



Projecting GDP Growth Using Trends in Labor Force Participation

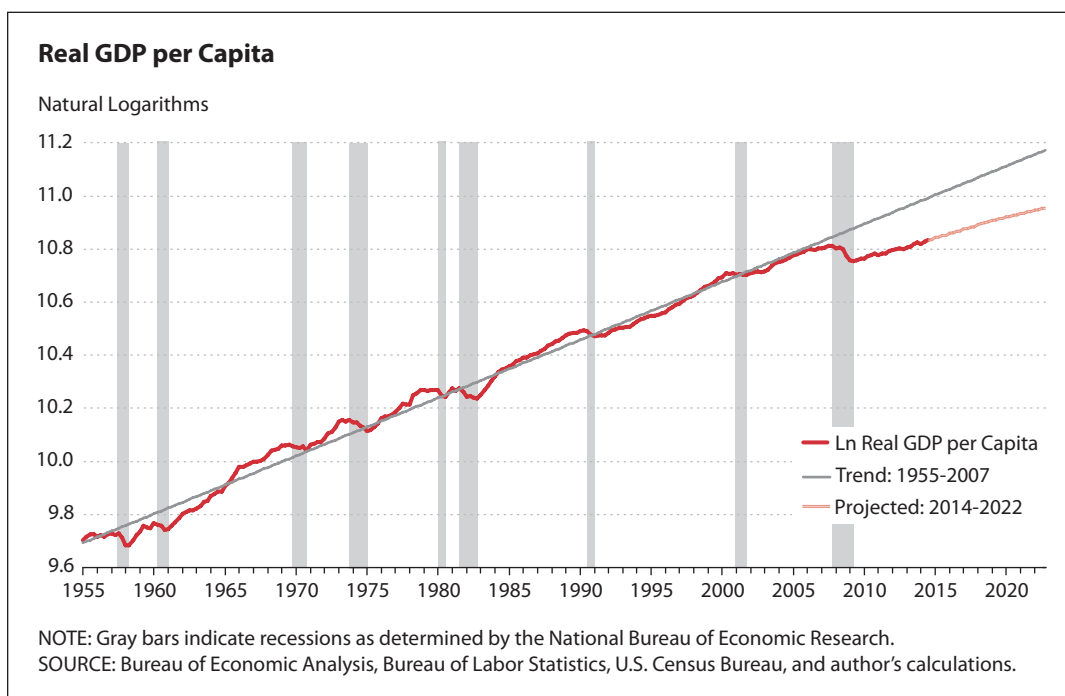
Fernando M. Martin, *Senior Economist*

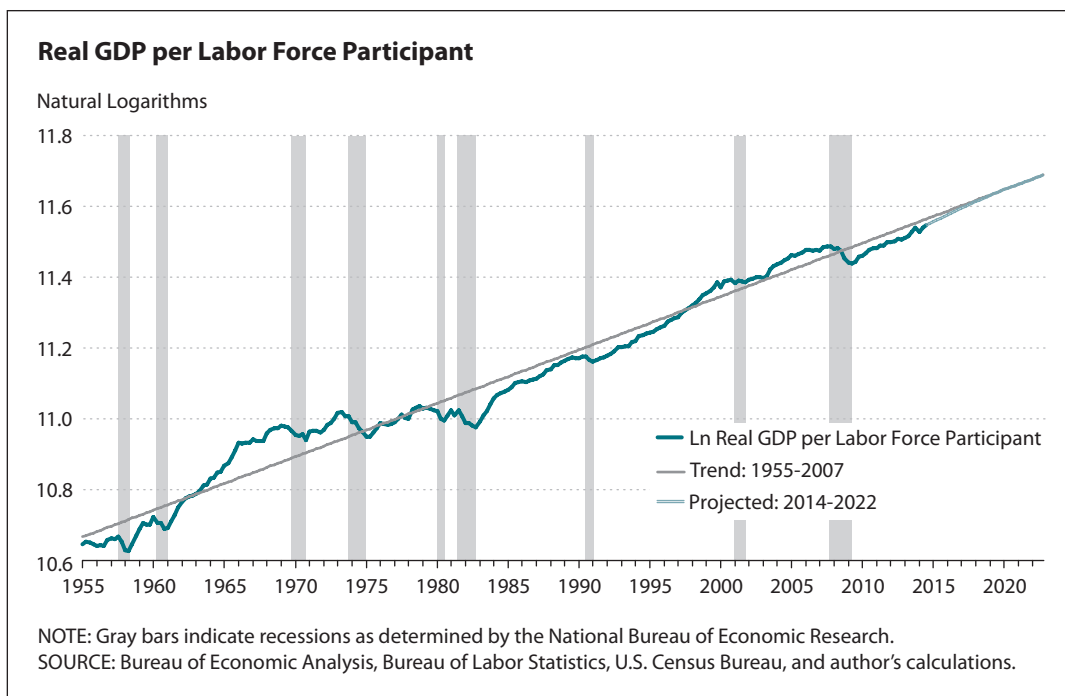
One of the most notable consequences of the recent recession has been the persistent and significant departure of output from its trend. As shown in the first figure, output, as expressed by real gross domestic product (GDP) per capita, typically fluctuates around a linear trend. That is, it grows at a constant rate on average. During the past recession, however, output per capita dropped dramatically and did not recover the way it had after previous recessions. As of 2014:Q3, real GDP per capita is about 15 percent below its 1955-2007 trend. Furthermore, its growth has slowed considerably: from a 2.2 percent annual average before the recession to a 1.4 percent annual average since 2010.

