Economic Trends

June 2014 (May 9, 2014-June 5, 2014)

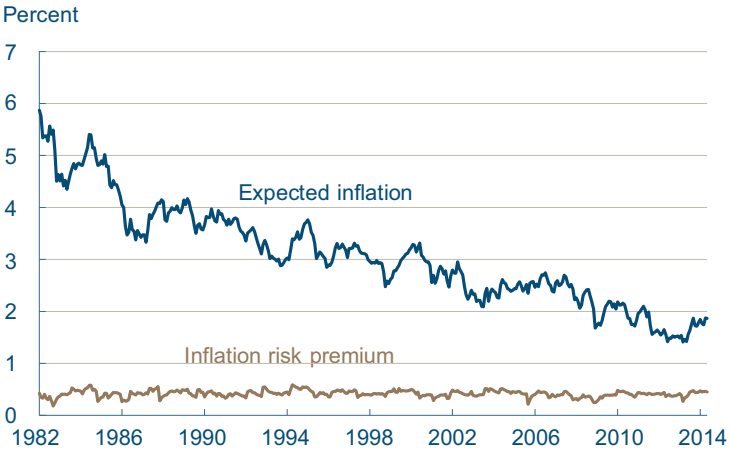
In This Issue:

FEDERAL RESERVE BANK
of CLEVELAND

Cleveland Fed Estimates of Inflation Expectations

News Release: May 15, 2014

Ten-Year Expected Inflation and Real and Nominal Risk Premia

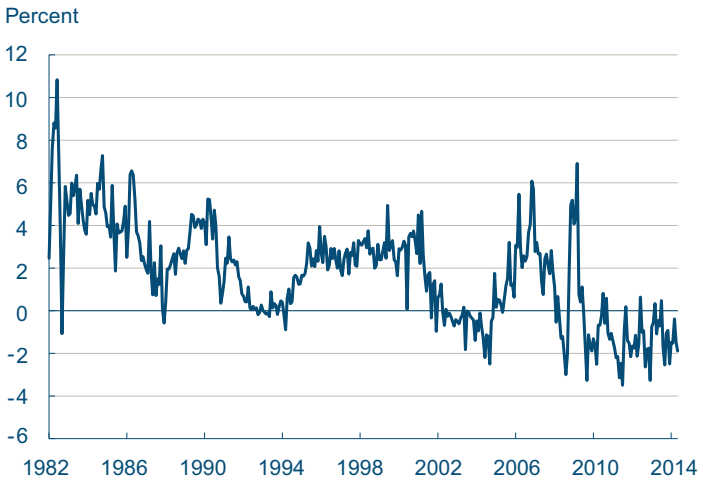


Source: Haubrich, Pennacchi, Ritchken (2012).

The latest estimate of 10-year expected inflation is 1.87 percent, according to the Federal Reserve Bank of Cleveland. In other words, the public currently expects the inflation rate to be less than 2 percent on average over the next decade.

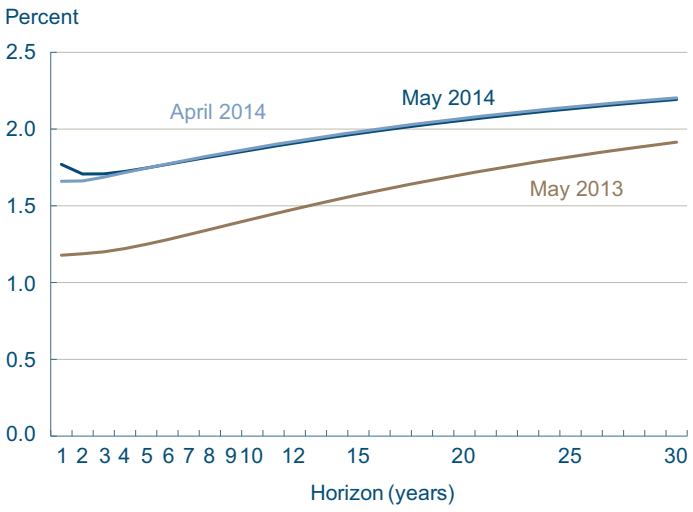
The Cleveland Fed's estimate of inflation expectations is based on a model that combines information from a number of sources to address the shortcomings of other, commonly used measures, such as the "break-even" rate derived from Treasury inflation protected securities (TIPS) or survey-based estimates. The Cleveland Fed model can produce estimates for many time horizons, and it isolates not only inflation expectations, but several other interesting variables, such as the real interest rate and the inflation risk premium.

Real Interest Rate



Source: Haubrich, Pennacchi, Ritchken (2012).

Expected Inflation Yield Curve

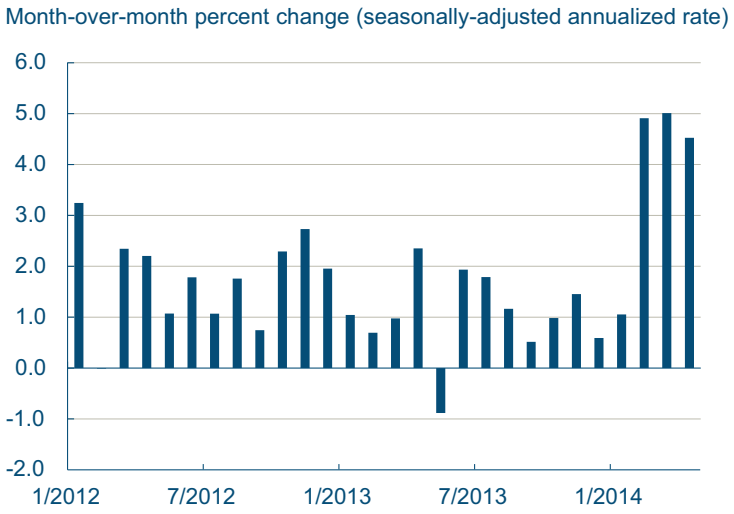


Source: Haubrich, Pennacchi, Ritchken (2012).

Inflation Expectations Stay Steady as the CPI Edges Up

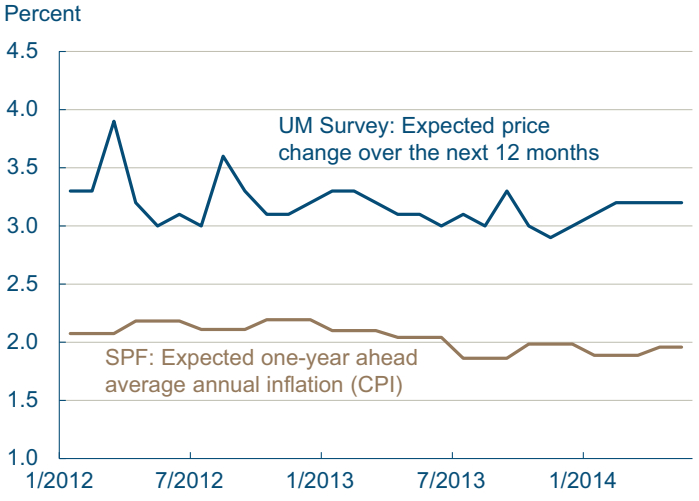
06.05.14
by Mehmet Pasaogullari and William Bednar

CPI Food



Source: Bureau of Labor Statistics.

