U.S. Macro Forecaster: 2017
Economic Barometers: Real GDP, CPI

As your team’s newly hired macro forecaster, your two responsibilities are to predict 2017 real GDP growth and the quarterly annualized rate of change for the CPI. You have inherited your firm’s old forecast, and they shared the consensus expectation. Thus as of today, February 20, you are in print predicting 2.3% growth, 4th quarter over 4th quarter, rate for first quarter real GDP performance and a 2.4% climb, December to December, for the headline CPI. Each Thursday, starting next week, however, you may update your forecast.

Each and every week, as a macro forecaster, you must be ready to participate in class discussions, and be ready to answer questions about current developments relating to real GDP and the CPI. Forecasters look backward, to venture forth with opinions about the future. They keep a close watch on the recent past, so they can change their view early, if the world seems to be changing. What do we know about the performance for real GDP growth and the CPI? Here are some historical readings:

<table>
<thead>
<tr>
<th></th>
<th>REAL GDP growth (annualized)</th>
<th>HEADLINE CPI CHANGE (annualized)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1:2017 nowcast*</td>
<td>2.4%</td>
<td>n.a.</td>
</tr>
<tr>
<td>Q4:2016</td>
<td>1.9%**</td>
<td>3%*</td>
</tr>
<tr>
<td>2016</td>
<td>1.9%**</td>
<td>2.1%#</td>
</tr>
<tr>
<td>2011-2016</td>
<td>2.1%**</td>
<td>1.3%#</td>
</tr>
</tbody>
</table>

*GDP Now, Atlanta Fed
**BEA Estimates, Q4/Q4
#December to December

We also know that January’s CPI jumped, climbing 0.6%, its highest rise since early 2013. This reflected both rebounding energy prices and a climb for the core CPI.

Exogenous Forces that Might Change the Pace for Real GDP Growth

Economic growth rates can change, simply due to the internal dynamics of an economy. We label such changes endogenous shifts. Alternatively, on occasion economies are buffeted with big shocks or major policy changes. In today’s circumstances, Trump economic policies have the potential to meaningfully real growth trajectories. Large tax cuts tend to lift growth rates. Major deregulation speeds up expansion. Defense spending increases add to growth, as do expenditures on infrastructure. Some form of all of these measures are a part of the Trump message. We do not know, however, what stimulus we will get and how effective it will turn out to be.

We also know that Trump wants to slash the U.S. trade deficit. Accelerating growth, however, usually widens the U.S. trade deficit. A major tax on imports might help. This, however, would invite a serious acceleration for inflation.

An inflation threat, of course, would force the U.S. Federal Reserve Board to accelerate their tightening of monetary policy. In other words, there is some chance that, in the not too distant future a forecaster of GDP will need to contemplate what happens when the White House steps on the gas and the FRB jams on the brake!
The Outlook for U.S. Inflation

How should we frame our thoughts on U.S. price pressures, going forward? For more than 6 years, inflation has been lower than most economists expected. Explanations include the slow pace of U.S. and rest-of-world growth, the high level of global unemployment, the strength of the U.S. dollar, and the 2015 plunge for oil prices.

Consider the table below:

<table>
<thead>
<tr>
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<th>LAST SIX</th>
<th>LAST 12</th>
<th>LAST 5</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>ANNUALIZED</td>
<td>ANNUALIZED</td>
<td>ANNUALIZED</td>
</tr>
<tr>
<td>HEADLINE</td>
<td>3.6%</td>
<td>2.6%</td>
<td>1.4%</td>
</tr>
<tr>
<td>core</td>
<td>2.5%</td>
<td>2.3%</td>
<td>1.9%</td>
</tr>
<tr>
<td>food</td>
<td>0.2%</td>
<td>0.0%</td>
<td>1.3%</td>
</tr>
<tr>
<td>energy</td>
<td>24.2%</td>
<td>11.0%</td>
<td>-3.1%</td>
</tr>
<tr>
<td>goods XF&amp;E</td>
<td>0.6%</td>
<td>-0.3%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>serv.-energy</td>
<td>3.0%</td>
<td>3.1%</td>
<td>2.7%</td>
</tr>
<tr>
<td>OER</td>
<td>3.6%</td>
<td>3.5%</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

Note that energy prices jumped over the past year, but that they remain down over the past 5 years. Note also core goods prices have been falling for 5 years. Finally note that imputed rents for homes have been rising rapidly.

