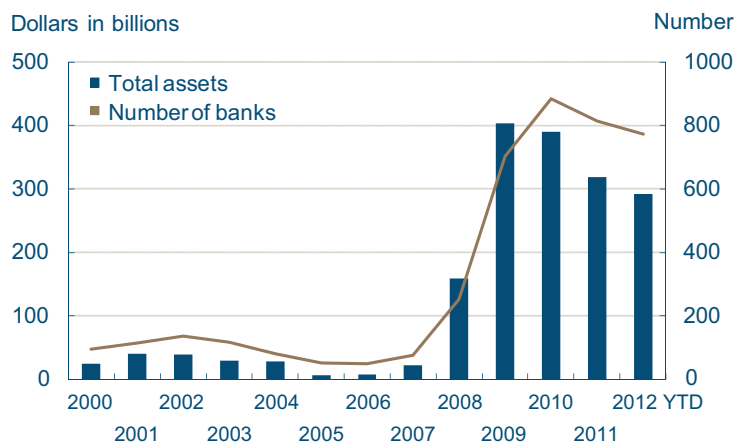
Contributing to the slow recovery in the banking sector is the high level of nonperforming loans (loans 90 days or more past due or nonaccruing). Prior to 2008, nonperforming loans averaged 1.1 percent of total loans; however, since 2008 nonperforming loans have averaged 4.3 percent of all loan balances. Nonperforming loans peaked in 2009 at \$396 billion, representing 5.4 percent of total loans and leases. While nonperforming loans declined in 2010 and 2011, they have held steady in the first quarter of 2012 at \$305 billion, representing 4.1 percent of total loans.

Assets and Loans of All FDIC Insured Institutions



Source: FDIC.

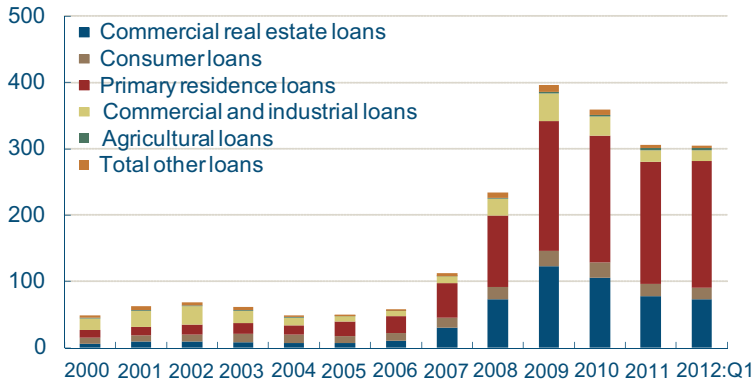
Number of Problem Banks and Total Assets



Sources: FDIC, Haver Analytics.

Loans 90 Days Past Due and Non-Accruing

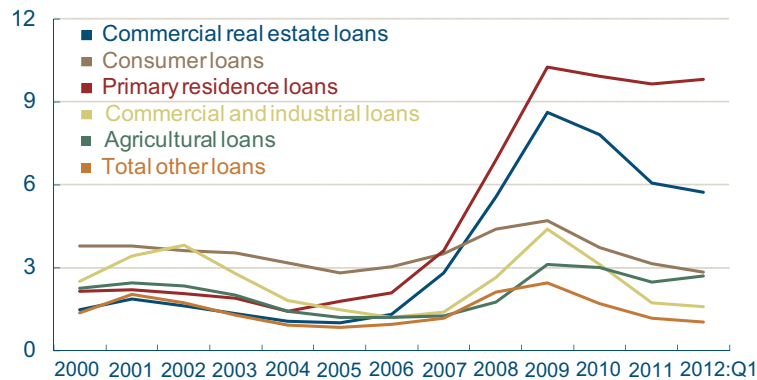
Dollars in billions



Source: FDIC.

Non-Current Loan Rates

Percent

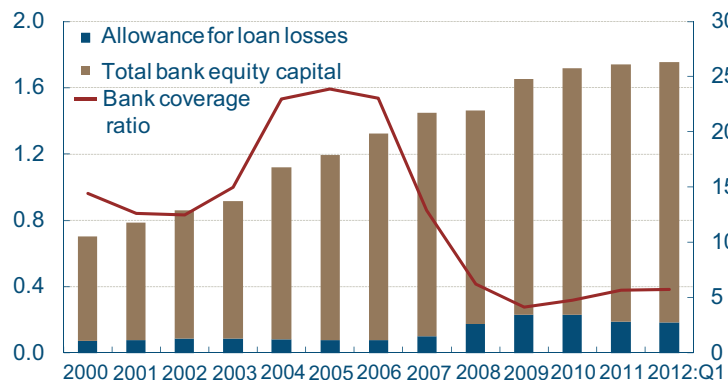


Source: FDIC.

Bank Coverage Ratio

Dollars in trillions

Ratio



Source: FDIC.

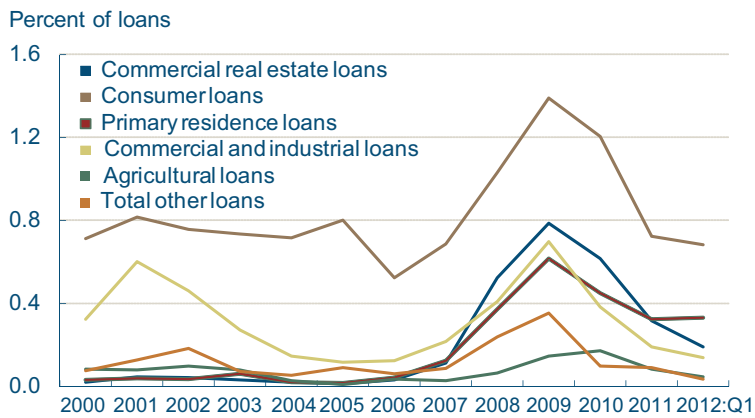
Loans for primary residences continue to make up the largest share of nonperforming loans, accounting for 63.0 percent of the total. Furthermore, over the past quarter, the amount outstanding on primary residence loans that are nonperforming has risen 4.1 percent to \$192 billion. Comparatively, with the exception of agricultural loans, nonperforming loans have fallen for every other loan category. In the face of continued weakness in the housing sector it is likely that the level of nonperforming primary residence loans will at best decline slowly.

The slow decline in nonperforming loans has caused noncurrent loan rates to remain persistently high. Noncurrent loan rates represent all loans that are past due as a percent of total loans. Not surprisingly, real estate loans are the largest contributors to total noncurrent loans, with commercial real estate and primary residence loans accounting for 83 percent of all noncurrent loans in the first quarter of 2012.

Primary residence loans accounted for the largest proportion of noncurrent loans, representing 61 percent of the total. Moreover, it is most likely will remain high. After declining 60 basis points from 2010 to 2011, noncurrent rates increased 20 basis points in the first quarter of 2012 to 9.8 percent. Out of all the loan categories, primary residence and agricultural loans were the only to loan categories to see an increase in noncurrent loan rates. Further signs that the banking recovery may be faltering is that while noncurrent loan rates have been improving for nearly all loan categories, the rate of improvement appears to be slowing down. The longer noncurrent loan rates remain elevated, the more fragile the recovery will be for the banking sector.

For nearly all loan categories, losses as represented by net charge-offs (loans charged-off less recoveries) as a percent of loans declined in the first quarter of 2012. Net charge-offs have fallen the most for commercial real estate loans, which declined 13 basis points in the first quarter of 2012. Overall, net charge-offs have declined modestly despite improvements across nearly all loan categories—declining 5 basis points from 0.34 percent of total loans to 0.29 percent. The decline in net charge-offs

Net Charge-Offs



Source: FDIC.

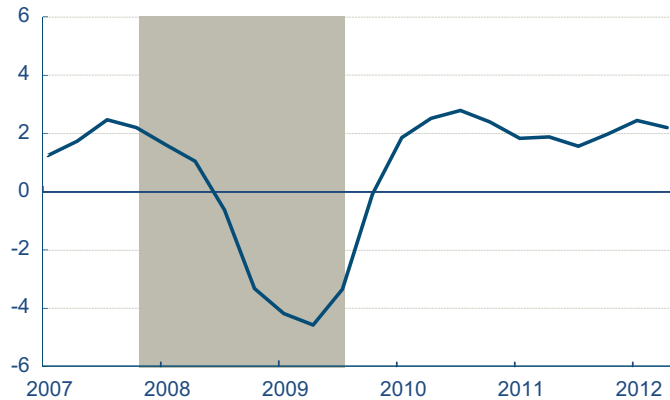
in most loan categories has been offset by modest increases in primary residence loan net charge-offs, which rose 1 basis point to 0.33 percent, and agricultural loan net charge-offs. Like noncurrent loan rates, net charge-offs have been improving overall; however, the rate of improvement appears to be slowing, suggesting that the recovery in the banking sector may be slowing.

Despite the fact that nonperforming loans, noncurrent loan rates, and net charge-offs remain elevated, banks' abilities to absorb future losses have not improved significantly. In 2009, the coverage ratio, which is the ratio of nonperforming loans to loan-loss reserves and equity capital, plummeted to 4.2 from a decade high of 23.0 in 2006. The coverage ratio has improved slightly since 2009, increasing to 5.7 at the end of 2011. Through the first quarter of 2012, the coverage ratio stood at 5.7, far less than the average coverage ratio of 13.2 seen over the last decade. Given that problem loans continue to haunt FDIC-insured institutions and these institutions have not improved their ability to deal with the further deterioration of their balance sheets, it is unlikely that we will see a speedy recovery in the banking sector soon.

Is Moderate Growth the New Normal?

Real GDP

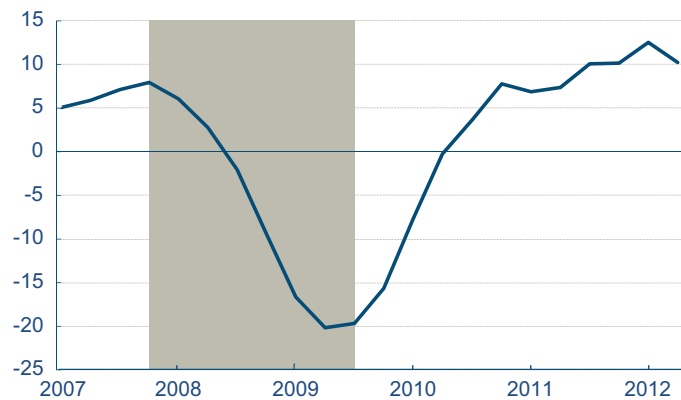
Four-quarter percent change



Note: Shaded bar indicates a recession.
Source: Bureau of Economic Analysis.