Survey-Based One-Year Ahead Inflation Expectations



Sources: Federal Reserve Bank of Philadelphia, University of Michigan.

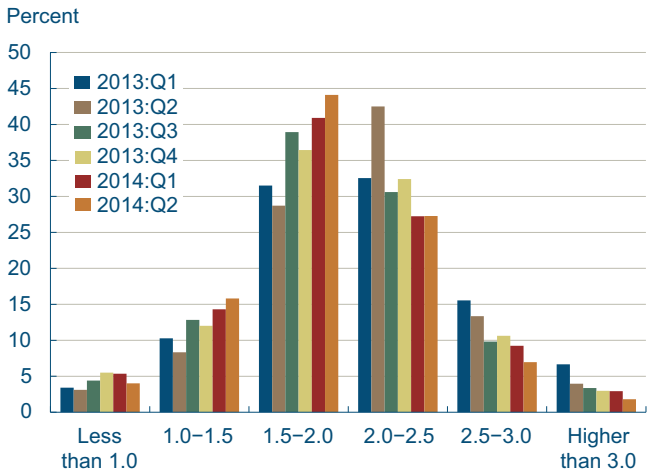
After hovering in a narrow range between 1.0 percent and 1.6 percent for eight months straight, annual inflation as measured by the Consumer Price Index (CPI) increased to 2.0 percent in April. Part of the uptick is explained by food prices, which have increased more in the past three months than has been typical over the past few years. In April, for example, the food component of the CPI increased at a seasonally-adjusted annualized rate of 4.5 percent, and over the past three months it has averaged increases of 4.8 percent.

However, underlying inflation measures have also increased slightly, which suggests that something more than rising food prices may be at work. Annual inflation based on the core CPI, which excludes food and energy prices, has increased from 1.6 percent to 1.8 percent since the beginning of the year. Inflation based on the median CPI increased from 2.0 percent to 2.2 percent over that same time period, and inflation as measured by the trimmed-mean CPI increased from 1.6 percent to 1.8 percent.

Though these measures have risen modestly, measures of inflation expectations suggest that the increases do not signal a persistently higher rate of inflation.

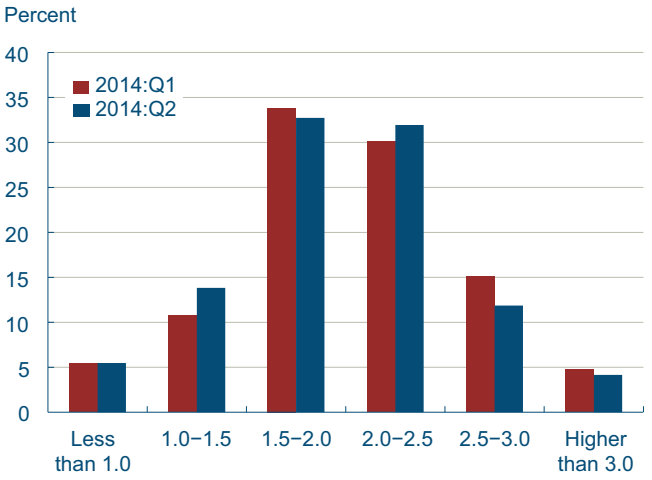
Near-term inflation expectations as measured by the University of Michigan's Survey of Consumer Sentiment (UM survey) and the Survey of Professional Forecasters (SPF) have not changed appreciably in the past few months. Although UM survey respondents increased their estimate of inflation over the next 12 months slightly between November 2013 and February of this year (from 2.9 percent to 3.2 percent), since February the median expected price change over the next twelve months has stayed at 3.2 percent. Likewise, the inflation rate expected over the next year by SPF participants has also been relatively stable, remaining in a range

Core CPI Probabilities, 2014:Q4



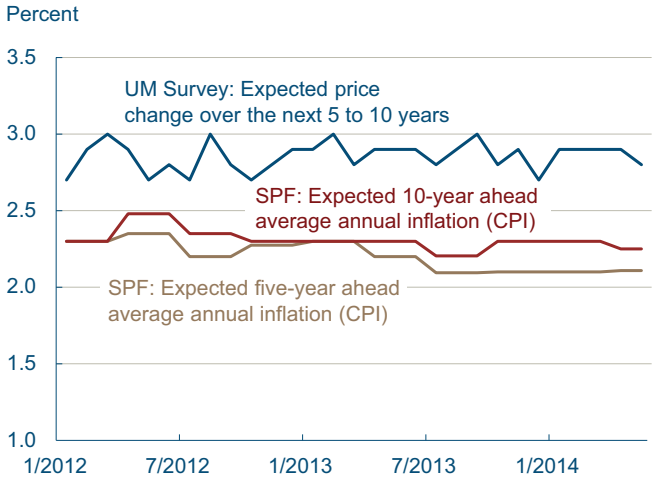
Source: Survey of Professional Forecasters.

Core CPI Probabilities, 2015:Q4



Source: Survey of Professional Forecasters.

Survey-Based Longer-Term Inflation Expectations



Sources: Federal Reserve Bank of Philadelphia, University of Michigan.

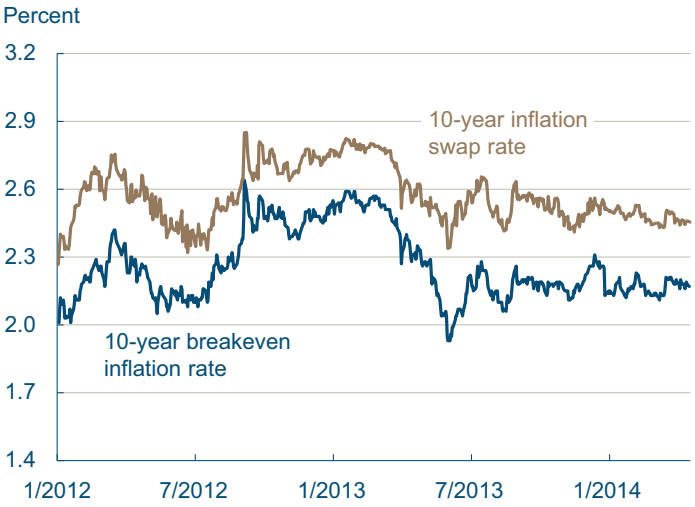
between 1.8 percent and 2.0 percent since the beginning of 2013. Most recently, it was 2.0 percent (2014:Q2).

Additional detail from the SPF provides information on how participants in this survey broadly see the risk to inflation in the near term. The SPF asks respondents to assign probabilities to particular ranges of expected year-over-year core CPI inflation for the fourth quarters of the current year and the following year. A high probability in one or two particular ranges suggests a bit more certainty for the inflation outlook, while a more balanced set of probabilities on the various ranges suggests less certainty. In the second quarter, survey respondents saw a 44.1 percent probability of year-over-year inflation being between 1.5 percent and 2.0 percent in the fourth quarter of 2014. They see over a 70 percent chance of inflation being between 1.5 percent and 2.5 percent in that same quarter. For the fourth quarter of 2015, most participants again believe that inflation will be between 1.5 percent and 2.5 percent. However, they assign similar probabilities to two ranges, the 1.5–2.0 percent range (32.7 percent) and the 2.0–2.5 percent range (31.9 percent).