Note: Formula for calculating quarterly annualized pace for CPI:

\[ 100 \times \left(\frac{(CPI \ Index, \ March \ 2017)}{(CPI \ Index, \ December \ 2016)}\right)^4 - 1 \]
Background Material for Barometer #1: Real Gross Domestic Product

Real GDP growth is the signature measure of the overall economy. Real GDP measures total economic activity in constant prices. Real GDP is inclusive. It combines measured levels of consumer, business, government, and export targeted outputs. Real GDP, estimated by the Bureau of Economic Analysis of the Department of Commerce, is presented in quarterly and annual totals. Various other aggregate measures of U.S. economic activity are released with the GDP report, including net national product, national income, personal income and corporate profits.

Real Gross Domestic Product:
- Real: Corrects for inflation, i.e. subtracts price changes from total expenditures.
- Gross: Includes all investment i.e., new investment and replacement investment.
- Domestic: measures economic activity unfolding in the U.S.
- Product: tallies the production of final goods and services.

Real GDP reports are issued late in the month. The most recently tallied quarterly annualized growth rate for real GDP is the number most often used, when economists volunteer a figure for the ongoing growth rate for the economy. Because GDP estimates rely upon source data, released well ahead of the GDP report, it is not considered a super timely economic measure. Nonetheless, it organizes a great many economic statistics into a single barometer.

Bottom Up Assessments of an Unfolding Quarter’s Real GDP Performance

Many monthly economic statistics are used by BEA as “source data” for quarterly GDP calculations:

- Monthly retail sales — used to estimate personal consumption of durables and non-durables
- Monthly durable goods shipments – used to estimate equipment investment
- Monthly construction spending – input for residential & structures investment
- Monthly manufacturing and trade – input used for inventory investment
- Monthly trade balance— the source of the net exports calculation.

Consensus “forecasts” of current quarter real GDP evolve as monthly data are released. Economists are able to “bean count” their way into revised estimates of an unfolding quarter of economic activity. The Atlanta Fed’s NOWCAST provides one running tally of how the current quarter is shaping up.

Top Down Guides for Estimating an Unfolding Quarter’s Real GDP Growth

Some economic barometers provide guidance for estimating overall real GDP growth:

- Monthly employment statistics, most notably employee hours worked, provide useful indications of unfolding real GDP momentum.
- Monthly industrial production performance provides a barometer for GDP goods economic performance.
Monthly Surveys of Purchasing Managers provide a coarse sense of swings in real GDP momentum.

Background Material for Barometer #2: The Consumer Price Index

Estimating the overall price level—and its rate of change—is critical to macroeconomic analysis and forecasting. The inflation rate estimates the speed with which the economy’s overall price level is rising. Two measures, the consumer price index and the personal consumption expenditure deflator, combine to give economists insights about the trends in overall prices. Sub-indices for both the CPI and the PCE deflator are also available. Because of the volatility of agricultural and energy prices, the core (excluding food and energy prices) CPI and PCE deflator receive careful scrutiny. In addition, inflation rates are sometimes split into core goods inflation rates and core services inflation rates.

The Consumer Price Index:
- Analyzes the prices of a fixed basket of consumer goods and services.
- Weights are changed only with benchmark changes, every five years.
- Quality change estimates are incorporated into price change calculations.
- Seasonally adjusted monthly inflation indices are available for many categories.
- Essentially a Laspeyres Index.

The CPI is reported in the middle of each month. The monthly percentage change in the CPI, the core CPI and the CPI for core goods and core services are key determinants in shaping short run opinions about U.S. inflation. CPI movements give rough guidance concerning consumer purchasing power. The U.S. Federal Reserve Board assigns changes in the U.S. inflation rate coequal status with the employment picture when it meets, every six weeks and determines its target for short-term interest rates. The bond market reacts immediately to changes in inflation expectations. Both the stock market and the trade-weighted dollar are influenced by changes in opinion about inflation.

The Personal Consumption Expenditure Deflator:
- Analyzes goods and services prices, with weights a function of expenditure levels.
- Avoids substitution bias, embedded in CPI, therefore preferred by Fed officials.
- Released after CPI, therefore less important for month-to-month assessments.

Important Indicators of the CPI:
- Energy Commodities trade daily. Energy commodity price changes almost immediately flow to consumer inflation.
- Import price changes, provided monthly, ahead of CPI, bear on CPI.
- Final producer prices, in the producer price index, bear on CPI.

Deconstruction of the CPI allows for judgments about 4 sub-categories:
1. Core CPI, excludes food and energy swings, is looked upon as underlying rate.
3. Core Services CPI, tied to domestic markets, less volatile, although core services inflation declined to 3.0%, from 3.7%, in 2008.
4. Owners’ Equivalent Rent, imputed from rents, applied to homeowners, slowed in 2008 due the housing debacle.