

Update of “How Big is the Output Gap?”

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This note reports updated estimates of output gaps based on the methods used in “How Big is the Output Gap?” *FRBSF Economic Letter* 2009-19, June 12, 2009, by Justin Weidner and John C. Williams: <http://www.frbsf.org/publications/economics/letter/2009/el2009-19.html>.

The estimates reported in that Letter were based on data available through March 2009. The updated estimates reported here use data available through June 2009. In addition to providing estimates for the second quarter of 2009, this update reports revised estimates of past quarters, reflecting the effects of data revisions and changes in parameters used in estimating output gaps.

The Congressional Budget Office (CBO) released updated estimates of the natural rate of unemployment and potential output in August 2009. The main effect of the revisions to the CBO estimate of the output gap is to make it more positive over the past several years. This revision in the CBO estimate of the output gap dramatically reduces the discrepancy between the CBO estimates and the Laubach-Williams estimates in the years before the current recession that we noted in the *Letter* (compare Figure 1 to that in the original *Economic Letter*). Note that the CBO indicated that their potential output estimates do not incorporate data from the comprehensive revision of the national income and product accounts that were released in July 2009, and that they plan to release updated estimates. In future updates, we will incorporate the new CBO estimates as they become available.

As seen in Table 1, all of the estimates of the output gap are more negative in the second quarter of 2009 than in the preceding quarter, reflecting the declines in output and sizable job losses in the second quarter. The relative ranking of the output gap estimates are the same as reported in the original *Economic Letter*: the CBO output- and unemployment-based gap measures are the largest, averaging -7 percent in the second quarter of 2009, the Laubach-Williams estimate is the smallest at -2.3 percent, and the three survey-based measures average -4.5 percent. Averaging across the five non-CBO estimates, the output gap was -4.3 percent in the second quarter of 2009, about ½ percentage point more negative than in the preceding quarter. By comparison, the average of the two CBO-based estimates declined by 1.4 percentage points between the first and second quarters of 2009.

Figure 1.
Estimates of the output gap

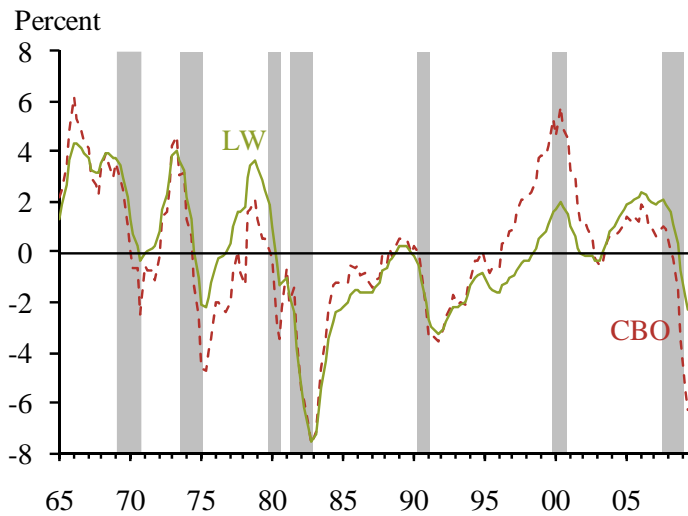


Figure 2.
Estimates of potential output growth

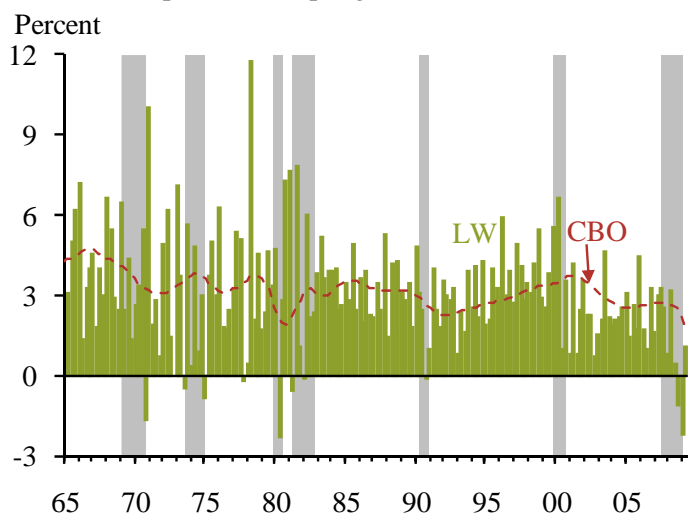


Table 1.
Alternative estimates of output gap

	2007Q4	2008Q4	2009Q1	2009Q2
1. CBO	0.9	-3.4	-5.5	-6.2
2. Laubach-Williams	2.0	-0.7	-1.8	-2.3
3. Capacity utilization	0.0	-3.2	-4.9	-5.6
4. CBO unemployment-based	0.0	-3.6	-5.6	-7.7
5. Job market perceptions	-0.5	-2.8	-3.5	-3.5
6. Business survey	-0.6	-2.7	-3.9	-4.5
7. Job vacancies	-0.1	-3.3	-4.6	-5.5

Methodological Note on Estimates Underlying Table 1

Capacity utilization is the manufacturing capacity utilization from the Federal Reserve Board's G.17 Statistical Release. The job market perceptions series is constructed from the Conference Board survey as a diffusion index of percentage of households that think jobs are plentiful versus the percentage of households that think jobs are hard to get ($\% \text{plentiful} - \% \text{hard to get} + 100$). The business survey is a three-month moving average of the percent of firms with at least one "hard-to-fill" position from the National Federation of Independent Businesses survey. Job vacancies are the total private job opening rate from the BLS Job Openings and Labor Turnover Survey. The data we use in normalizing the capacity utilization, job market perceptions, and business survey series is January 1990 – June 2009. For the job vacancies series, the data only goes back to December 2000, so the relevant data range for this series is December 2000 – June 2009.

The general procedure to generate the alternative estimates of the output gap is as follows:

1. For each of the measures, we normalize the series to have the same mean and standard deviation as the CBO unemployment gap over the data period to get unemployment gap equivalents.
2. Aggregate the monthly data into quarterly data.
3. Multiply the CBO unemployment gap and the unemployment gap equivalents for each series by 1.7, which is the coefficient from an Okun's Law regression of the CBO output gap and the CBO unemployment gap, to get the synthetic output gaps.

This standard statistical method in step one of transforming the series to have the same mean and standard deviation as the CBO unemployment gap may result in changes in past data points as new observations change the mean and standard deviation of each series.