Longer-term inflation expectations have been relatively consistent also. Before ticking down to 2.8 percent in May, the median expectation for price changes over the next 5 to 10 years from the UM survey had been at 2.9 percent since the beginning of 2014. Similarly, from the SPF, expected average annual inflation over the next 5 years has been around 2.1 percent since mid-2013, while over the next 10 years it has been between 2.2 percent and 2.3 percent since the fourth quarter of 2012.

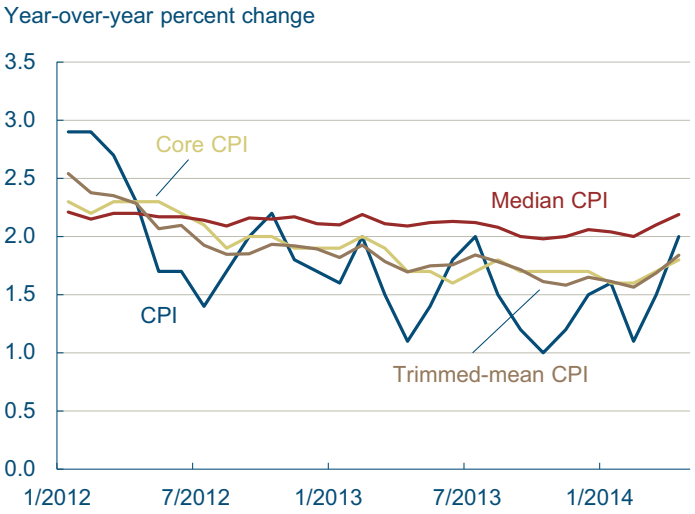
Market-based measures of inflation expectations give a general sense of how investors view the prospects for future inflation. Two such measures are break-even inflation rates and inflation swap rates. Similar to the survey based measures, these indicators have been rather stable over the recent past as well. The 10-year break-even inflation rate has remained between 2.1 percent and 2.3 percent since the beginning of 2014, and the 10-year inflation swap rate has been between 2.4 percent and 2.6 percent. As recently as the May 19, 2014, the

Market-Based Measures of Inflation Expectations



Source: Bloomberg.

Measures of CPI Inflation



Sources: Bureau of Labor Statistics, Federal Reserve Bank of Cleveland.

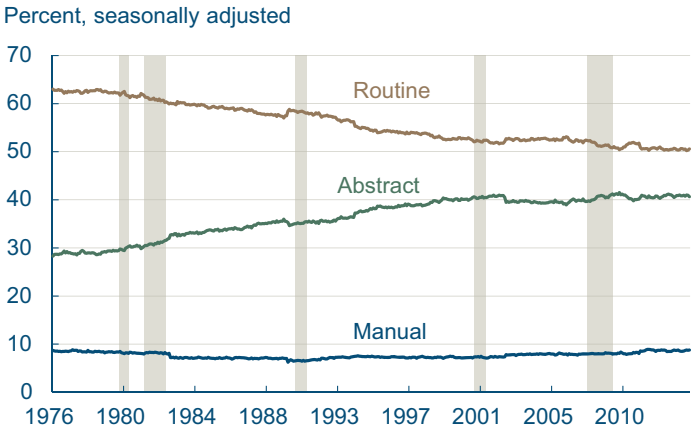
10-year break-even inflation rate was at 2.2 percent and the 10-year inflation swap rate was at 2.5 percent.

These various measures suggest that over the recent past, inflation expectations have remained well anchored. Both survey- and market-based measures have held steady in relatively narrow ranges for some time. Additionally, the probabilities provided by the SPF show that in addition to the average expectation for inflation being stable over time, there is also some degree of certainty over the expected range that core inflation might fall in, at least for the next few years.

Job Polarization and the Great Recession

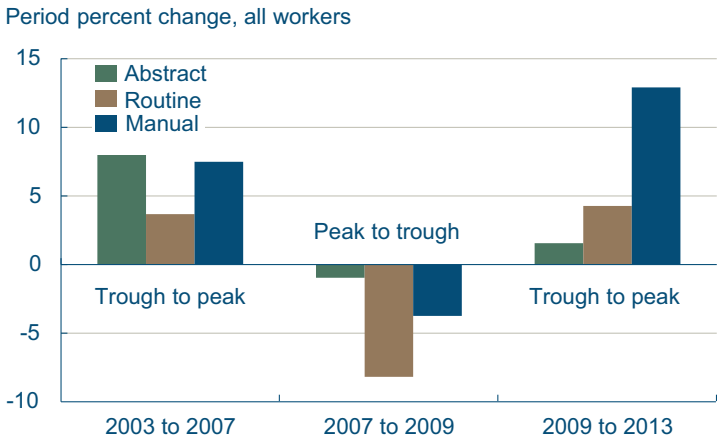
05.28.14
by Murat Tasci and Jessica Ice

Percentage of All Employed by Task Composition



Note: Shaded bars indicate recessions.
Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." American Economic Review, 103(5), 1553-1597, 2013.

Employment Changes by Task Composition: All Employed Persons



Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." American Economic Review, 103(5), 1553-1597, 2013.

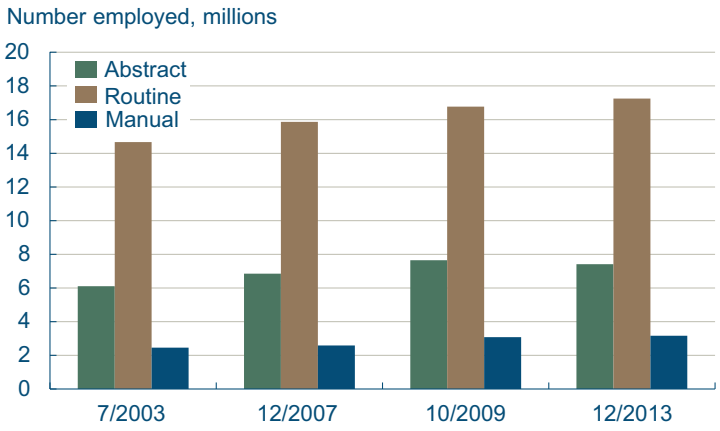
Five years into an economic recovery from the Great Recession, the US labor market continues to gradually improve. Some of the more adverse effects, like the high unemployment rate and longer average spells of unemployment, have been quite persistent, but they are, nevertheless temporary. However, some effects might be more permanent.

Recessions can be times when emerging (or ongoing) structural changes in labor markets get exacerbated. One such change in the current environment is job polarization. The term refers to a situation in which workers with particular skills lose ground because changing technology reduces the demand for their skills, while workers with other skills gain.

Although technology usually enhances productivity by complementing the tasks of workers, it can also have a negative effect on the labor market if it is able to entirely replace those tasks. Every occupation involves a wide range of tasks which are in different degrees of demand given the current state of technology. Economists classify these tasks into abstract, routine, and manual types of tasks and have observed that some types are more susceptible to technological change than others. For instance, computer technologies are especially useful at performing programmable or routine tasks—so much so that they might be able replace workers whose occupations wholly or largely consist of routine tasks, such as assembly line workers.

