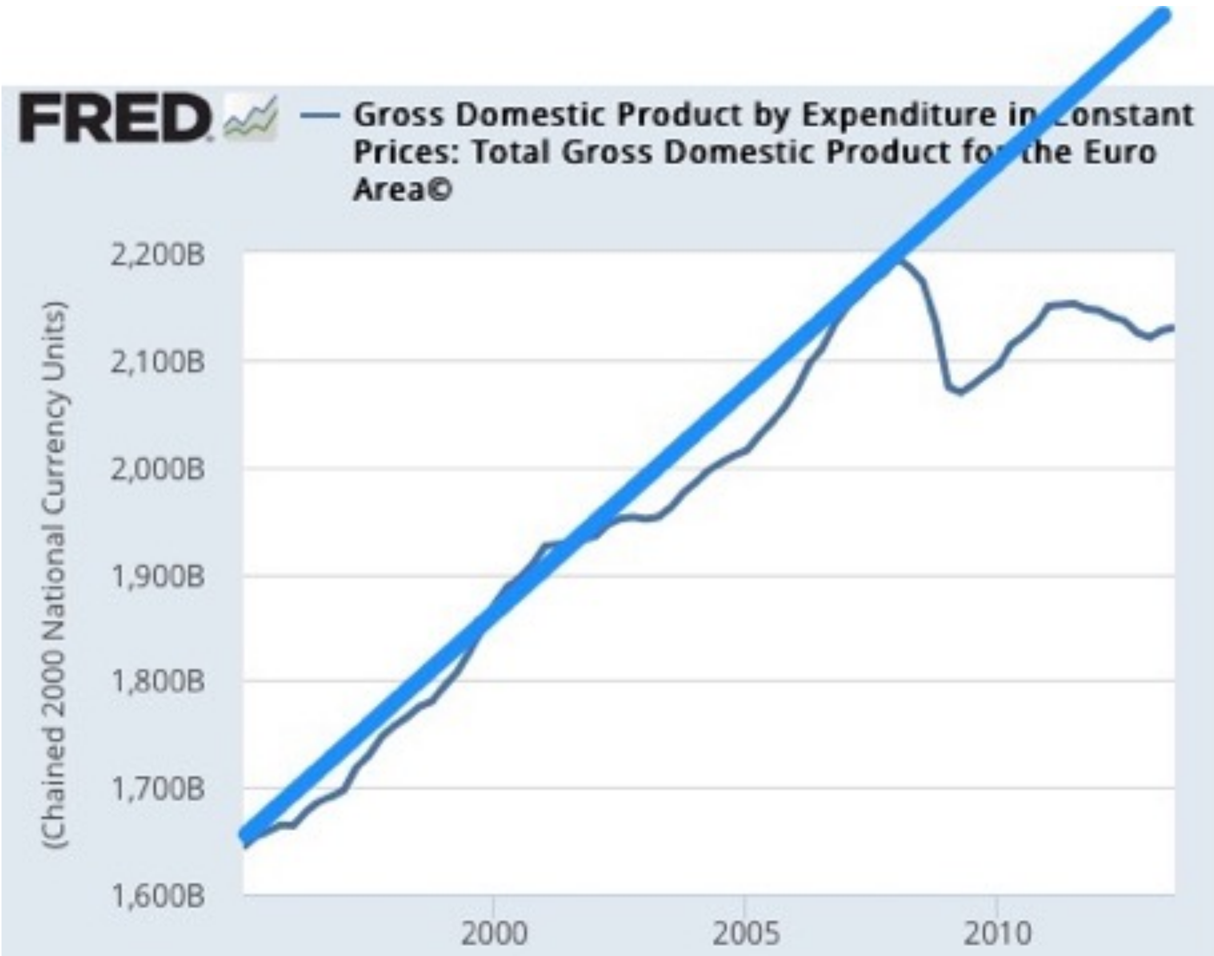
Econ 1: Spring 2016: U.C. Berkeley

Section Exercise for April 13/14: The Eurozone

1) Between the beginning of 1995 and the beginning of 2008, real GDP in the countries of the Eurozone grew from 1650 to 2200. What was the real GDP growth rate over this period?



Over a length of time of 13 years, GDP grew by a factor of 2200/1650 -1 = 1/3, or 33.3%. In order to figure out the growth rate, it is most straightforward to simply raise the 1.333 growth factor to the 1/13 power, and get: 1.0224–that is, 2.24%/year.

2) If Eurozone real GDP had continued to grow at the same pace between the start of 2008 and the start of 2014, how large would Eurozone real GDP have been at the start of 2014

The right way to answer this question is to grow the 2200 value of real GDP at the start of 2008 by 2.24% for 6 years, and get, roughly: 2500

3) Actual Eurozone real GDP at the start of 2014 was only 2130. By how much did it fall short of what would have been expected from a continuation of pre-2008 trend growth?

