Problem Set #3: The Taylor Rule

DUE: End of Day May 13th

You may work in a group of up to 3 people. Whatever you hand in should be the work of your group and it should take to form of a professional piece of work.

1. As a junior bond trader at Goldman Sachs, you have been asked by your boss to explain the Taylor Rule and how it can be a helpful guide to how the FED sets monetary policy. Write a short report summarizing your findings. Your report should contain the following pieces of information:

   a. Turn in a well labeled and professional looking plot of the Taylor Rule and the federal funds rate on a quarterly basis from 1970Q1 to 2018Q4.

      To perform this task, download following data from FRED: real GDP (GDPC1); real potential GDP (GDPPOT); core consumer prices (JCXFE); and the federal funds rate (FEDFUNDS).

      Calculate the output gap as $100 \times \ln(GDPC1/GDPPOT)$. Calculate the annual change of consumer prices as $100 \times \ln(JCXFE_t/JCXFE_{t-4})$. Note that the federal funds rate data must be converted from a monthly series to a quarterly series. Use the tools on FRED to do so by changing the "Frequency" to quarterly from monthly, and by selecting the aggregation method "average."

      Plot both the Taylor Rule and the federal funds rate in the same graph, and submit in your report. [You will probably find it easier to download the data from FRED and then create and plot the Taylor Rule and the federal funds rate in Excel.]

      In your report, provide a brief discussion of this plot with special emphasis on time periods when there are deviations between the FED's policy and the Taylor rule's prescription.

   b. Discuss what the impact was of the FED's policy in for much of the 1970s (relative to what the Taylor Rule suggested)? Be sure to provide empirical evidence to support your argument. Why might the Fed have chosen this policy?

   c. Fed deviations from a Taylor rule were smaller and less persistent after 1985. What was the impact on output and inflation? Be sure to provide empirical evidence to support your argument.

   d. In the mid-2000s, what was the stance of monetary policy relative to the Taylor Rule? Speculate on the potential consequences of this policy and how it relates to the run up in housing prices in the early 2000s and then the subsequent crash.

   e. After 2008, can the FED implement what the Taylor rule prescribes? Why or why not? What can the Fed do to stimulate aggregate demand if the Taylor rule rate is below zero?

   f. How does the current stance (i.e. Q4 2018) of policy in the US compare to what the Taylor rule predicts?