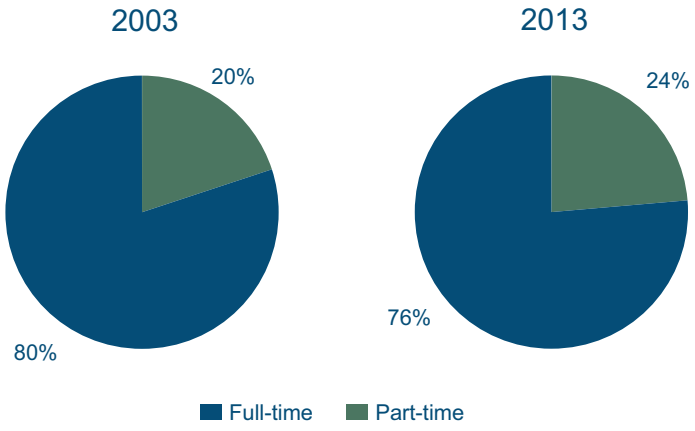
Job polarization has indeed been happening over the past several decades. Occupations that involve predominantly routine tasks have seen their share of overall employment fall since the late 1970s. In 1976 routine occupations constituted almost two-thirds of aggregate employment but by the end of 2013 their share had declined to about 50 percent. On the other hand, occupations that involve predominantly abstract tasks have gained ground, increasing their share from about 28 percent to 40 percent over the same period. Occupations dominated by manual tasks have always stayed below 10

Number of Part-Time Employees by Task Composition



Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." American Economic Review, 103(5), 1553-1597, 2013.

Share of Employed Population with Routine Occupations by Labor Force Status



Sources: Bureau of Labor Statistics; Bureau of the Census; David Autor and David Dorn. "The Growth of Low Skill Service Jobs and the Polarization of the U.S. Labor Market." American Economic
Review, 103(5), 1553-1597, 2013.

percent, though their share of total employment varied between 7 percent and 8 percent over the same period. These occupations perform tasks that are most likely harder to automate or offshore, such as housemaids, construction workers, hairdressers, and so on.

Although the trend toward a falling employment share for routine occupations has been prevalent since the 1970s, it became more evident during the Great Recession. From July 2003 to December 2007—from the employment trough of the previous recession to the employment peak directly prior to the Great Recession—employment in occupations with primarily abstract and manual tasks increased by 8.0 percent and 7.5 percent, respectively, with primarily routine occupations gaining only 3.7 percent. From the employment peak to the trough of the Great Recession (December 2007 to October 2009) routine jobs suffered the greatest loss, falling 8.2 percent, while abstract jobs decreased by only 1.0 percent. It is also striking that during the recovery both manual and abstract occupations have more than recouped the employment losses they sustained during the recession, while routine jobs have increased by only 4.3 percent, after having fallen almost twice as much during the recession.

The disproportionately adverse effects of the recession on routine occupations become more evident when one analyzes the composition of employees with part-time and full-time status. This recession led to record levels of part-time employment, in addition to high unemployment. All three types of occupations were affected, each experiencing an increase in part-time employment at the same time. However, the increase was largest for routine occupations. While the composition of part-time employment has not changed over the past decade—routine occupations constituted almost two-thirds of part-time employment between 2003 and 2013—the fraction of workers employed part-time increased much more for routine jobs than for abstract and manual occupations during the Great Recession. In 2003, only 20 percent of employment in routine occupations was part-time, whereas by 2013 it was 24 percent. Meanwhile, part-time employment in both abstract and manual occupations grew only 2 percentage points over the same period.

Yield Curve and Predicted GDP Growth, May 2014

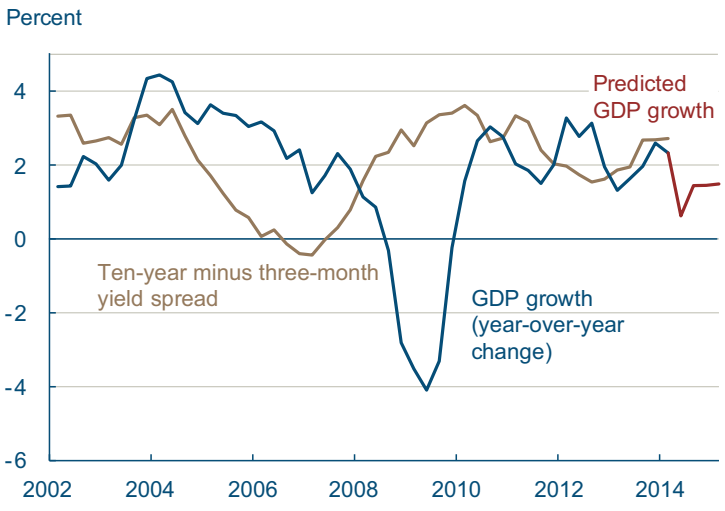
Covering April 26, 2014–May 23, 2014
by Joseph G. Haubrich and Sara Millington

Highlights

	May	April	March
Three-month Treasury bill rate (percent)	0.03	0.03	0.06
Ten-year Treasury bond rate (percent)	2.54	2.71	2.74
Yield curve slope (basis points)	251	268	268
Prediction for GDP growth (percent)	1.4	1.5	1.4
Probability of recession in one year (percent)	2.31	1.78	1.81

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

Yield Curve Predicted GDP Growth



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

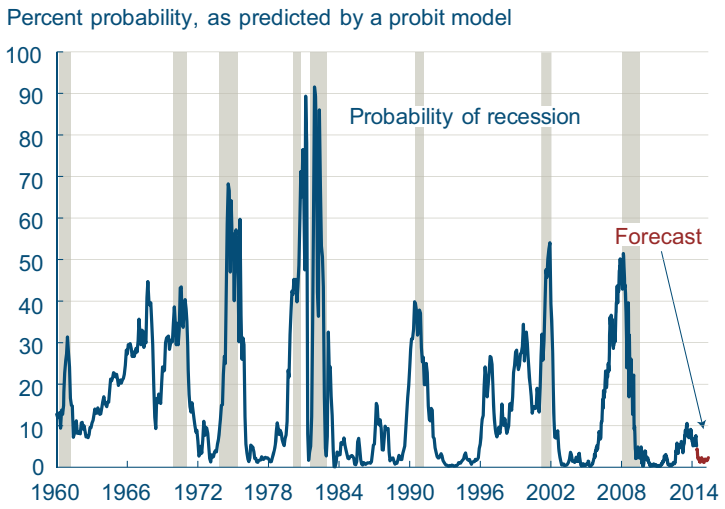
Overview of the Latest Yield Curve Figures

Since last month, the yield curve pivoted downward around the short end. The three-month (constant maturity) Treasury bill rate stayed fixed at 0.03 percent (for the week ending May 23), down a bit from March's 0.06 percent. The ten-year rate (also constant maturity) dropped a full 17 basis points to 2.51 percent, down from April's level of 2.71 percent and March's 2.74 percent. The pivot dropped the slope to 251 basis points, down from the March and April levels of 268 basis points.

The steeper slope had a small impact on projected future growth. Projecting forward using past values of the spread and GDP growth suggests that real GDP will grow at about a 1.4 percentage rate over the next year, just down from April's rate of 1.5, which was a slight increase from March's 1.4 percentage rate. However, these small changes are mainly due to rounding. The influence of the past recession continues to push towards relatively low growth rates. Although the time horizons do not match exactly, the forecast is slightly more pessimistic than some other predictions, but like them, it does show moderate growth for the year.