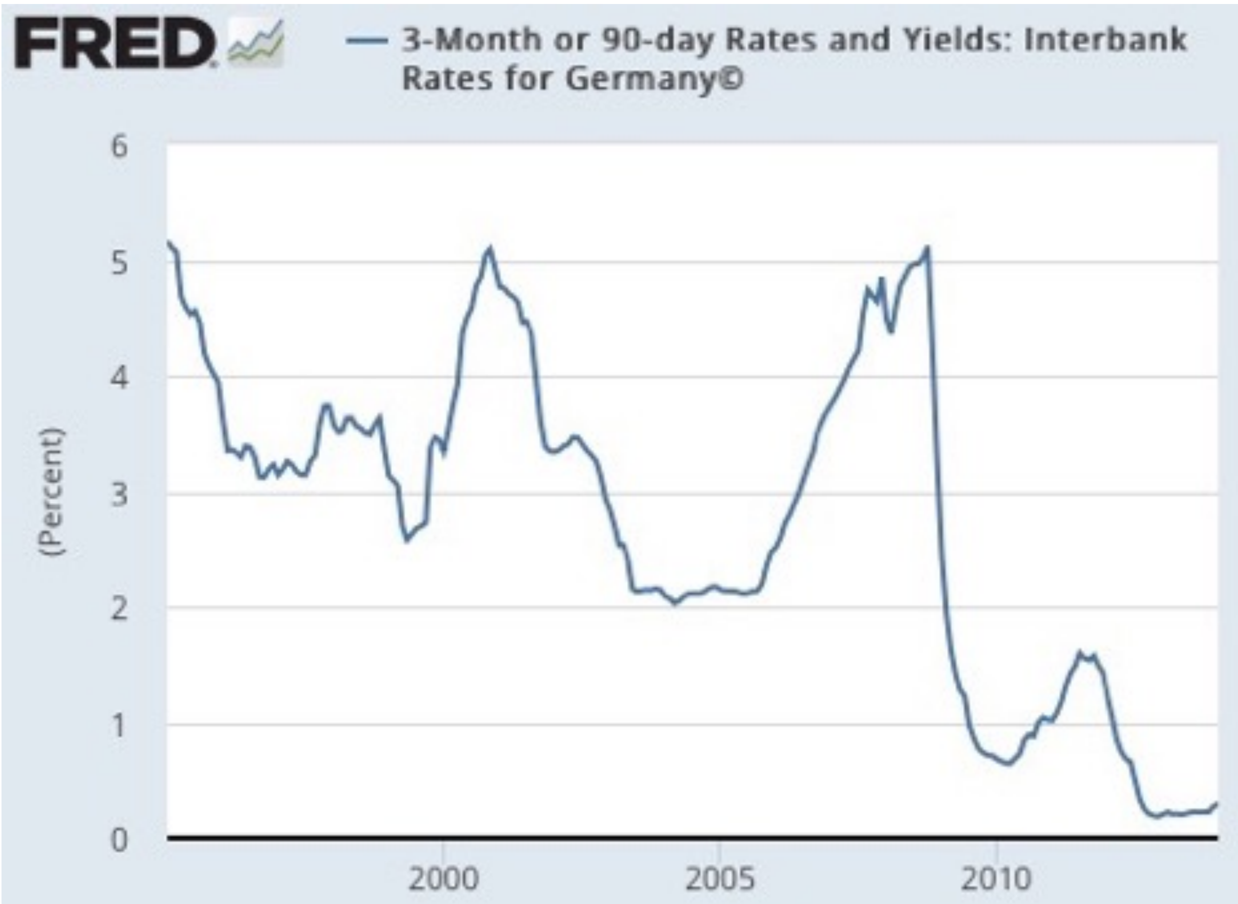
Take actual GDP of 2130 and divide it by 2500. Get 0.852—85.2%. That tells us that GDP at the start of 2014 was 15% below its pre-2008 trend.

4) Simon Wren-Lewis calculates that actual Eurozone government purchases G at the start of 2014 were 4% of GDP lower than would have been expected from pre-2008 trends in government spending. Assuming that the Keynesian multiplier $\mu = 3$, how much of the shortfall at the start of 2014 in GDP from the pre-2008 trend can be attributed to this continent-wide fiscal austerity program?

4% of 2500 is 100. Applying a multiplier of 3 to 100 gets us 300. Thus our *ceteris paribus* calculation—if other things had been "the same"—is that fiscal austerity in Europe would have pushed real GDP at the start of 2014 from 2500 down to 2200. That leaves an extra 70 in reduced GDP to be attributed to other factors.

Now there were lots of other factors. The financial crisis, the Southern European debt crisis. Political-economic uproar. Exceptionally-Loose monetary policy on the part of the European Central Bank. Structural problems in Europe that reduced the rate of potential output growth. And so on.

5) The short-term safe nominal interest rates that the European Central Bank actually controls are very closely tracked by the short-term German interbank rate—the rate at which German banks lend to each other. If somebody asks you why the ECB did not do more to lower interest rates and offset the contractionary effects of fiscal austerity on the Eurozone, what do you answer?



That the ECB finally lowered interest rates as far as it could in 2012—it tried, but could not do any more.

6) A 1%-point decline in the real interest rate r boosts Eurozone investment spending by about 20, in the units we are working with here. If the reduction in r that the ECB brings about is half as large as the amount by which it reduces the interest rates it controls, and if the multiplier is 3, by how much did the reduction in interest rates by the ECB since early 2008 boost the GDP of the Eurozone at the start of 2014?

The ECB lowered interest rates by 5%-pts, half of that is 2.5%-pts, multiplied by 20 equals 50, multiplied by 3 equals 150. Eurozone real GDP at the start of 2014, at 2130, would have been 1980 if the ECB had kept interest rates as high as they were at the start of 2008