The decline in output is associated with a similar decline in employment. Arguably, the decline in employment is driven by a steady decline in labor force participation largely

caused by demographic changes in the U.S. population (e.g., the aging of the “baby boom” generation).¹ The labor force participation rate reached its peak in 2000 (at roughly 67 percent) and has been falling ever since. As of 2014:Q3, it stands at 62.8 percent, a rate not registered since the late 1970s. The decline in labor force participation was anticipated long before the start of the past recession, however, and is expected to continue over the next few decades.²

Measuring the output gap without accounting for the trend in labor force participation may lead to persistent misdiagnoses of the state of the economy.





The second figure shows real GDP per labor force participant, which is a simple way to correct for the effects of changing demographics on output. During the past recession, real GDP per labor force participant fell sharply. In contrast to output per capita, however, it has been converging back to trend since the recession ended. As of 2014:Q3, real GDP per labor force participant is only 2 percent below its pre-recession trend. Thus, when viewed through this lens, the supply of output per labor force participant in the U.S. economy appears to be almost back to normal. Given that the population is expected to grow faster than the labor force, output per capita is expected to continue to diverge from its pre-recession trend.

These observations motivate the following exercise. Assuming that output per labor force participant continues to grow around its trend and that labor force participation will evolve mostly according to predictable demographic trends, I use current labor force and population projections to project future output.³ Specifically, I assume that real GDP per labor force participant will grow at its current pace until closing the gap with its pre-recession trend and then continue growing at its historical 1.5 percent annual average (see the second figure). Using this estimated series, together with the projections for the labor force and population, I construct projections for GDP and GDP per capita.

As shown in the first figure, under the assumptions made above, real GDP per capita would not return to its pre-recession trend and the output gap would continue expanding. By 2022:Q4, output per capita would be about 20 percent below its trend and growing at a modest 1.3 percent annual average. (These results are very similar to Congressional Budget Office projections for the same measures: 19 percent and 1.4 percent, respectively.⁴)

The calculations described above imply that real GDP would grow at a 2.3 percent annual average between now and 2022, declining slightly toward a 2.0 percent annual average by the next decade. These rates are significantly lower than the 3.3 percent average annual growth rate of real GDP between 1955 and 2007.

When expressed as a fraction of the labor force, the output gap is essentially closed and there is no further role for stabilization policies. Assuming current demographic trends persist, we should not expect output and output per capita to return to their pre-recession trends. Furthermore, the use of these variables to measure the output gap may lead to persistent misdiagnoses of the state of the U.S. economy. ■

NOTES

¹ The labor force participation rate measures the share of the civilian, non-institutionalized population that is either employed or unemployed but looking for work.

² For more analysis, see Canon, Kudlyak, and Debbaut (2013), Bullard (2014), and Martin (2014).

³ For the labor force, I use the most recent Bureau of Labor Statistics projections for the next decade (see Toossi, 2013). Population projections are from the U.S. Census Bureau.

⁴ See CBO (2014).

REFERENCES

- Bullard, James. "The Rise and Fall of Labor Force Participation in the U.S." Speech at the Exchequer Club, Washington, DC, February 19, 2014; <http://research.stlouisfed.org/econ/bullard/the-rise-and-fall-of-labor-force-participation-in-the-u-s/>.
- Canon, Maria E.; Kudlyak, Marianna and Debbaut, Peter. "A Closer Look at the Decline in the Labor Force Participation Rate." Federal Reserve Bank of St. Louis *Regional Economist*, October 2013, pp. 10-11; <http://www.stlouisfed.org/publications/re/articles/?id=2419>.
- Congressional Budget Office. "An Update to the Budget and Economic Outlook: 2014 to 2024." August 27, 2014; <http://cbo.gov/publication/45653>.
- Martin, Fernando M. "Labor Market Update." Federal Reserve Bank of St. Louis *Economic Synopses*, No. 7, March 21, 2014; <http://www.research.stlouisfed.org/publications/es/article/10081>.
- Toossi, Mitra, "Labor Force Projections to 2022: The Labor Force Participation Rate Continues to Fall." Bureau of Labor Statistics *Monthly Labor Review*, December 2013; <http://www.bls.gov/opub/mlr/2013/article/labor-force-projections-to-2022-the-labor-force-participation-rate-continues-to-fall.htm>.

Posted on November 24, 2014

Views expressed do not necessarily reflect official positions of the Federal Reserve System.