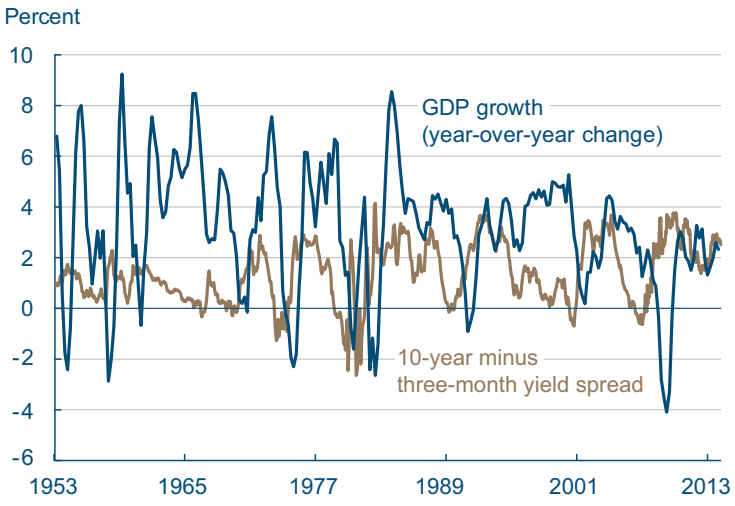
The slope change had only a slight impact on the probability of a recession. Using the yield curve to predict whether or not the economy will be in a recession in the future, we estimate that the expected chance of the economy being in a recession next May at 2.31 percent, up a bit from the April estimate of 1.78 percent, and down from 1.81 percent in March. 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.

Recession Probability from Yield Curve



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

Yield Curve Spread and Real GDP Growth



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

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

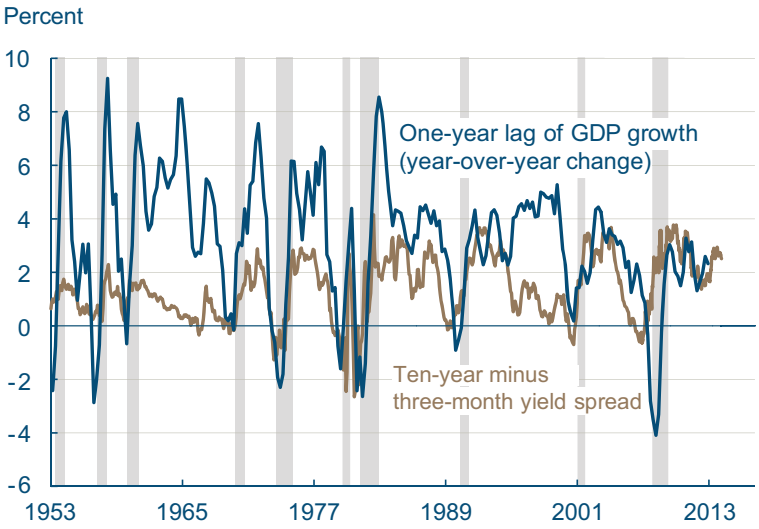
We use past values of the yield spread and GDP growth to project what real GDP will be in the future. We typically calculate and post the prediction for real GDP growth one year forward.

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

Yield Spread and Lagged Real GDP Growth



determinants of the yield spread today are materially different from the determinants that generated yield spreads during prior decades. Differences could arise from changes in international capital flows and inflation expectations, for example. The bottom line is that yield curves contain important information for business cycle analysis, but, like other indicators, should be interpreted with caution. For more detail on these and other issues related to using the yield curve to predict recessions, see the Commentary "Does the Yield Curve Signal Recession?" Our friends at the Federal Reserve Bank of New York also maintain a website with much useful information on the topic, including their own estimate of recession probabilities.

The Evolution of Uncertainty and Risk around the FOMC's Macroeconomic Forecasts: Back to Normal

06.05.14
by Saeed Zaman

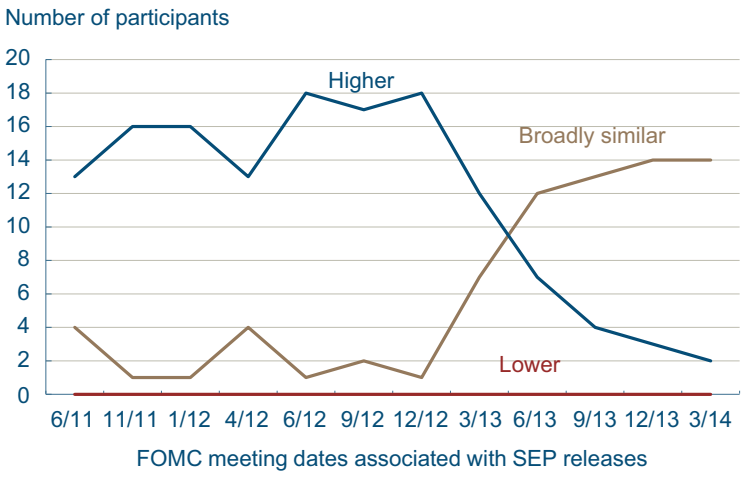
Over time, the Federal Open Market Committee (FOMC) has increased the information it provides to the public about its forecasts for economic conditions in the future. In 2007, the FOMC introduced the Summary of Economic Projections (SEP), which reports FOMC participants' projections for real GDP growth, the unemployment rate, PCE inflation, and core PCE inflation. The forecasts are made conditional on each participant's view of appropriate monetary policy. Beginning in 2012, the SEP was expanded to include projections for the federal funds rate.

In June 2011, the FOMC expanded the SEP by including participants' assessments of uncertainty around their projections and the perceived distribution of risk for each of the projected variables. All participants are asked to provide their opinion on whether the amount of uncertainty around their projections is higher, lower, or in line with the historical error ranges. For comparison, the historical error ranges reported in the SEP are essentially the average absolute errors made by private and government forecasters over the last 20 years. In addition, FOMC participants are asked whether the risks to the economy are more likely to cause their projections to miss above or below the actual outcome or are broadly balanced.

Generally, the forecast uncertainty associated with macroeconomic variables such as real GDP growth is correlated with the overall macroeconomic conditions prevailing in the economy. A higher uncertainty around the projections of economic growth than usual is typically associated with a weak economy. Arguably, highly uncertain economic conditions may also contribute to slower economic growth.