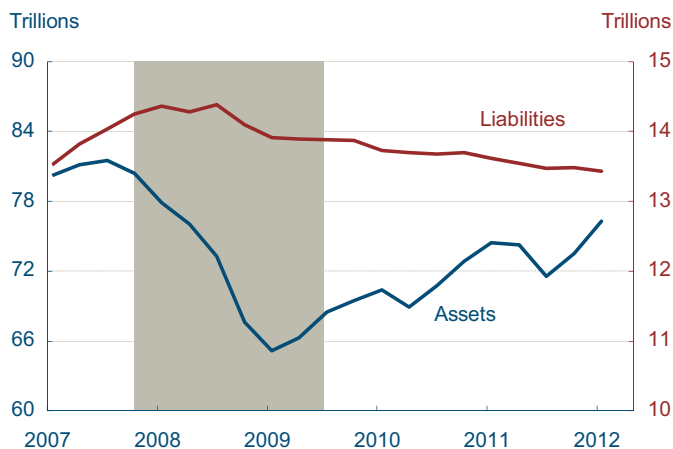
Real Business Fixed Investment

Four-quarter percent change



Note: Shaded bar indicates a recession.
Source: Bureau of Economic Analysis.

Household and Nonprofit Assets and Liabilities



Note: Shaded bar indicates a recession.
Source: Federal Reserve Board.

08.09.12

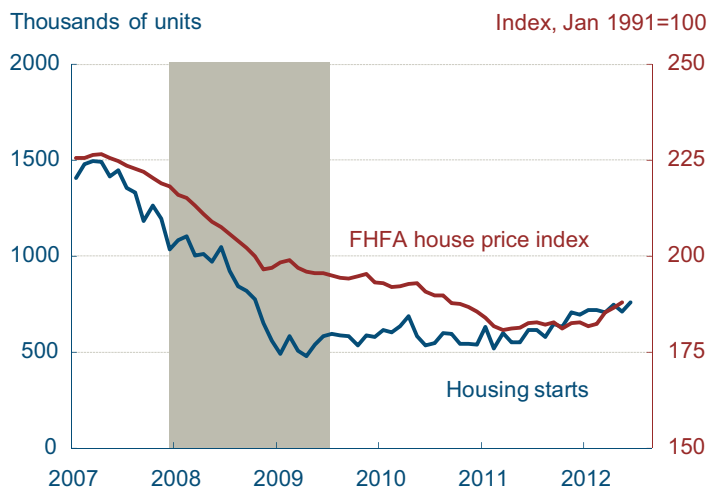
by Margaret Jacobson and Filippo Occhino

Since the end of the recession, the economy has expanded at a slow pace. Recently revised data show that real GDP grew 2.5 percent in the first year of recovery, slowed to a 1.9 percent pace in the second year, and settled to a 2.2 percent growth rate in the third. The economy missed out on the period of rapid recovery that typically follows business cycle troughs, and it has been growing quite steadily at rates lower than in past expansions. We examine the factors behind these subpar growth rates and present some evidence that moderate growth may be the norm going forward.

The current slow pace of expansion is the result of several factors pushing the economy in opposite directions. Factors that are moving the economy forward include high investment growth and stronger household balance sheets. Business fixed investment grew 10.3 percent in the last year, accelerating in the last several quarters. High rates of investment growth were fueled by solid profits and favorable bond finance conditions. Households made substantial progress deleveraging. Households' ratio of debt to assets declined from a 21.3 percent peak during the recession to the current 17.6 percent, as households reduced their liabilities, while their assets recovered. With stronger balance sheets, households were able to reduce their saving rate from levels above 5 percent to 4 percent, more in line with pre-recession levels, and this lifted one constraint on their spending.

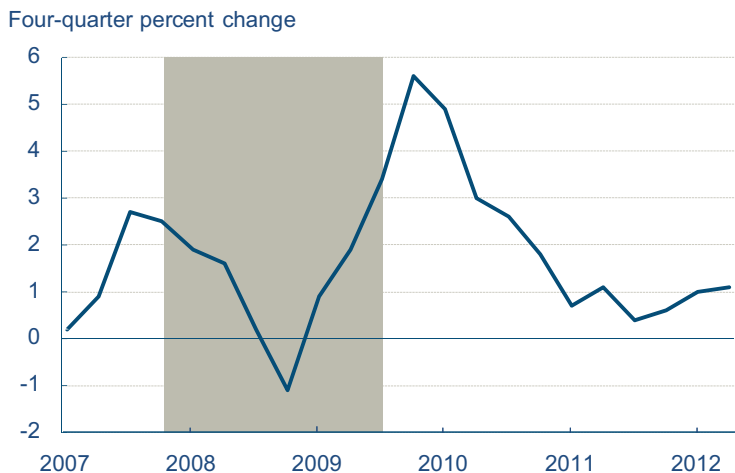
For all of the improvement in business spending and household balance sheets, other factors continue to weigh down the expansion. The labor market remains weak, with slow employment growth and high unemployment, and this constrains household income and spending. The housing sector remains depressed and continues to slow down the recovery, although housing activity and prices suggest that the bottom of the cycle is behind us. Government spending decreased steadily in the last two years, subtracting a total of 1.1 percent from growth.

Housing Starts and Prices



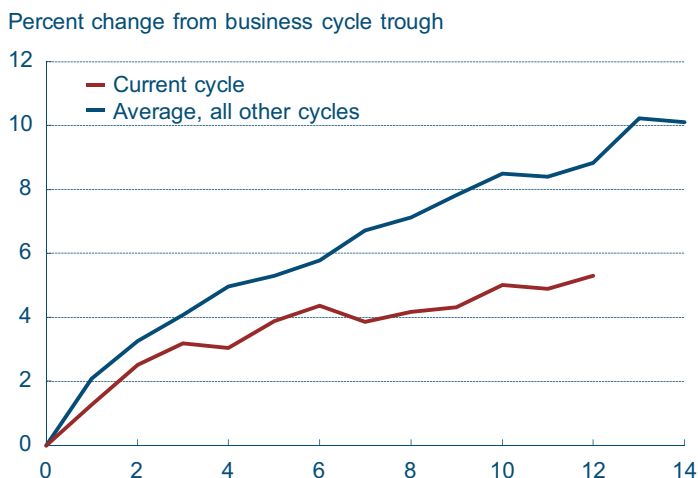
Note: Shaded bar indicates a recession.
Sources: Census Bureau; Federal Housing Finance Agency.

Real Productivity



Notes: Shaded bar indicates a recession. Data are for the nonfarm business sector.
Source: Bureau of Labor Statistics.

Real Productivity



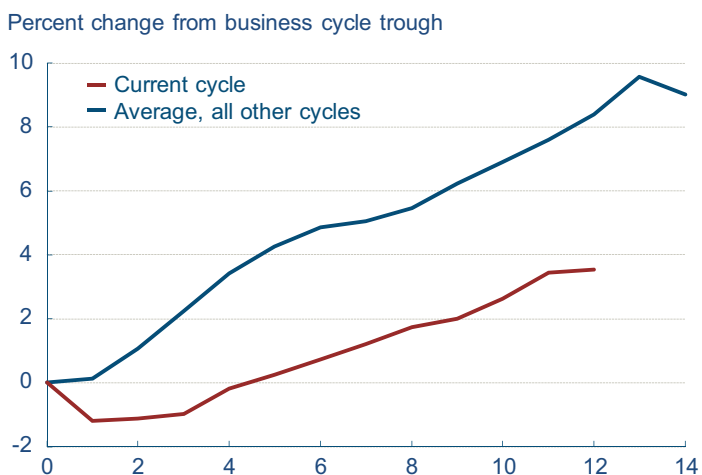
Note: Data are for the nonfarm business sector.
Source: Bureau of Labor Statistics.

Uncertainty over future fiscal policy and financial market conditions continues to constrain aggregate demand as well.

Looking at productivity and hours worked, we find some evidence that the economy has entered a period of normal expansion at moderate growth rates. If we decompose output into its labor and productivity components, we notice that the recovery has followed a quite standard pattern. Typically, in the initial stages of a recovery, productivity grows strongly, as output picks up while employment and hours lag behind. After that, once productivity has reached a relatively high level, the economy enters a period of normal expansion, where hours and productivity return to normal.

This recovery has followed the same pattern, except that the growth rates of hours and productivity have been lower. In the first year after the recession, productivity grew rapidly, while the labor market remained exceptionally weak. Starting in 2010, however, productivity has progressively slowed down, while hours have picked up and grown in line with previous expansions. This pattern suggests that the economy has completed its initial adjustment period and is currently in a period of normal expansion. If that is true, the current subpar growth rates may be indicative of a trend slowdown. Moderate growth may be here to stay.

Hours



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

A Tale of Two Types of Credit

08.02.2012

by Yuliya Demyanyk, Matthew Koepke, and Emily Burgen

Since the financial crisis in late 2008, the level of total real consumer credit outstanding has fallen 4.5 percent. While it has recaptured some of the ground it lost during the recession, growth has not been equally split between revolving and nonrevolving credit, its two components. In fact, while nonrevolving consumer credit—loans for automobiles, mobile homes, trailers, durable goods, vacations, and other purchases—has expanded past its pre-financial crisis levels, revolving credit—credit card balances and balances on unsecured lines of credit—has declined through the economic recovery.

In general, stable employment and strong consumer confidence drives consumer credit. Unfortunately, nonfarm payroll employment continues to dig itself out of the hole created by the recession, and consumer expectations, while improved, remain subdued.

