UNIVERSITY OF CALIFORNIA
DEPARTMENT OF ECONOMICS

Economics 134
Spring 2018
Professor David Romer

PROBLEM SET 2

DUE AT THE *BEGINNING* OF LECTURE ON WEDNESDAY, FEBRUARY 28TH

You may work together on the problems, but your answers must be ***in your own words*** and ***handwritten***. You also must ***list the other students with whom you worked***.

Unless noted otherwise, be sure to explain your answers and to use graphs whenever appropriate.

1. Suppose individuals become less optimistic and therefore consume less at a given level of disposable income than before. Use the IS-MP-IA framework to analyze the effect, if any, of this development on the real interest rate, output, the real exchange rate, net exports, and inflation in both the short run and the long run. Assume that the economy begins in long-run equilibrium.

2. Suppose that many foreign central banks tighten their monetary policies, so that real interest rates abroad rise.

- **a.** How would you expect this change to affect the *CF(r)* function in the United States? Why?
- **b.** How would the change affect output and the real interest rate in the short run? Explain.
- **c.** How would the change affect net exports, and the real exchange rate in the short run? Explain.

3. Some Federal Reserve chairs, including William McChesney Martin and Alan Greenspan, believed that higher inflation reduced the amount of output that would be produced from given quantities of capital and labor when the economy was in long-run equilibrium. How would you change the IS-MP-IA model to capture this idea? Explain your answer.

4. This problem is about interpreting regressions. In answering it, you can assume that the regressions do not suffer from omitted variable bias.

As we have discussed, although it is not good practice, some papers report only point estimates and *t*-statistics and do not report standard errors. You are reading a paper that examines the impact of changes in the Fed's target interest rate on real GDP. Here are 5 possible results it might report about the impact of a cut of 1 percentage point in the Fed's interest rate target on real GDP, in percent, after a year:

	Point estimate	*t*-statistic
#1	0.01	10.0
#2	0.001	0.1
#3	3.0	0.5
#4	3.0	2.0
#5	3.0	6.0

(Thus, for example, an entry of 3.0 in the first column would correspond to an estimate that the interest rate cut would cause real GDP to be 3% higher after a year than it would have been otherwise.)

Here are 5 possible interpretations of the regression results:

a. Strong evidence that monetary policy has large effects on GDP growth.
b. Moderate evidence that monetary policy affects GDP growth; not much evidence about whether the effect is large or small.
c. Little useful evidence about the effects of monetary policy on real GDP.
d. Strong evidence that monetary policy affects real GDP – but that the effect is small.
e. Strong evidence that the effects of monetary policy on real GDP are not large.

Which interpretation goes with which result? (Note: Each interpretation goes with exactly one of the results.) Be sure to explain your answers.

5. Is the following statement True, False, or Uncertain? "One source of the United States's high inflation in the 1960s and 1970s was that the federal funds rate was often far below the prescriptions of a 'Taylor rule'." (As usual, make sure to explain your answer.)

6. Last week, the Trump administration released its proposed budget for fiscal year 2019. The budget includes the administration's economic forecast (called "economic assumptions") through 2028. This question asks you to compare the implicit framework used by the administration with the model you have been learning. Specifically:

- **a.** "Okun's law" states that if GDP growth is 1 percentage point above normal for a year, the unemployment rate will fall by about ½ percentage point. Using the forecasts for "Real GDP, percent change, year/year" and "Unemployment rate, civilian, percent," determine whether the administration's forecasts for the middle part of the forecast period (concretely, 2020–2025) approximately follow Okun's law. (Two hints: 1. The budget is released by the Office of Management and Budget. 2. Forecasts that extend out many years almost always project that the economy will be in long-run equilibrium at the end of the forecast period. Thus, it is reasonable to assume that the administration's projection of real GDP growth in the final few years of their forecast period shows what it believes normal GDP growth to be.)
- **b.** Our basic assumption about inflation adjustment is that inflation rises if output is above normal (equivalently, if unemployment is below normal) and falls if output is below normal (equivalently, if unemployment is above normal). Using the forecasts for "Unemployment rate, civilian, percent" and "Consumer Price Index, percent change, year/year," determine whether the administration's forecasts for 2020–2025 approximately follow this assumption. (Hint: It is reasonable to assume that the administration's projection of unemployment in the last few years of its forecast period reflects their beliefs about the normal level of unemployment.)

Pick the best answer to each of questions 7–9. No explanations of your answers are needed.

7. If the unemployment rate falls from 10 percent to 9 percent, it has fallen by:

- **a.** 1 percent.
- **b.** 1 percentage point.
- **c.** (a) and (b).

8. The "three monetary eras" that John Taylor considers in his paper, "A Historical Analysis of Monetary Policy Rules," are:

- **a.** 1879–1914, 1960–1979, and 1986–1997.
- **b.** 1919–1939, 1946–1979, and 1997–2007.
- **c.** 1919–1939, 1946–1979, and 1986–1997.
- **d.** 1919–1939, 1952–1979, and 1979–2007.

9. In the extension of the IS–MP–IA model to include the zero lower bound, the "kink" in the AD curve occurs at:

- **a.** The inflation rate given by the IA curve.
- **b.** The inflation rate that causes the IS and MP curves to intersect at the "kink" of the MP curve.
- **c.** $Y = \bar{Y}$.
- **d.** $\pi = 0$.