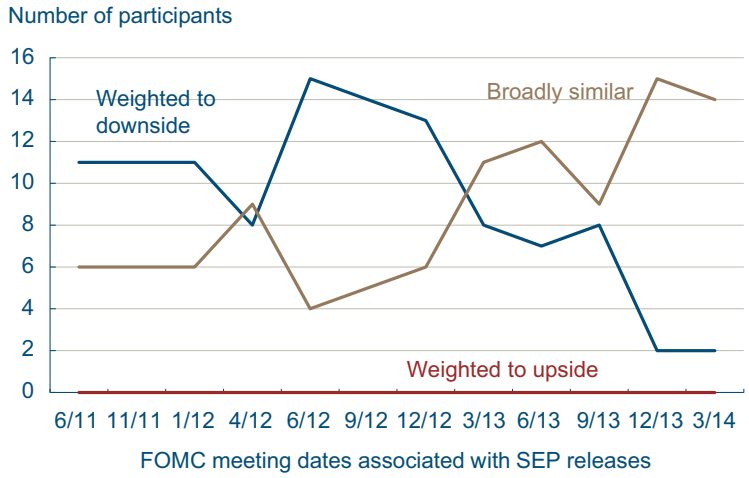
The information on uncertainty now reported in the SEP helps to give the public a much more complete picture of the FOMC participants' assessment

Uncertainty about Real GDP Growth



Source: Board of Governors of the Federal Reserve System.

Risks to Real GDP Growth



Source: Board of Governors of the Federal Reserve System.

of overall macroeconomic conditions. While the FOMC's projections of macroeconomic variables are often taken as the participants' views on current and likely future macroeconomic conditions, it is the combination of projections and the forecast uncertainty around them that gives the complete picture.

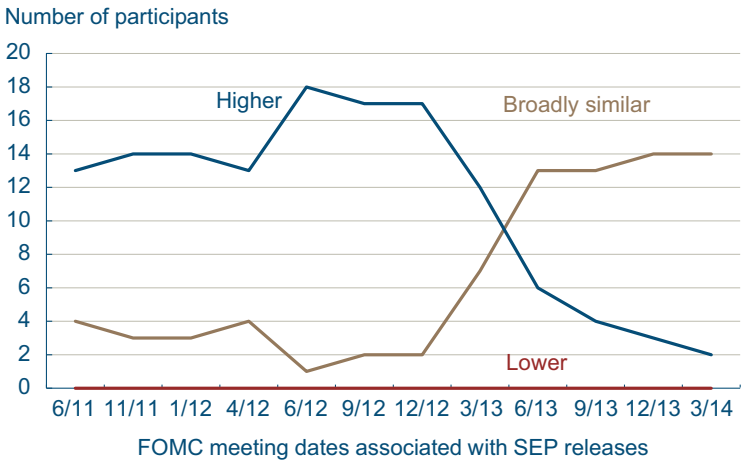
From June 2011 through at least the end of 2012, most participants reported uncertainty to be higher than usual around all of their projections. But since then, it has gradually declined back to normal levels. Currently, most participants believe that uncertainty around their projections for economic growth, the unemployment rate, and inflation is similar to historical averages, and the risks around those projections are broadly balanced.

As of the March 2014 FOMC meeting, almost all of the participants (14 out of 16) believed that the amount of uncertainty around their projections for economic growth (real GDP growth) was similar to the historical average of the past two decades. The total number of participants reporting normal uncertainty was the highest it has been since the SEP started reporting this measure. The remaining two participants believed it is higher than normal. In contrast, in December 2012 it was quite the opposite, when only one participant believed the amount of uncertainty at the time was similar to normal, and the rest of the participants (18 out of 19) reported higher-than-normal uncertainty.

It is worth pointing out that the majority of participants continued to report higher uncertainty from June 2011 until mid-2013, a period characterized by many as a disappointingly slow recovery from the Great Recession. Since then, as various headwinds to the economy have subsided, including those from fiscal policies, the reported uncertainty has gradually shifted toward more normal levels.

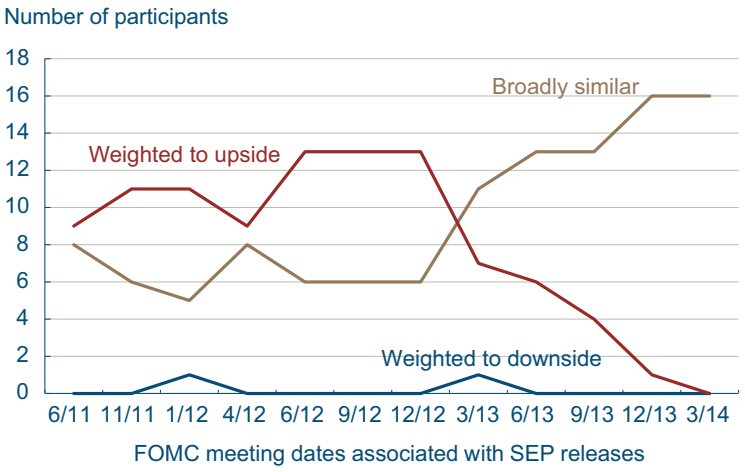
In line with the evolution of real GDP uncertainty, most participants (14 out of 16) have come to view the balance of risks to economic growth as being broadly balanced as of the latest SEP—that is, they thought it was equally likely that a positive or negative shock would affect economic growth. This is the largest number of participants who have

Uncertainty about Unemployment Rate



Source: Board of Governors of the Federal Reserve System.

Risks to Unemployment Rate



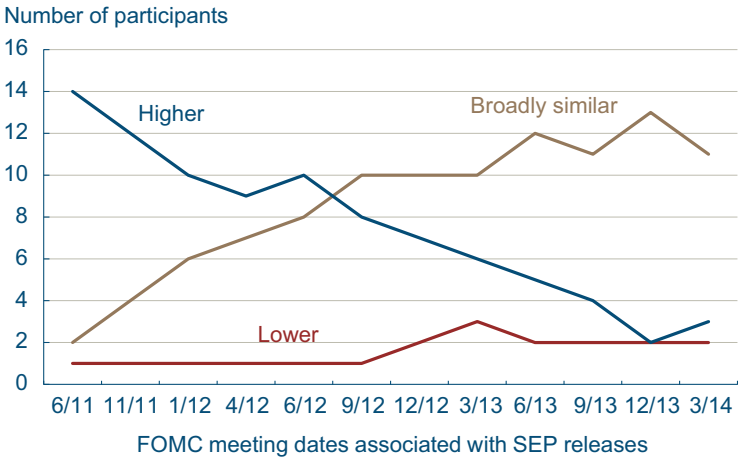
Source: Board of Governors of the Federal Reserve System.

reported the risks to economic growth as being balanced in the past three years. Just over a year ago, a majority of the participants viewed risks as being weighted to the downside, meaning they saw a higher likelihood for realized economic growth to turn out below their projections than above. So in line with a sharp shift in uncertainty toward normal levels, a significant shift to the downside in risk perceptions among the majority of participants has occurred.

The evolution of uncertainty around the projections of the unemployment rate has been very similar to that of real GDP. As of the March 2014 meeting, a majority of participants (14 out of 16) believed that uncertainty about unemployment was comparable to its levels of the past 20 years. This is the highest this reading has been since the SEP started reporting this measure. All of the 16 FOMC participants at that meeting viewed risks to the unemployment rate as being broadly balanced. Risks, by contrast, were viewed as being weighted to the upside by most participants a little over a year ago, meaning that given the level of uncertainty, they saw the balance of economic risks as creating conditions in which unemployment would more likely exceed expectations. In addition, a majority of the participants at the time reported higher than normal uncertainty. So along with a sharp shift in uncertainty about the unemployment rate toward normal levels, a significant shift in the risk perception toward more normal levels has also occurred among the majority of participants in the last three years.