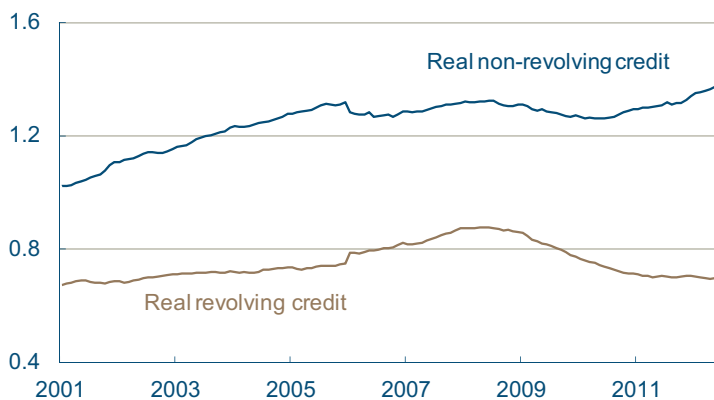
Since October 2010, payroll employment has expanded for 21 consecutive months, adding 3.2 million employees to nonfarm payrolls. Nevertheless, the payroll gains garnered during the past 18 months amount to roughly 40 percent of the jobs lost from the beginning of the recession in December 2007 to its end in June 2009.

Moreover, the shaky employment situation has resulted in subdued consumer expectations. According to the Conference Board's June index of consumer confidence, consumers have low expectations for job and income growth over the next six months. Only 14.1 percent of consumers expect more jobs to become available over the next six months and only 14.8 percent of consumers expect their income to grow.

While slow growth in nonfarm payroll employment and subdued consumer expectations may explain why revolving credit has declined through the economic recovery, they do not explain why nonre-

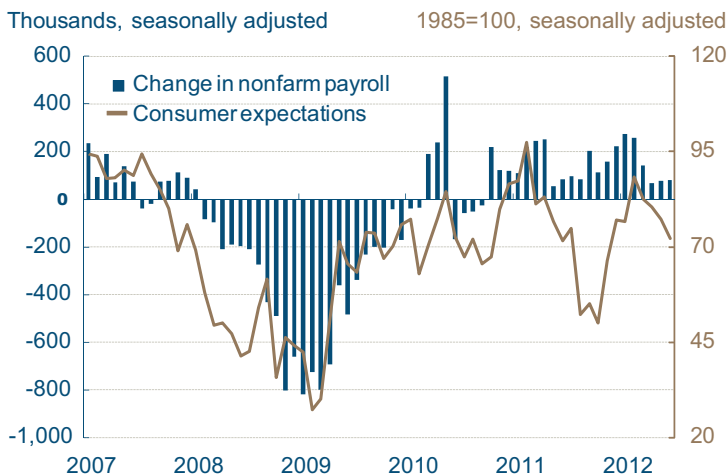
Real Consumer Credit

Dollars in trillions, seasonally adjusted (December 1999=100)



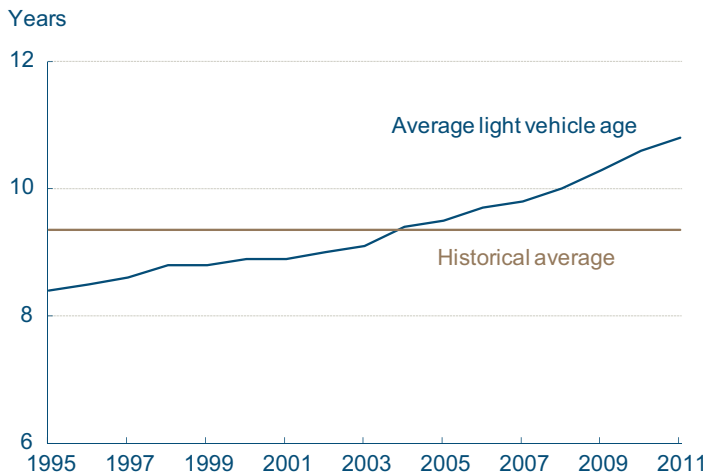
Sources: Federal Reserve Board; Bureau of Labor Statistics; Haver Analytics.

Payroll Employment and Consumer Expectations



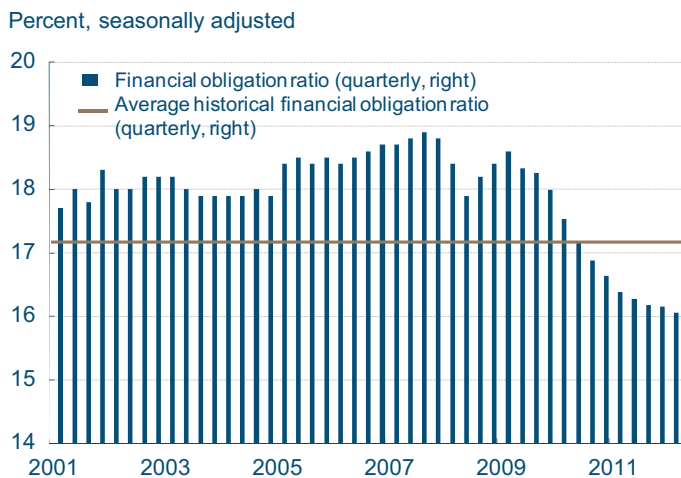
Sources: Conference Board; Bureau of Labor Statistics; Haver Analytics.

Average Light Vehicle Age



Sources: R.L. Polk; Bloomberg.

Household Financial Obligation Ratio



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.

volving credit has expanded. One potential explanation may be that many consumers had to put off the purchase of large-ticket items, such as cars, during the recession, and now they feel comfortable making such purchases. Data suggest that there is pent-up demand for cars. According to R.L. Polk, the average age of light vehicles on the road reached 10.8 years in 2011, a record high since the company began keeping data on vehicle age in 1995. As the economy recovers and consumer balance sheets continue to heal, consumers are likely to replace the durable goods they put off purchasing during the recession.

The household financial obligation ratio suggests that households that put off large purchases during the recession are in a better position to make those purchases now. As of the first quarter of 2012, the ratio, which measures a household's financial obligations relative to its disposable income, has fallen for 12 consecutive quarters to its lowest level since June 1984. Such a low ratio may mean that consumers have repaired their balance sheets to the point where they feel comfortable in financing large purchases again.

Troubled Waters and the Bank of England's Funding for Lending Scheme

08.01.2012

by Owen Humpage and Maggie Jacobson

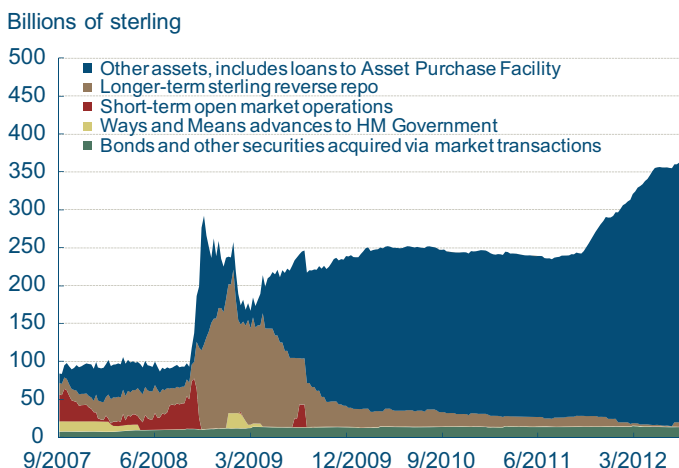
With economies drifting into the doldrums, central banks are looking for ways to hoist more sail. Recently, the Bank of England unfurled its Funding for Lending Scheme, an economic jib of sorts that hopes to spur household and business loans. The Scheme will begin on August 1, 2012, and continue through 2013. Central bankers around the globe are keenly interested.

The Bank of England tacked hard toward stimulus last year as economic conditions began deteriorating. In early July, when the Bank explained the Funding for Lending Scheme, its Monetary Policy Committee also indicated that it would maintain the current policy rate at 0.5 percent and expand its asset-purchase program by £50 billion to £375 billion. A sharp drop in real GDP during the second quarter of 2012 confirms that the United Kingdom has entered a recession, with unemployment already hovering around 8 percent of the labor force, roughly where it's been since 2009, and output still 4.5 percent below its 2008 business-cycle peak. Although inflation has been moderating, it remains above the Bank's 2 percent target rate.

The Funding for Lending Scheme offers low-cost funding to banks that maintain their net lending to households and businesses despite the softening economy. The mechanics involve a collateral swap between a British commercial bank and the Bank of England's Discount Window Facility, in which the commercial bank receives U.K. Treasury bills in exchange for acceptable collateral. The overall value of the Treasury bills that a bank might draw from the facility depends on the amount of outstanding loans that the bank currently holds and the amount of any net new lending that the bank undertakes prior to the Scheme's expiration. The Bank of England will charge an annual fee for the Treasury bills, which will rise should the bank's net lending fall.

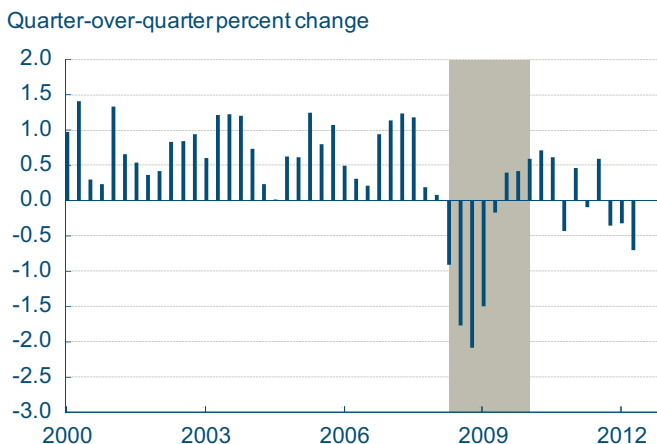
At the outset, participating British banks can claim Treasury bills equal to 5 percent of their outstand-

Bank of England Consolidated Assets



Source: Bank of England.

Real Gross Domestic Product

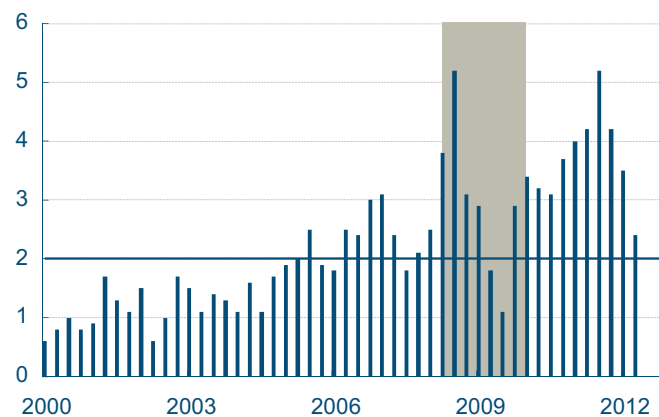


Note: Shaded bar indicates a recession.

Sources: Bloomberg; U.K. National Statistics Office.

