



The Output Gap: A “Potentially” Unreliable Measure of Economic Health?

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*“Is real output greater or less than potential?” and “Is real output growing more or less rapidly than potential?”
The answers to these questions are central to policy decisions.”*

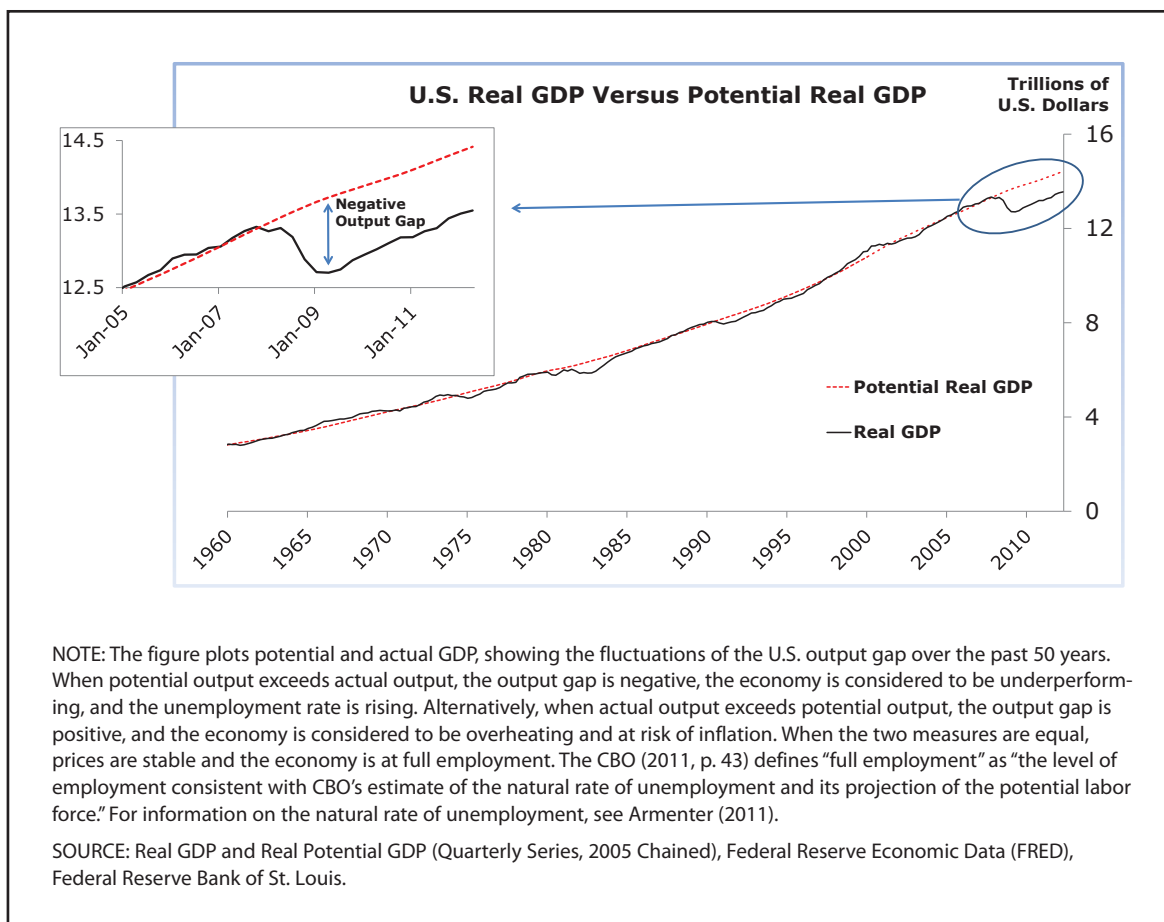
—Richard G. Anderson, Vice President and Economist, Federal Reserve Bank of St. Louis, 2009

The Great Recession ended almost three years ago, but in many ways it seems like the economy is still in a rut. Amid financial instability in Europe and uncertainty about the future of the U.S. business climate, many firms seem reluctant to expand and invest. The numbers of mortgage delinquencies and foreclosures remain high despite recent improvements in housing starts and prices. And while monthly consumer spending indicators are improving steadily, many American families continue to struggle with the challenges of unemployment and underemployment. Given these realities, some economists and policymakers believe that the economy has not yet returned to a “normal” functioning level.