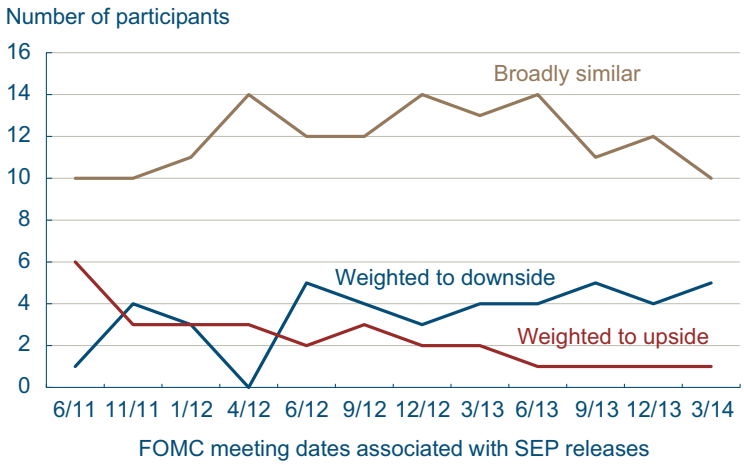
It is notable that none of the FOMC participants has reported the uncertainty for economic growth and unemployment to be lower than normal over the past three years. Additionally, no participant has classified the risks to his or her economic growth projections as being skewed to the upside—and only a few reported risks as being skewed to the downside for the unemployment rate. One possible explanation for this tendency is that the FOMC's main policy tool, the federal funds rate, has been set at its effective lower bound over this time, making it difficult for the economy to withstand adverse shocks. Another explanation is that it reflects the general difficulty in forecasting these

Uncertainty about PCE Inflation



Source: Board of Governors of the Federal Reserve System.

Risks to PCE Inflation



Source: Board of Governors of the Federal Reserve System.

variables after being hit with the deepest recession since the Great Depression, which has brought many conventional macroeconomic relationships into question.

The uncertainty around the FOMC's projections for both PCE inflation and core PCE inflation (PCE inflation excluding food and energy), like the uncertainty around real GDP and unemployment rate forecasts, have also trended back to normal. According to the June 2011 SEP, most participants (14 out of 17) reported uncertainty around their PCE inflation forecasts as being higher than the average of the past two decades. Since then it has gradually shifted toward normal levels.

According to the most recent SEP, a majority of FOMC participants viewed uncertainty around their inflation projections as normal. Only three participants believed uncertainty to be higher than normal, and two viewed it to be lower. The trends related to the perceived distribution of the risks around the inflation projections are somewhat different from real GDP and unemployment rate, however. Over the last three years, a majority of the FOMC participants continued to believe that risks around their inflation projections were equally balanced. In other words, they saw equally likely probabilities that positive or negative shocks could affect inflation. That being said, since mid-2012 the number of participants reporting risks as being weighted to the downside has been trending up, reflecting the fact that inflation persistently came in below the participants' median projection.

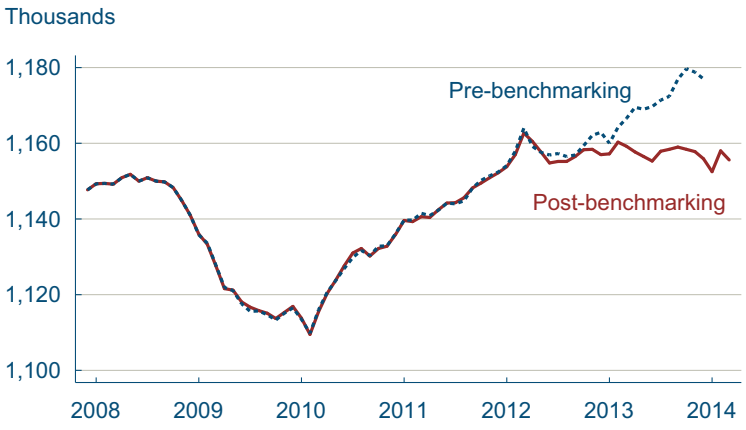
Over the last year or so, as various headwinds to economic growth have subsided and the unemployment rate has fallen, economic conditions have begun to normalize. The same can be said for the forecast uncertainty of FOMC participants, which has fallen back to more normal levels. Normal uncertainty and broadly balanced risks are a welcome sign, because they tend to go hand-in-hand with stable economic conditions.

Annual Revisions to Pittsburgh Jobs Data Alter Picture of Local Labor Market

05.15.14
by Guhan Venkatu

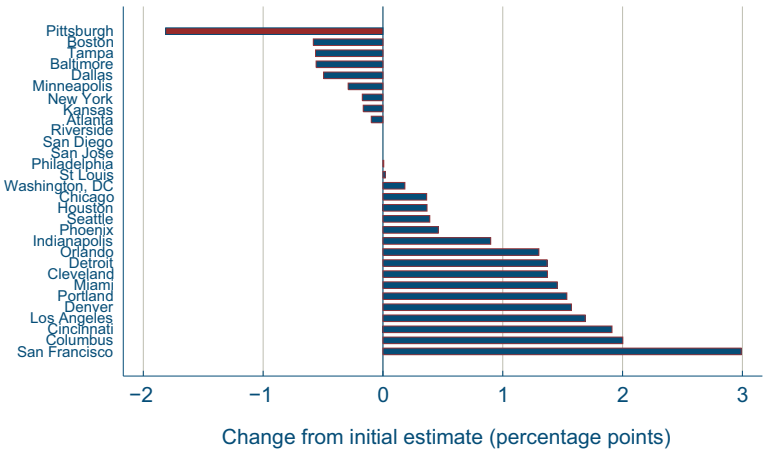
In March, the Bureau of Labor Statistics (BLS) released revised data for employment at the state and metro-area levels, after its annual revision process in which existing employment estimates are benchmarked to employment totals from a census of the employer population. These revisions could affect data from as long ago as January 2009, though their primary impact is on data from April 2012 to December 2013. Initial employment statistics for states and metro areas can change significantly when they are benchmarked through this process, sometimes altering or even reversing altogether our previous understanding of an area's labor market conditions (see Revisions to Metro-Level Jobs Data Shed New Light on Job Growth and Which Estimates of Metropolitan-Area Jobs Growth Should We Trust?). The latest revisions offer a case in point for the Pittsburgh metro area.

Pittsburgh MSA Employment: Pre- and Post-Benchmarking



Source: Bureau of Labor Statistics.

Employment Revisions for 30 Largest MSAs, December 2011 to December 2013

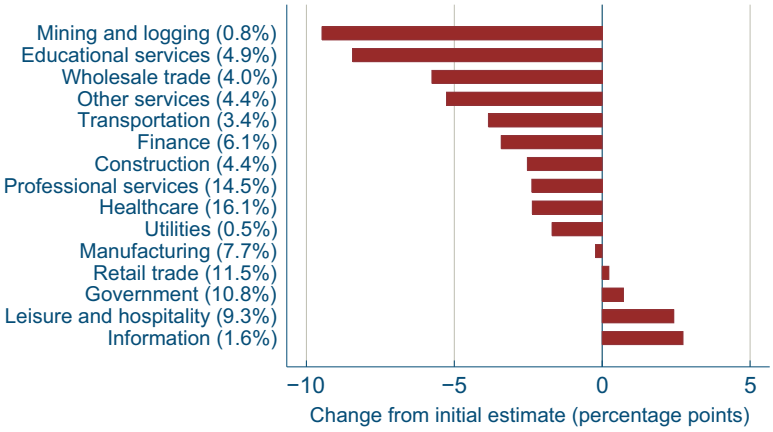


Notes: Data are for the 30 largest US MSAs by employment. Cities listed are a shortened version of the full MSA name.
Source: Bureau of Labor Statistics.