Consumer Price Index

Four-quarter percent change



Note: Shaded bar indicates a recession.
Sources: Bloomberg; U.K. National Statistics Office.

ing loans as of June 30, 2012. To do so, a bank must post preapproved collateral with the Bank of England's Discount Window Facility, which then applies a haircut reflecting the collateral's underlying risk and liquidity before discounting its value. In return, the bank receives nine-month U.K. Treasury bills.

After August 1, 2012, and throughout 2013, British commercial banks can acquire Treasury bills through the Scheme, pound-for-pound against any net new lending to the household or private non-financial corporate sectors of the U.K. economy. A 0.25 percent annual fee applies and stays the same as long as the participating bank's net lending does not fall. The fee climbs to a maximum of 1.50 percent should the bank's net lending falls 5 percent or more. Although the draw-down period ends next year, banks can borrow the Treasury bills for as long as four years. A participating bank must roll over the bills when they mature. To avoid a fiscal impact, a bank must return the Treasury bill 10 to 20 days prior to its maturity and before the U.K. Treasury issues a new nine-month bill.

Ideally, banks that receive the Treasury bills can sell them in financial markets—either directly or through repurchase agreements—to finance additional loans. Given current yields on U.K. Treasury bills, well-heeled British banks could finance a new loan at roughly 0.75 percent, which seems low relative to current LIBOR rates. (This calculation, however, does not factor in any Discount Window haircut on the bank's collateral, which could be significant.) Alternatively, a British commercial bank could hold the Treasury bill on its balance sheet, perhaps as a way of building or maintaining liquidity that it finds preferable to other alternatives.

From a central banking perspective, the salient feature of the Bank of England's Funding for Lending Scheme is that it attempts to spur bank lending to the household and business sectors without adding reserves to the banking system. It does not, therefore, pose a direct inflation risk. Traditional monetary policy tools—discount window lending and open-market operations—and many nontraditional methods—quantitative or credit easing—expand a nation's monetary base, the grist of inflation.

Markets seem cautiously optimistic about the British program, and it has piqued policymakers' interest. Still, the Scheme faces a number of uncertainties. For one, it assumes lending is lackluster primarily because banks' profit margins on loans are low, but this premise may be a bit shaky or, at least, incomplete. Alternatively, creditworthy individuals and corporations willing to take on debt may simply be scarce. With economic activity contracting in the United Kingdom and slowing elsewhere, and with forecasters marking down their projections, potential borrowers may be insensitive to small cuts in borrowing costs. Corporations in the United Kingdom—like corporations in the United States—are accumulating cash balances and turning to bond markets when borrowing is necessary. Many banks are still trying to improve their balance sheets by deleveraging, dealing with problem loans, building capital, and improving liquidity. They have generally raised their credit standards. Small cuts in funding costs may not spur a reaction from them. Moreover, the uncertainties surrounding the euro crisis may have heightened the risk aversions on all sides of the market for bank loans.

In the same vein, the Funding for Lending Scheme would seem to provide the biggest subsidy to the weakest banks, those paying a premium for alternative funding sources because of the quality of their balance sheets. While those banks may benefit from holding T-bills on their balance sheets, they may remain reticent about lending, particularly in a dicey economy.

Programs like the Funding for Lending Scheme, which encourage lending to specific segments of the credit market, have a distinct fiscal-policy character, particularly when they leave the monetary base unaltered. To be sure, the Bank of England's target—households and private nonfinancial businesses—is quite broad, but other central banks looking to the Scheme might consider narrower targets, such as the mortgage market, or the student loan market. Central banks that adopt such schemes may create a precedent that, somewhere over the horizon, could infringe on their independence. That could create rough seas, indeed.

For more information on the Bank of England's Funding for Lending Scheme, please visit <http://www.bankofengland.co.uk/markets/Pages/FLS/default.aspx>.

Beyond the Unemployment Rate: Long-term Unemployment

08.06.2012

by Murat Tasci and Emily Burgen

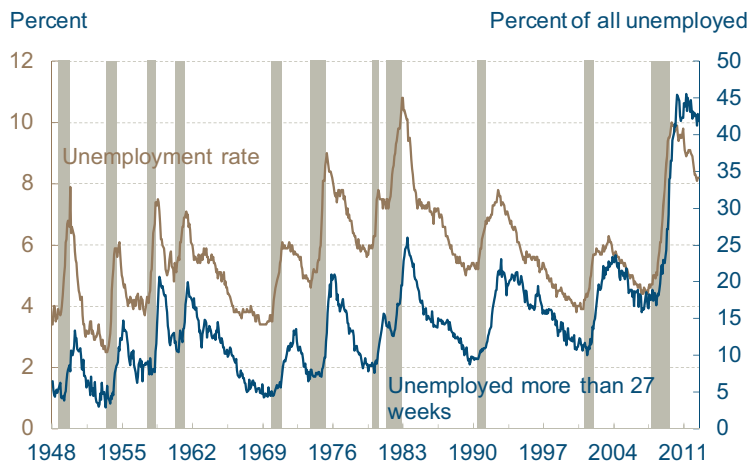
The unemployment rate has been above 8 percent since February 2009, the longest stretch since the 1950s. But what stands out about the current recovery's labor market, beyond the stubbornly high unemployment rate, is the pervasiveness of long-term unemployment. This post describes this problem in detail and explores how it might be related to the persistently high unemployment rate.

The fraction of the unemployed who have been unemployed for more than 6 months exceeded 25 percent in April 2009. It had reached such a high level only once before, in June 1983, after another major recession. Even then, it came back down below that level in a month. In contrast, after increasing steeply to more than 45 percent, this number has now fluctuated somewhat above 40 percent for 31 months. Since most studies find that it gets harder to become employed again as one stays unemployed longer, this exceptionally high level of long-term unemployment might be detrimental to the labor market in the future, if it persists.

The long-term unemployment problem does not seem to be confined to workers in any particular age group, education level, or industry. Even though there are significant differences across these groups in normal times, the fraction of unemployed who are unemployed long-term jumped significantly in all of them.

Consider, for instance, the distribution of the unemployed by age group. We might assume that as workers get older and more experienced, exiting unemployment is harder for them because they are less willing to change industries or occupations. This conjecture seems to be confirmed in the data; in Current Population Survey data from 1976 through last month, the average fraction of long-term unemployed increases with age. The ratio goes from 8.4 percent for 16-19 year olds up to 27.2 percent for workers who are 55 and older. But the ratio jumped significantly during the recession for

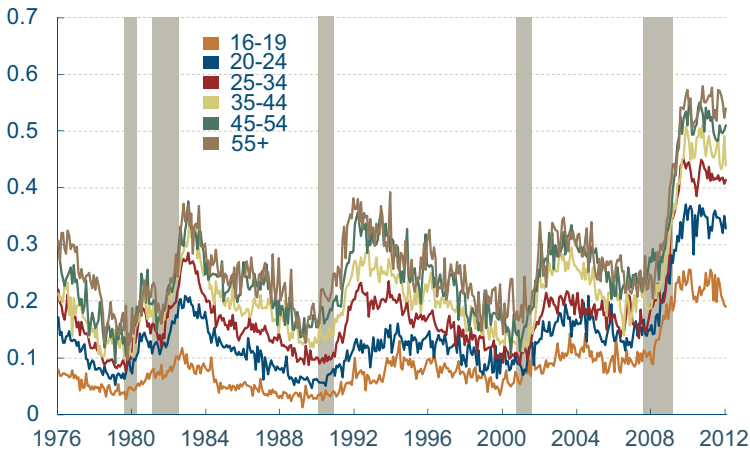
Unemployment Rate and Long-Term Unemployment



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

Long-Term Unemployment by Age

Percent of unemployed 27+ weeks, seasonally adjusted



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

every age group. In fact, the rate almost doubled for most age groups between November 2007 and the last data point in June (that is, just before the official start of the recession and the present). Only two groups fared relatively better, the youngest (16-19 year olds) and workers 35-44 years old, who experienced increases of 77 percent and 93 percent, respectively.

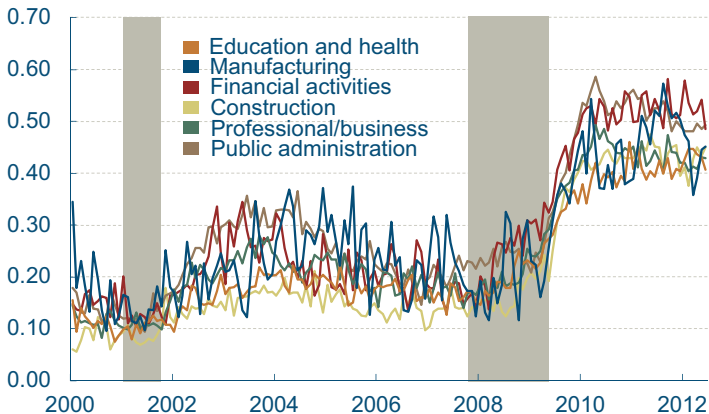
For different levels of education, we have no readily available data on the distribution of long-term unemployment across groups, but recent research suggests a picture similar to that for age groups (see for instance, May 2012's Pew trust report) . Even though long-term unemployment on average is less prevalent among workers with higher education, all education levels have seen substantial increases in the pool of long-term unemployed in this recovery.

We know that the recession has affected certain industries more. Given the problems that occurred in the housing and financial markets, it is natural to think that related industries were more vulnerable to the contraction of economic activity. Looking at the data reveals that, to some extent, this intuition might be warranted. Construction and financial services are two industries that jumped to (and stayed at) higher levels of long-term unemployment relative to their pre-recession levels. The fraction of the long-term unemployed (more than 26 weeks) almost tripled for both. Among workers whose last job was in construction, this ratio increased from 14 percent in November 2007 to more than 40 percent after the recession and stands at 45 percent as of June 2012.

The financial services sector had a similar trajectory, moving from 17 percent long-term unemployment before the recession to more than 40 percent after it, and still the ratio stands at around 49 percent. Even though workers in these two industries seemed to have done worse by these measures, no industry was immune to the problem. In fact, long-term unemployment rates relative to total unemployment were above 40 percent in virtually every sector as of June 2012. Two exceptions were leisure and hospitality and public administration, for which the level fluctuated between 35 percent and 40 percent for most of the last two years (not shown in the figure).

