Seminar in Macroeconomics and Formation of Expectations
Spring 2020
Midterm Exam. Allotted time: 100 mins.
You might need: $\pi_t = \beta \mathbb{E}_t[\pi_{t+1}] + \kappa y_t$.

Q1.

The following graph shows the scatter plot of inflation and unemployment in the US from 1960 to 1969 – every dot represents one year. Answer the following questions. Be as brief as possible.

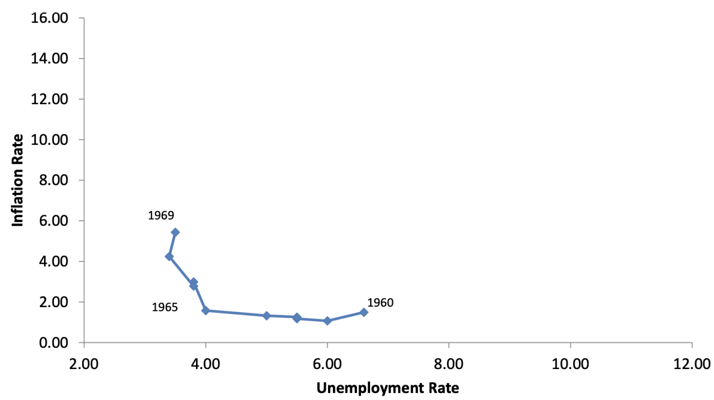

Figure 1: Inflation vs. Unemployment

1. Explain, in your own words, why a higher inflation might be associated with a lower unemployment rate? Would you characterize this relationship as causal or just a correlation?
2. Central banker A's staff take this graph to him, and he gets very excited! Assuming that he has control over unemployment, he decides to raise inflation to achieve a lower unemployment rate. Ten years later the staff update the graph, as in Figure (2). What do you think happened?

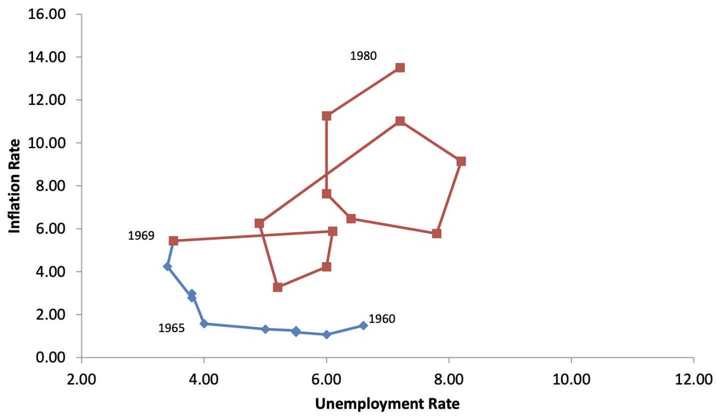

Figure 2: Inflation vs. Unemployment

Q2.

One of the Federal Reserve's objectives is to stabilize economic fluctuations. In particular, in recessions when unemployment rises and consumption falls, the Federal Reserve tries to offset these changes using its instrument, the Federal Funds Rate (think of this as the nominal interest rate in the economy, i).

1. What should the Federal Reserve do with this interest rate in a recession? Use the Euler equation to justify your answer:

$$c_t = \mathbb{E}_t[c_{t+1}] - \frac{1}{\gamma}(i_t - \mathbb{E}_t[\pi_{t+1}])$$

2. Explain what the parameter γ represents. Based on the papers you read on the topic, what is the range of magnitudes for γ in the data?
3. Many studies cannot reject the null hypothesis that $\gamma = 0$. Explain what it means for γ to be zero.
4. Define intertemporal substitution means.
5. Some economists argue that different types of consumption have different elasticities of intertemporal substitution. Consider food consumption versus purchasing a durable good such as a car or a house. Which type of consumption do you think has a higher elasticity of intertemporal substitution? Why?

Q3.

After the Great Recession, macroeconomists hypothesized that inflation should fall rapidly along with an increase in unemployment (fall in output gap).

1. Using the Phillips curve and the papers you read on the topic, explain why a fall in the output gap was associated with a fall in inflation?
2. While unemployment did increase sharply, inflation did not fall. This was called the missing disinflation. Using the Phillips curve, propose at least two hypotheses that potentially could explain the missing disinflation.