Before the revised data were published, employment in the Pittsburgh area appeared to have grown by approximately 25,000 jobs, or just over 2 percent, during the two-year period from December 2011 to December 2013. The revised data, however, indicate that the area added considerably fewer jobs during this period—just under 4,000—constituting a percentage increase of only 0.3 percent. Employment growth earlier in the recovery, during the preceding two-year period from December 2009 to December 2011, was notably stronger, with the Pittsburgh area adding almost 36,000 jobs, an increase of over 3 percent. (Pittsburgh's employment data during this period were not meaningfully altered by the recent revisions.)

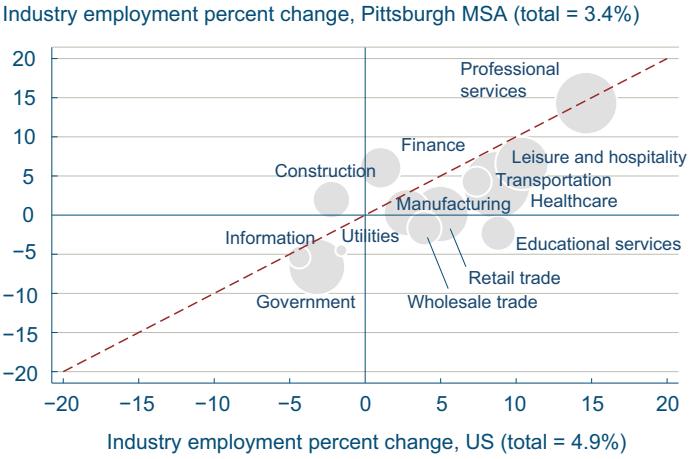
The revision to the area's employment growth for the two years ending in December 2013 stands out as one of the largest reductions among major metropolitan statistical areas (MSAs) in terms of the percentage point change. Considering either the 30 largest MSAs, which tend to have populations in

Pittsburgh MSA Employment Revisions by Industry, December 2011–December 2013



Note: Figure in parentheses identifies the industry employment share in the Pittsburgh MSA as of December 2011.
Source: Bureau of Labor Statistics.

Industry Employment Change in the Pittsburgh MSA and the US, June 2009–December 2013



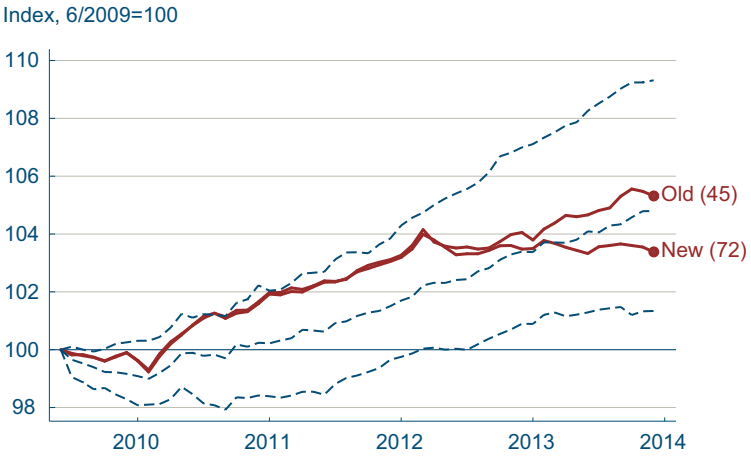
Notes: Mining and logging sector not shown. Circle size indicates industry employment share for Pittsburgh MSA in June 2009. The dashed red line indicates 45 degrees
Source: Bureau of Labor Statistics.

excess of 2 million people, or the 50 largest, which tend to have populations in excess of 1 million people, the Pittsburgh MSA saw the largest downward revision to its employment growth for this two-year period. The BLS notes that the absolute magnitude of revisions tends to be larger for smaller MSAs since these areas' initial estimates are based on relatively smaller sample sizes. But even among the 100 largest MSAs, which generally have populations exceeding half a million people, Pittsburgh's downward revision ranked third, behind Fayetteville, Arkansas, and Lexington, Kentucky.

Given the relatively large downward revision to the area's employment growth, it is perhaps not surprising that most major industry categories also registered downward revisions to their employment growth during the two years ending December 2013. Mining and logging posted the Pittsburgh area's largest revision (-9.5 percentage points), which cut the industry sector's initially reported employment growth over the two-year period (22.1 percent) almost in half. While mining and logging is a relatively small sector, educational services and wholesale trade, which also saw sizeable revisions, collectively account for almost 10 percent of the Pittsburgh area's employment. Notably, prior to the revision, both sectors seemed to have gained jobs, but the revised data show that both sectors lost jobs. On the other side of the ledger, the leisure and hospitality sector, which alone accounts for almost 10 percent of the area's employment, flipped from an initially reported decline to a roughly 2 percent employment increase in the two-year period.

The revised data reveal that most major industry segments saw less employment growth than their national counterparts from the beginning of the recovery (mid-2009) to the end of 2013. One obvious exception is the mining and logging sector, whose employment in the area roughly doubled during this period. By contrast, the sector saw employment gains of about 30 percent nationally. The finance and construction sectors also saw notably stronger gains locally, while the (percentage) increase in professional services employment—which includes things like legal, accounting, and advertising services, as well as scientific research and the management of companies—was about the same in

Pittsburgh MSA Payroll Employment, Pre- and Post-Benchmarking



Notes: Outcomes for the 100 largest American metro areas, by employment, are represented by dashed lines. The median outcome is in the middle of the chart; the top-most and bottom-most dashed lines depict the 10th best and worst outcomes, respectively, at any given point. Recovery growth rank among 100 largest American metro areas, by employment, shown in parenthesis.
Source: Bureau of Labor Statistics.

the Pittsburgh area as it was nationally. Educational services was an outlier on the other side, declining more than 2 percent from mid-2009 to the end of 2013; nationally, the sector saw an increase of nearly 9 percent.

Taken together, the revisions alter our sense of Pittsburgh's performance during the recovery. Prior to the revisions, total employment in the Pittsburgh area appeared to have grown in excess of 5 percent from mid-2009 to the end of 2013, slightly stronger than the employment growth experienced nationally over the same span (4.9 percent). However, the revised data show that the area's total employment grew about 1.5 percentage points less than the nation's during this period. As a consequence, Pittsburgh's employment growth fell in rank among the nation's top 100 MSAs (by employment), from 45, just above the median MSA, to 72, close to the bottom quartile.

Economic Trends is published by the Research Department of the Federal Reserve Bank of Cleveland.

If you'd like to subscribe to a free e-mail service that tells you when *Trends* is updated, please send an empty email message to **econpubs-on@mail-list.com**. No commands in either the subject header or message body are required.

ISSN 0748-2922