Long-Term Unemployment by Industry

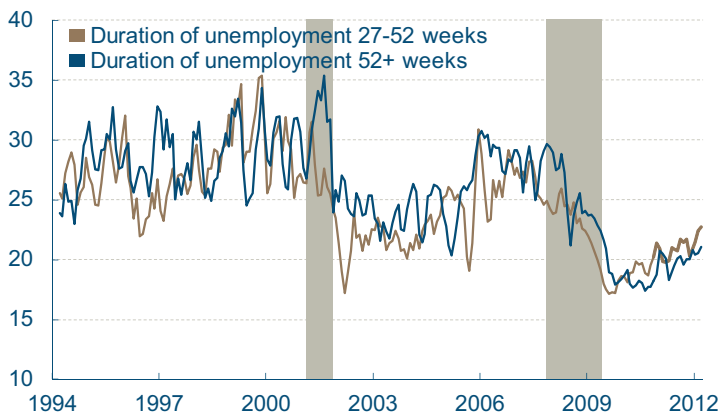
Percent of unemployed 27+ weeks, seasonally adjusted



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

Probability of Leaving Labor Force

Percent, seasonally adjusted

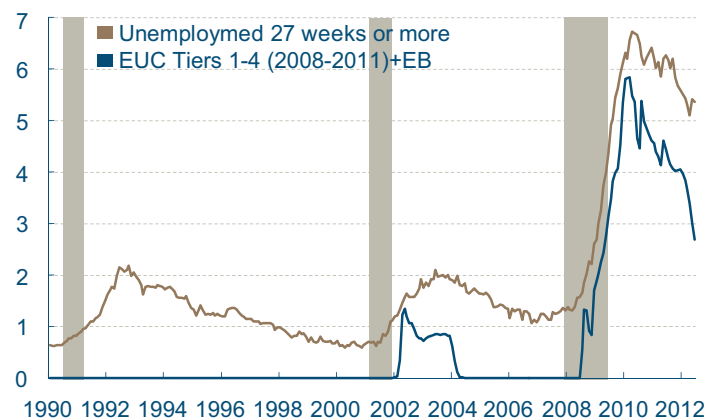


Note: Shaded bars indicate recessions.

Source: Bureau of Labor Statistics; Haver Analytics; 3-month moving average.

Long-Term Unemployed and Emergency Unemployment Compensation

Millions



Note: Shaded bars indicate recessions.

Sources: Department of Labor; Bureau of Labor Statistics.

Individuals in the long-term unemployment pool can exit unemployment in two different ways: by finding a job or dropping out of the labor force altogether. Workers in the second group are sometimes referred to as “discouraged workers.” Both of these transitions will unambiguously reduce the size of the unemployment pool. Note that, all things equal, the unemployment rate will decline further if the transition is into employment rather than out of the labor force.

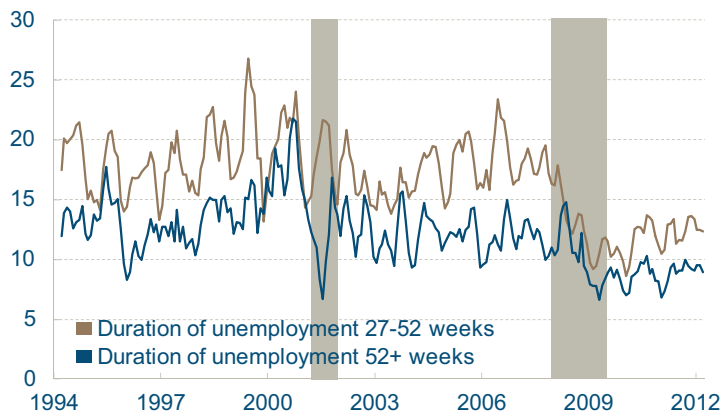
In general, workers who have been unemployed long-term are more likely to drop out of the labor force than to find a job, but this time around they have stayed unemployed longer than usual without making a transition out of the labor force. For instance, the probability of leaving the labor force for workers who have been unemployed for more than a year declined from around 30 percent to 20 percent and has not returned to its pre-recession level. Those who have been unemployed between 6 months and a year also showed a similar behavior. The longer time spent in the labor force for this latter group is due, at least partially, to the fact that it probably now includes greater numbers of workers who are more attached to the labor market than it did in the past. Since the last recession was the deepest and one of the longest among post-WWII recessions, it has affected all segments of the labor force, even workers who traditionally had more stable employment histories.

Meanwhile, the long-term unemployed are having a hard time finding work. Consider the reemployment probability for those who have been unemployed for 27 to 52 weeks. The average probability of reemployment has declined from about 20 percent prior to the recession to around 12 percent as of April 2012, the last data point we have. For those with longer durations of unemployment, the probability of reemployment is even lower, barely 10 percent. Hence we have slightly less than half of all the unemployed workers struggling to find jobs but not giving up the hope for finding one, which keeps the unemployment rate relatively high.

One important channel blamed for the high unemployment rate that might be consistent with these observations on the long-term unemployed

Probability of Reemployment

Percent, seasonally adjusted



Note: Shaded bars indicate recessions.

Source: Bureau of Labor Statistics; Haver Analytics; 3-month moving average.

is the availability of Emergency Unemployment Compensation (EUC). EUC was introduced in the midst of the recession to alleviate the financial burden on unemployed workers. Similar extended unemployment benefits have been legislated in other troubled economic times, but EUC has the distinctive feature of providing some form of insurance potentially up to 99 weeks (for the details see a previous *Economic Trends* article: *Emergency Unemployment Compensation and Long-term Unemployment*).

Economic theory suggests that the availability of such incentives subsidizes unemployment by discouraging workers from taking up job offers they might otherwise accept and keeping them in the labor force. This theory is certainly consistent with the low probability of reemployment and exit into nonparticipation that we observe for the long-term unemployed, who are the most likely to have been on the EUC rolls. If this is the true cause, we should expect to see the long-term unemployed start to make transitions to either employment or nonparticipation as their EUC benefits expire. Both of these transitions will reduce the unemployment pool, all things equal.

We don't have a direct test of this hypothesis, but looking at the gradual change in the number of workers on EUC and those who are unemployed more than six months suggests that, at least to some extent, reality might be different. Since March 2010, when EUC beneficiaries peaked at 5.8 million, long-term unemployment has declined by almost 1.2 million, whereas the number of unemployed workers on EUC has declined by almost 3.2 million.

For more information on The Pew Charitable Trusts' *Pew Fiscal Analysis Initiative*, May 2012, visit http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Fiscal_Analysis/Addendum_Long-Term_Unemployment_May2012.pdf

For further reading on the Federal Reserve Bank of Cleveland's *Economic Trends* article "Emergency Unemployment Compensation and Long-term Unemployment" visit <http://www.clevelandfed.org/research/trends/2011/1111/01labmar.cfm>.

The Evolving State of the Fed's Security Holdings

07.23.2012

by John Carlson, Bill Bednar and John Lindner

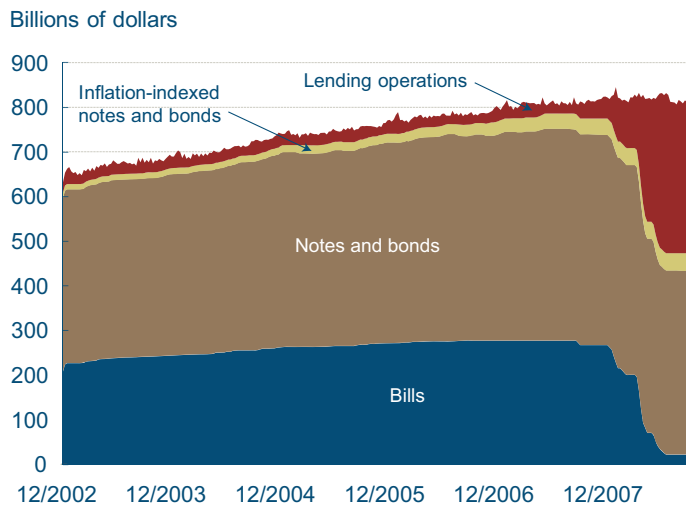
Prior to the financial crisis, the Fed's security holdings were restricted to a mix of Treasury securities, which consisted of a combination of short-term bills and longer-term notes and bonds. At the start of the crisis, the balance of Treasury bills fell. This dip turned out to be the beginning of a major evolution in the composition of the Fed's portfolio. As a result of the crisis, the Fed's security holdings have been completely transformed.

Beginning in the summer of 2007, the Fed introduced a number of programs intended to provide liquidity to the markets. Initially, as this liquidity was added, the Fed was selling Treasury bills in the open market to maintain the federal funds rate at its target. At that point in time, the rate had not yet hit the zero bound.

In November 2008, the first round of large-scale asset purchases was introduced. A total of \$100 billion of agency debt securities and \$500 billion of agency mortgage-backed securities (MBS) were to be purchased. The program was soon expanded in March 2009 to include \$300 billion of Treasury securities, as well as additional amounts of agency debt and MBS. Treasury purchases continued through the end of October 2009, and the agency securities were purchased throughout the first quarter of 2010.

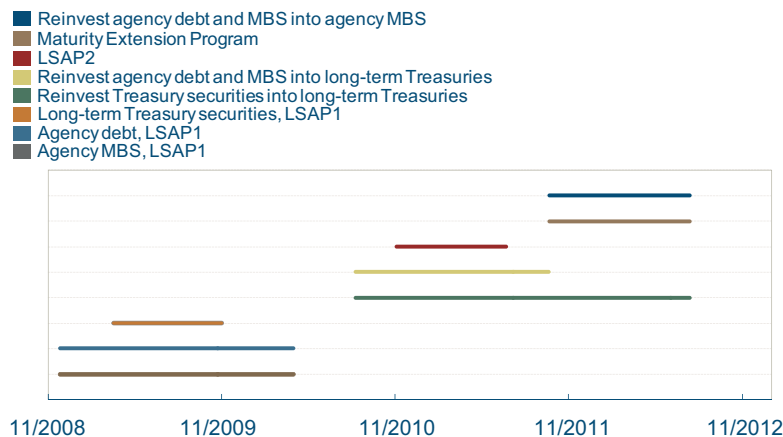
Between the first and second rounds of the large-scale asset purchases, maturing securities were not replaced. Allowing these securities to mature would have effectively resulted in a passive contractionary policy. To prevent this contractionary action, the FOMC decided in August 2010 to reinvest the principal payments from the agency securities into long-term Treasury securities. Just a few months later, a second round of asset purchases was announced, with an extra \$600 billion of Treasury securities to be purchased over the following eight months.