But what exactly is the economy’s “normal” functioning level? How many people could be working and how much could they be producing?¹ Economists use the notion of **potential output (potential real gross domestic product [GDP])** to represent a normal—or benchmark—level of output against which **actual output (real GDP)** can be compared at any given time. Potential output is the amount the economy would produce given the quantity and quality of the nation’s factors of production: capital (equipment and structures), technology, and worker knowledge. The economy’s “normal” functioning is characterized by this level of potential output and the corresponding level of employment. Depending on the state of the economy, actual output could be above, below, or equal² to potential output (see the chart, which plots U.S. potential output and actual output over the past 50 years). The difference between potential output and actual output—or, in other words, the difference between where the economy would be normally and where it is now—is known as the **output gap**.³ The output gap is one of many economic measures that policymakers use to evaluate our economic performance.

Actual output, or real GDP, is a straightforward calculation because what the economy has produced is quantifiable. Calculating potential GDP, however, is not so straightforward; it is a modeling exercise, albeit one that uses actual data as inputs. In other words, potential GDP is a hypothetical number. For that reason, economists and policymakers must exercise caution when interpreting movements in the output gap—especially when potential GDP is estimated from the most recently available data.

Some economists question the reliability of potential output (and, therefore, output gap) measures. For instance, as James Bullard⁴ noted in 2009, if calculations had considered the housing boom and bust, then potential GDP and output gap measurements would have been



smaller than they appeared.⁵ His view suggests a problem with the inherent theoretical framework many economists use to measure output gaps. Another problem is that the estimates of potential and actual GDP are revised because (i) the underlying data are updated as more information becomes available and (ii) new methodologies are adopted to estimate potential output.

Given these concerns, how can economists accurately estimate what the economy should produce now and in the future? Herein lies the questionable nature of using measurements of the output gap in policy decisions: As more time allows for more accurate calculations, the estimates are revised—sometimes significantly. If initial estimates misrepresent the state of the economy, then important monetary and fiscal policy decisions based on these estimates could prove misguided.

For instance, economist Athanasios Orphanides (2002, 2003) suggests that using initial output gap estimates contributed importantly to the increased inflation of the 1970s.⁶ He argues that the Federal Reserve, believing the output gap to be more negative than it really was, took overly stimulative actions that produced an overheated and inflation-ridden economy.⁷

What about the output gap today? Similar to Orphanides’ findings, Gavin (2012) shows that the output gap calculations for 2003-12 are reduced significantly when 2011 estimates of potential GDP are used in place of 2007 estimates.⁸ If our economy is improving faster than current output gap measurements suggest, then monetary policy intended to boost the economy could produce too much stimulation, thereby fueling inflation once the economy begins to pick up steam. ■

NOTES

- ¹ Our country's long-term growth is largely a function of the factors that influence how productive we are as a society.
- ² When real GDP is at potential (the output gap is zero), the unemployment rate equals its natural rate and prices are stable (see Kliesen, 1999, and Armenter, 2011). More information on unemployment can be found at the Federal Reserve Bank of St. Louis Economic Resources website ("[Unemployment—The Economic Lowdown Podcast Series](#)").
- ³ The concepts of potential output and the output gap described in this essay fall largely within a New Keynesian macroeconomic framework, which many economists and Federal Open Market Committee policymakers use to analyze the economy and determine the appropriate stance of monetary policy. Others in the economics profession would describe potential output and the output gap in a different way. More information on different economic schools of thought can be found in the November 2009 [Liber8 Economic Information Newsletter](#).
- ⁴ James Bullard is the president and CEO of the Federal Reserve Bank of St. Louis.
- ⁵ For further discussion of how the real estate bubble biased the output gap, see Banerghansa and Peralta-Alva (2009).
- ⁶ For more information on the Great Inflation of the 1970s and early 1980s, see the October 2012 [Page One Economics Newsletter](#).
- ⁷ See Lubik and Slivinski (2010).
- ⁸ Gavin shows that Congressional Budget Office (CBO) estimates of the output gap based on 2007-vintage potential GDP are much larger than estimates using 2011-vintage potential GDP. For instance, based on 2007-vintage data, the output gap for the first quarter of 2009 was -9.9 percent, compared with -7.1 percent, which results when 2011-vintage data (based on revised data) for potential GDP are used.

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GLOSSARY

Output gap: The difference between potential output and actual output.

Potential output: The real output (GDP) an economy can produce when it fully employs its available resources.

Actual output (real GDP): The amount that an economy actually produces, as measured by real GDP.

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