Fed Security Holdings, Pre-Crisis Treasury Security Balances



Source: Federal Reserve Board.

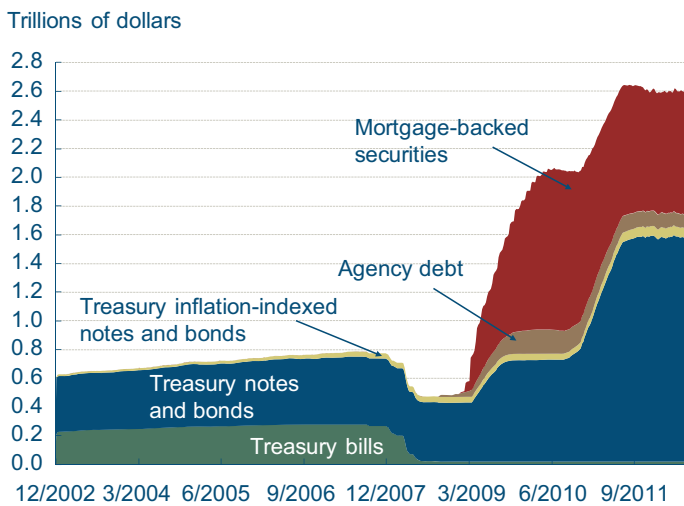
Timeline of Federal Reserve Programs



Source: Federal Reserve Board.

Three months after the end of the second round of large-scale purchases, in September 2011, the FOMC decided to extend the maturity of its portfolio through a new action called the Maturity Extension Program. The purpose of the program, which is still ongoing, is to lower longer-term rates relative to shorter-term rates—and for that reason it is referred to as “operation twist.” This result is accomplished by selling Treasury securities with remaining maturities of 3 years or less and purchasing Treasury securities with remaining maturities of 6 years to 30 years. Along with the Maturity Extension Program, the Fed switched from reinvesting the principal payments from agency securities into agency MBS instead of long-term Treasury securities.

Fed Security Holdings



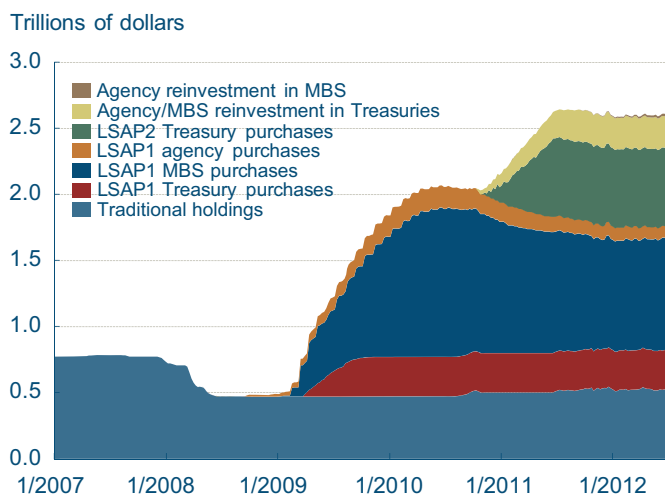
Source: Federal Reserve Board.

Using disaggregated data on the securities in the Fed’s balance sheet, we can track the history of these programs and actions, and the effect that they have had on the Fed’s balance sheet. Of particular interest is the breakdown of the Treasury notes and bonds into groups associated with both rounds of asset purchases, the reinvestment of maturing Treasury securities, the reinvestment of maturing agency securities, and the Maturity Extension Program. Note that data on the Fed’s balance sheet is often presented in an aggregated form—the Cleveland Fed’s credit easing charts being an example. The disaggregated data allow us to separate each individual security into one of the Fed’s programs.

We look first at mortgage-backed securities and estimated what portion of the current holdings was originally purchased and what portion resulted from the reinvestment of principal payments. We found that a large portion of these holdings were original purchases made during the first round of large-scale asset purchases. The longer maturity of the agency holdings has minimized the need for reinvestment. Still, the low-interest-rate environment has likely contributed to the level of reinvestment by encouraging homeowners to refinance their mortgages, which increases the rate of repayment.

Of the Fed’s Treasury holdings, the largest portions are the notes and bonds that are attributable to the two rounds of asset purchases. Most of those purchases have yet to mature, although there was

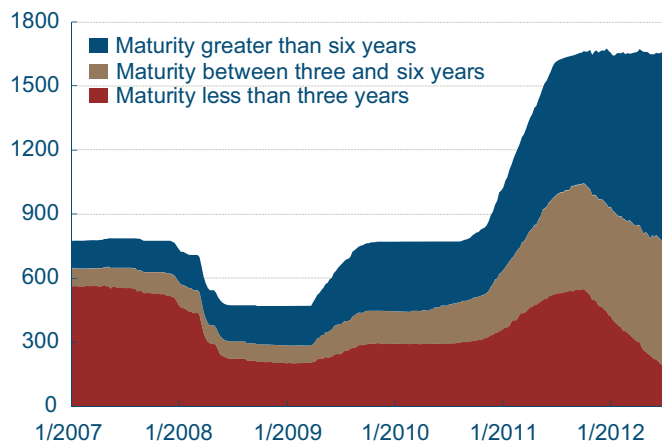
Securities Purchasing Programs



Source: Federal Reserve Board.

Maturity Distribution of Treasury Securities

Billions of dollars



Source: Federal Reserve Board.

some reinvestment into long-term Treasury securities from maturing agency securities. The holdings of Treasury securities have remained level since the reinvestment of agency debt and MBS into Treasuries concluded and the second round of asset purchases was completed.

However, due to the Maturity Extension Program, the composition of Treasury holdings continues to change. The fraction of Treasury securities that are considered longer-term (those with a maturity greater than 6 years) continues to grow, and consequently, the fraction of Treasury holdings that is considered shorter-term (less than 3 years) continues to shrink. These fractions are shifting due to the proceeds from the sale and maturity of short-term Treasury securities being reinvested in longer-term notes and bonds. In its latest policy action, the FOMC decided to continue this program through the end of 2012.

Yield Curve and Predicted GDP Growth, July 2012

Covering June 23, 2012–July 27, 2012
by Joseph G. Haubrich and Patricia Waiwood

Highlights

	July	June	May
3-month Treasury bill rate (percent)	0.10	0.09	0.09
10-year Treasury bond rate (percent)	1.47	1.64	1.74
Yield curve slope (basis points)	137	155	165
Prediction for GDP growth (percent)	0.6	0.6	0.7
Probability of recession in 1 year (percent)	11.7	9.7	8.7

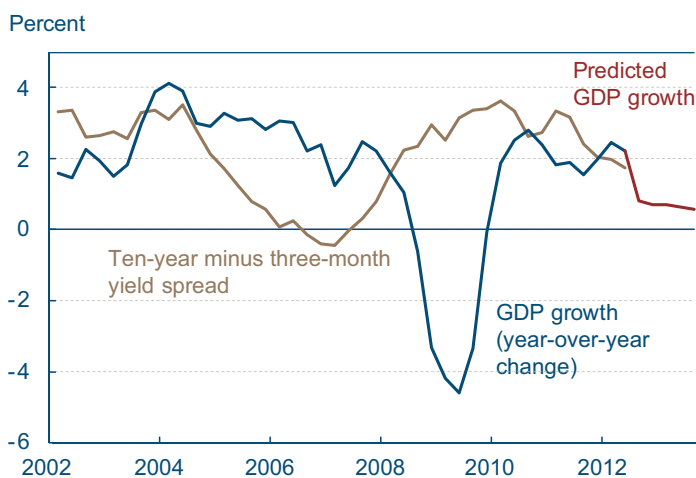
Overview of the Latest Yield Curve Figures

Over the past month, the yield curve has gotten flatter, as short rates stayed nearly even and long rates dropped. The three-month Treasury bill inched up to 0.10 percent (for the week ending July 27), just above June’s 0.09 percent. The ten-year rate dropped back again, coming in at 1.47 percent, down from June’s 1.64 percent. Who would have thought that March’s 2.21 percent would one day look high? The twist dropped the slope to 137 basis points, down from June’s 155 basis points and from May’s 165 basis points.

The flatter slope was not enough to cause 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, about even with last month and just down a hair from the 0.7 percent rate that has been predicted over the past several 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.

The flatter slope did lead to a less optimistic outlook on the recession front, however. 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 July is at 11.7 percent, up 2 percentage points from June’s 9.7 percent, and up 3 from May’s 8.7 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.

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.

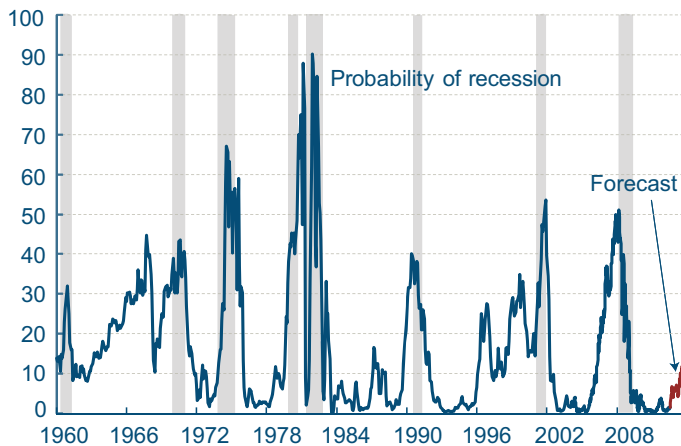
Predicting the Probability of Recession

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

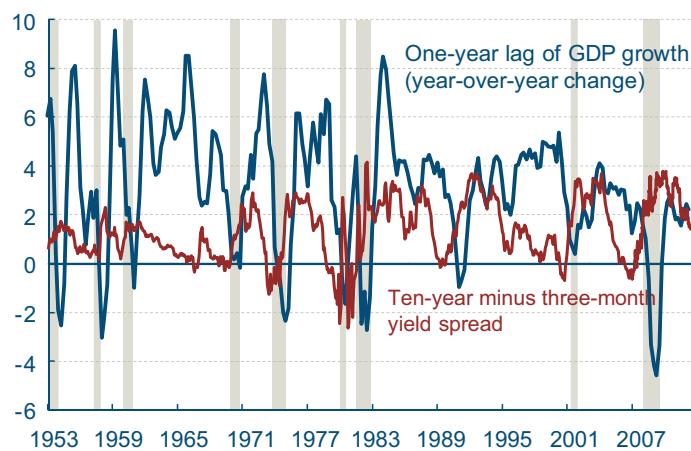


Note: Shaded bars indicate recessions.

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

Yield Curve Spread and Real GDP Growth

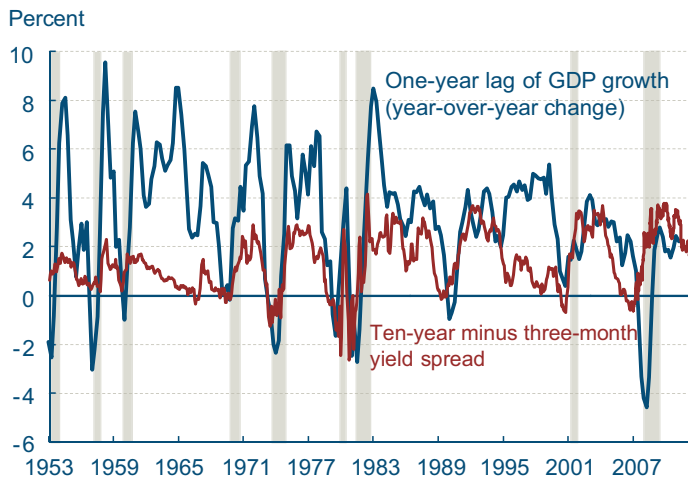
Percent



Note: Shaded bars indicate recessions.

Source: Bureau of Economic Analysis, Federal Reserve Board.

Yield Spread and Lagged Real GDP Growth



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.

Municipal Borrowing Trends in the Fourth District

08.03.2012

by Stephan Whitaker and Andrew Scarponi

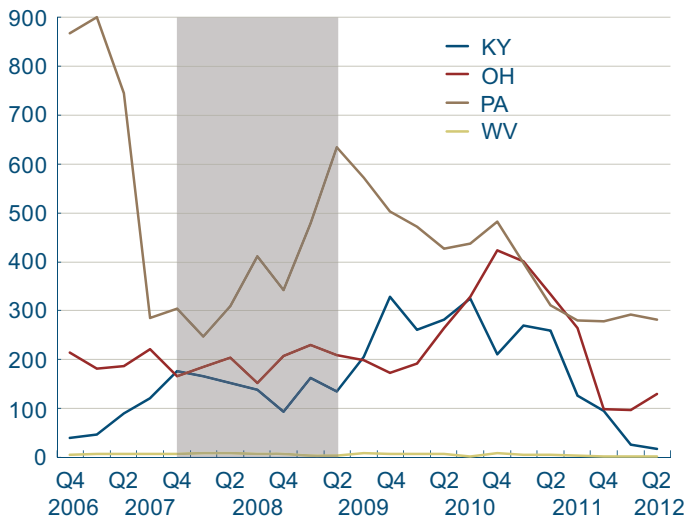
One distinct characteristic of the recent slow recovery has been financial strain of state and, especially, local governments. State and local tax revenue dropped 8.4 percent in 2009, capping a record-setting five consecutive quarters of declines in income and sales taxes. While revenues from income and sales taxes have slowly climbed back to pre-recession levels, depreciated property values are now working into the assessment process. The first quarter of 2012 recorded the sixth consecutive drop in local property tax revenues. (These figures are from the Rockefeller Institute, 2010 and 2011.) State and local government payrolls have been cut by 3.5 percent nationally since their 2008 peak.

What does this strain imply for municipal borrowing? Are state and local governments canceling or postponing capital projects because they fear taking on new interest payments? We examined the issuance of municipal bonds for public improvements in Fourth District states going back to 2006. Borrowing activity in Kentucky, Ohio, Pennsylvania, and West Virginia actually increased in 2009 and 2010 as municipalities took advantage of the Build America Bonds program. But borrowing dropped precipitously as the program expired, and time will tell if the decline reflects the Build America Bonds program pulling forward spending that would otherwise have taken place in 2012, or whether it reflects the new normal level of municipal borrowing.

Plotting the quarterly borrowing for Ohio, Pennsylvania, and Kentucky shows that there was no distinct slowdown during the recession or immediately afterward. Rather, the pace of borrowing slowed in 2011. Most of the funds in the public improvements category are for municipal capital projects such as police stations, fire equipment, and library renovations. The debt service is paid from the same general funds that support the shrinking local government payrolls. Schools, transportation, utilities, and ten smaller categories are tracked separately.

Issuances of Public Improvement Bonds

Four-quarter moving average (millions of dollars)



Note: Shaded bar indicates a recession.
Sources: Bloomberg; authors' calculations.

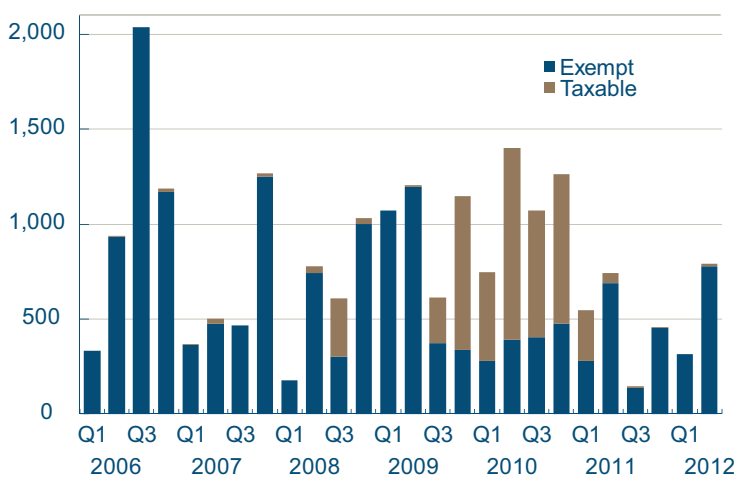
In the third quarter of 2006, Philadelphia issued a large quantity of bonds, totaling \$1.8 billion. This issuance, which was outside the Fourth District, creates the early spike in Pennsylvania's moving average.

If the bond issuances are categorized by their taxable status, it is clear that 2009 and 2010 saw an unusual volume of federally-taxable municipal bonds. The cause of the surge was the American Recovery and Reinvestment Act.

The interest paid on most municipal bonds is exempt from federal income taxes. High-income households own most municipal bonds, and they are willing to accept a lower interest rate from municipalities because the payments are not taxed. As part of the American Recovery and Reinvestment Act, however, the federal government offered to directly subsidize interest payments on taxable "Build America" municipal bonds. This was intended to raise municipal bond yields and make them attractive to middle-income households and foreign investors, who do not have large income tax liabilities. Replacing the implicit subsidy of tax exemption with a federal expenditure subsidy is a strategy public finance professionals have discussed for decades. The Build America Bonds program was the first large-scale implementation of this approach. The high volume of federally taxable bonds in the Fourth District shows that the program had widespread participation in the region.

Bond Issuances: Exempt and Taxable

Millions of dollars



Note: Figures include issues in Kentucky, Ohio, Pennsylvania, and West Virginia.
Sources: Bloomberg; authors' calculations.

As with other stimulus programs, there is a question of whether the short-term subsidies pull forward economic activity that would have been smoothed over the subsequent months and years. If we compare the annual debt issuance and new debt service incurred during the pre-recession period (2006:Q1-2007:Q3) to that in the post-recession period (2009:Q3-2012:Q2), we find that the results are mixed. Two states have issued more bonds per year, and taken on more new interest payments, after the recession than before, while two states have posted lower numbers. So far, it appears that the Build America Bonds rush in Ohio and Kentucky offset the subsequent drop in activity. If Philadelphia were excluded from the analysis, the Pennsylvania figures would be almost equal before and after the recession.

Annualized Issuance of Municipal Bonds and the Associated Coupon Payments, Millions

	Pre-Recession (2006:Q1–2007:Q3)		Pre-Recession (2006:Q1–2007:Q3)	
	Issuance	New coupon payments	Issuance	New coupon payments
Kentucky	326.1	8.5	620.5	26.5
Ohio	752.2	33.9	950.1	41.7
Pennsylvania	2241.7	107.3	1306.3	62.6
West Virginia	11.6	0.6	4.3	0.3

Note: Coupon payments are for the first 12 months.
Sources: Bloomberg; authors' calculations.

What do the data above reveal about the spending of state and local governments in tightened post-recession fiscal circumstances? The answer—for now—is that it is too soon to tell. Over the next few quarters, we will see whether the recent dip in new state and local government borrowing represents a new normal or whether borrowing will return to a pre-recession pace.

A Look at Ohio's Foreign-Born Population

08.06.2012

by Guanyi Yang

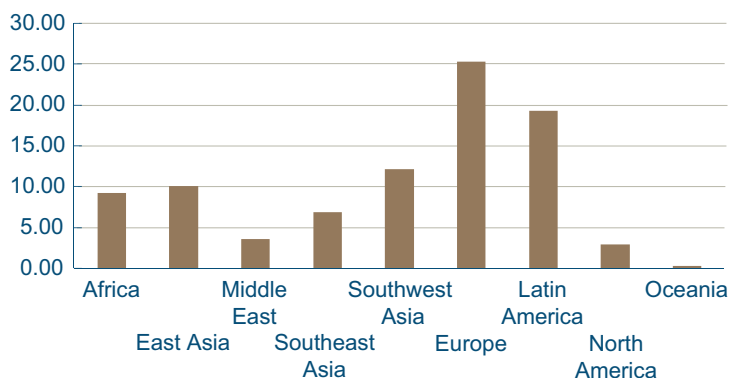
The number of immigrants living in the United States has been growing at a faster pace in recent decades. The diversity of countries from which these new residents have emigrated has been increasing as well. I take a closer look at the foreign-born residents of Ohio, to learn where they are from and how they perform in the labor market based on their earnings profile, educational attainment, and career choices.

The proportion of foreign-born residents in Ohio is lower than in the United States as a whole. From 2006 to 2010, for example, foreign-born residents accounted for about 3.8 percent of Ohio's total population and 12.7 percent of the total U.S. population, according to the Census Bureau. In Ohio, Asians represent 37 percent of the total foreign-born population. Dividing Asia into East Asia (China, Japan, Korea, etc.), the Middle East (Iraq, Lebanon, Saudi Arabia, etc.), Southeast Asia (Thailand, Cambodia, Vietnam, etc.), and Southwest Asia (India, Pakistan, etc.), I find that Southwest Asia contributes the most of the Asian countries, with 13.3 percent of total immigrants. The second-largest region supplying foreign-born residents to Ohio is Europe, at 27.9 percent, and the third is Latin America, at 21.3 percent.

The median wage of all employed workers in Ohio in 2009 was \$30,000. The difference between those in the 75th percentile and those in the 25th percentile was \$37,300, similar to the wage distribution for native-born employed workers. Meanwhile, the median income for all foreign-born employed workers was lower, \$26,000, and the earnings gap between the 75th and 25th percentiles was smaller at \$36,600.

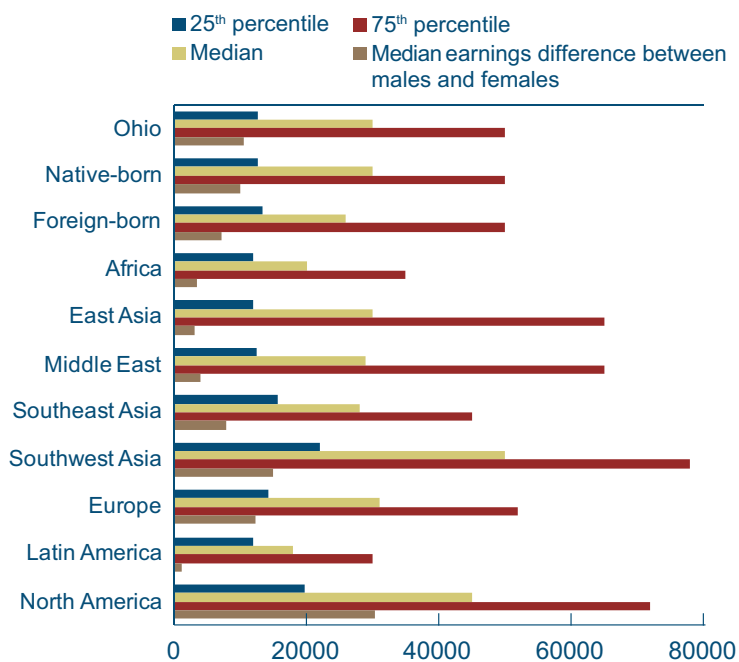
Among all the regions from which Ohio's foreign-born employed workers emigrated (hereafter "source regions"), Southwest Asia has the highest median earnings at \$50,000, and Latin America has the lowest at \$18,000. At the same time, workers

Percentages of Ohio Foreign-born Population, 2010



Source: IPUMS, ACS 2010 Sample.

Earnings Distribution by Source Region, 2009



Note: Due to the limited sample size, foreign-born population from Oceania is not included in the analysis of this article.
Source: IPUMS, ACS 2010 Sample.

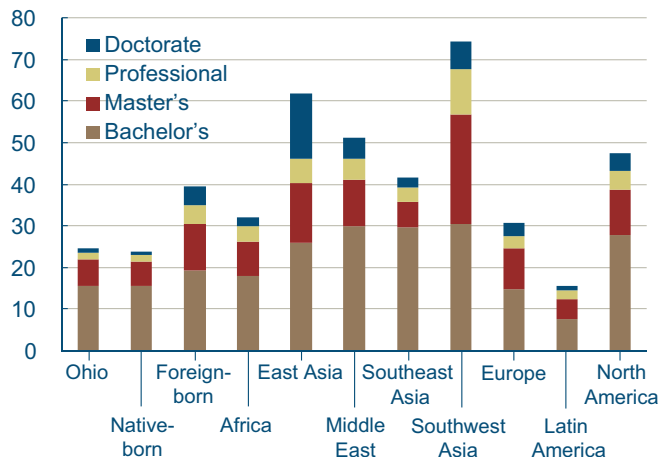
from Southwest Asia have the largest earnings gap between the 75th percentile and the 25th percentile, \$56,000, while those from Latin America have the smallest, \$18,000. If we take a closer look at earnings differences by gender, we see that the smallest earnings gap between males and females exists for workers from Latin America, at \$1,200, followed by East Asians, at \$3,000. The largest gap exists for North Americans, at \$30,300, followed by Southwest Asians, at \$15,000.

The foreign-born residents of Ohio are, in general, more educated than the native-born. About 24.6 percent of Ohioans aged 25 and older have a college degree or higher. For foreign-born residents, the share is 39.5 percent, and for the native-born it is 23.8 percent. Southwest Asian immigrants have the highest share of their population with a college degree or higher, at 74.3 percent. On the other end of the spectrum, Latin American immigrants have the highest share of their population with a high school degree or lower, at 68.3 percent, followed by African immigrants at 38 percent. Of the foreign-born, Southwest Asian immigrants have the lowest share at 15.9 percent. Differences in the educational attainment rates of Southwest Asian and Latin American immigrants could partially explain the large median earnings disparities in these two groups.

Among Ohio residents who have a college or a more advanced degree, the share of the population attaining a bachelor's degree and every advanced degree beyond (master's, professional, or doctorate) is higher among the foreign-born population than the native-born. The percentage gap is much larger with the more advanced degrees (professional and doctorate). Asian immigrants have the highest share of the population at every degree level. Although Latin American immigrants have a lower share in most degree levels, the share of their population with professional degrees and doctorates is still higher than that of the native-born.

The educational attainment patterns of the foreign born in Ohio are not typical of the nation as a whole. In the United States, the percent of foreign born with a bachelor's degree is slightly below that of native-born residents, though there is consider-

Share of Population at Each Degree Level, 2010



Note: Due to the limited sample size, foreign-born population from Oceania is not included in the analysis of this article.
Source: IPUMS, ACS 2010 Sample.

able variation across states. The Census Bureau reported that in 2009 Ohio had the second-largest gap between the bachelor's degree attainment rate of foreign-born residents and the native-born population. The only state with a larger gap was West Virginia.

There are also some differences in the occupational distributions of native- and foreign-born workers. The top occupation for native-born workers is office and administrative support occupations, whereas production work is the top occupation for foreign-born workers. However, looking at the top five occupations for both groups of workers, there are both blue- and white-collar occupations, and there is significant overlap in the occupational categories. Finally, foreign-born and native-born residents have broadly similar industry employment shares among the top industries. In particular, education, health and social services, and manufacturing are the top two industries for both groups of workers.

Top Five Most Popular Occupations among Ohio's Employed Workers (Age 16+), 2010 (percent)

	First	Second	Third	Fourth	Fifth
Ohio	Office 14.0	Sales 10.5	Management 9.0	Production 8.1	Construction 7.2
Native-born	Office 14.7	Sales 10.7	Management 9.0	Production 8.0	Construction 7.4
Foreign-born	Production 10.6	Management 9.1	Food 8.1	Sales 7.2	Office 6.6
Africa	Transportation 18.2	Office 12.4	Healthcare 9.3	Sales 7.4	Personal 6.7
East Asia	Food 17.4	Education 15.7	Management 14.0	Life 8.0	Computer 7.1
Middle East	Sales 22.6	Management 10.3	Architecture 8.5	Transportation 7.7	Education 7.1
Southeast Asia	Production 16.7	Personal 16.6	Office 6.4	Construction 6.2	Financial 5.3
Southwest Asia	Computer 21.1	Management 12.1	Education 10.2	Sales 7.7	Production 5.9
Europe	Management 13.6	Production 12.1	Office 8.1	Sales 7.6	Construction 6.3
Latin America	Production 17.4	Food 14.1	Buildings 12.6	Transportation 9.7	Construction 9.7
North America	Management 16.6	Sales 14.4	Education 13.1	Computer 14.8	Office 4.5

Note: For details on the American Community Survey (ACS) occupation coding, see: <http://usa.ipums.org/usa/volii/c2ssoccup.shtml>. Due to the limited sample size, foreign-born population from Oceania is not included in the analysis of this article.
Source: IPUMS, ACS 2010 Sample.

Top Five Most Popular Industries among Ohio's Employed Workers (Age 16+), 2010 (percent)

	First	Second	Third	Fourth	Fifth
Ohio	Educational/Health 24.8	Manufacturing 15.0	Retail 12.0	Professional 8.9	Arts/Recreation 8.6
Native-born	Educational/Health 24.8	Manufacturing 14.9	Retail 12.1	Professional 8.7	Arts/Recreation 8.5
Foreign-born	Educational/Health 24.3	Manufacturing 16.2	Professional 13.0	Arts/Recreation 12.1	Retail 8.8
Africa	Educational/health 33.7	Retail 12.3	Transportation 10.1	Manufacturing 8.7	Professional 8.7
East Asia	Educational/Health 31.5	Arts/Recreation 27.3	Manufacturing 13.7	Professional 11.0	Retail 5.3
Middle East	Educational/Health 27.1	Retail 20.6	Professional 17.8	Manufacturing 8.8	Arts/Recreation 8.4
Southeast Asia	Educational/Health 23.1	Manufacturing 22.2	Other 17.2	Professional 8.0	Finance 6.8
Southwest Asia	Educational/Health 33.9	Professional 19.7	Finance 11.5	Manufacturing 10.8	Retail 10.8
Europe	Manufacturing 21.3	Educational/ Health 21.2	Professional 11.5	Retail 9.2	Arts/Recreation 8.6
Latin America	Manufacturing 19.3	Arts/Recreation 18.7	Professional 14.0	Educational/ Health 11.8	Construction 8.2
North America	Educational/Health 32.5	Professional 17.4	Manufacturing 12.3	Finance 8.4	Retail 6.4

Note: For details on the American Community Survey (ACS) occupation coding, see: <http://usa.ipums.org/usa/volii/c2ssoccup.shtml>. Due to the limited sample size, foreign-born population from Oceania is not included in the analysis of this article.
Source: IPUMS, ACS 2010 Sample.

In summary, Ohio absorbs a variety of immigrants from all regions of the world, primarily from Asia. Its foreign-born residents generally have higher educational attainment than the native-born, and they congregate in occupations and industries where high skill sets are more appreciated, which likely results in higher median earnings.

For further reading from the Rockefeller Institute, please visit http://www.rockinst.org/pdf/government_finance/state_revenue_report/2010-04-16-SRR_79.pdf and http://www.rockinst.org/pdf/government_finance/2012-07-16-Recession_Local_%20Property_Tax.pdf.

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ISSN 0748-2922

