

Part I. Material Since the Second Midterm (71 points total; 61 minutes total)

Question 1 (9 points; 8 minutes)

Briefly define each of the three models of expectations: static, adaptive, and rational.

Question 2 (17 points, 15 minutes)

The reports that the Fed consulted before their May 2-3 FOMC meeting included this passage:

"Labor markets remain tight and employers in most [parts of the US] had more difficulty filling low-skilled positions. Wage increases remain modest, although businesses are being forced to offer bigger increases to workers with skills that are in short supply. [Compared with previous months], a larger number of firms mentioned higher turnover rates and more difficulty retaining workers."

- A. (3 points) Is this passage about the demand-side of the macroeconomy or the supply-side of the macroeconomy? Briefly explain.
- B. (7 points) If this was the only information the Fed considered when setting an interest rate target, how would you expect them to react? Why?
- C. (7 points) Would your answer to part (b) be different if the wage effects described in the prompt had no effect on the prices charged by the businesses? Explain.

Question 3 (30 points total; 26 minutes total)

Let's use our MPRF / PC model to try to understand what happened to the macroeconomy of Japan. Starting in the late 1990s and for over 15 years, Japan experienced economic stagnation: Japan's unemployment rate was high (around 5 percent) relative to its natural rate (around 2 percent), and fell only a little bit and very slowly. The inflation rate averaged about 0 over that 15 year period, ranging between about -1 and +1 percent.

Assume the labor market institutions of Japan result in a very low value for the Okun's Law Coefficient and very sticky wages and prices.

- A. (8 points) At the right, draw an MPRF / PC diagram for Japan. Assume the economy is initially (in the early 1990s) at equilibrium at which $u = u_0 = u^*$ and $\pi = \pi^t = \pi^e$. Label everything with subscripts "1." Below, explain briefly why you drew your curves with the slopes you did.
- B. (6 points) Suppose that there is then a relatively large drop in aggregate demand. On your graph, show the effect on unemployment and inflation assuming expectations are static. Use subscripts "2" in your labels. Below, very briefly explain what you drew.
- C. (6 points) Japan's central bank, the Bank of Japan, very quickly hit the zero lower bound (ZLB). Until 2016, zero was also the Bank's effective lower bound (ELB). What is a "zero lower bound"? How is that different than (or the same as) an "effective lower bound"?
- D. (10 points) Drawing on your answers above, how would you explain the 15 year period of stagnation in Japan? Be sure your explanation includes a discussion of whether the part (b) assumption of static expectations is the best assumption to make.

Question 4 (15 points total; 13 minutes total)

Suppose that after a big unexpected drop in aggregate demand, the economy can be described by the following:

Fed's target inflation rate = 3%	MPE = 0.6	$u^* = 5\%$
initial expected inflation rate = 2%	$A_0 = 3,800$	$Y^* = 10,000$
$r_n = 0.8$	$I_r = 30,000$	supply shocks = 0
$r_o = 2\%$	$X_e \varepsilon_r = 20,000$	$\beta = 1/2$

- A. (10 points) Suppose expectations are static. What are the short-run sticky-price equilibrium values of the inflation rate and the unemployment rate? Show your work, or no points. If you can't solve this without a calculator, set it up and go as far as you can to get as much partial credit as possible.
- B. (5 points) Suppose instead that expectations are adaptive. There is no need to resolve the model. In the next period, would you expect the equilibrium value of the inflation rate to be the same, higher, or lower than you found in part (a)? In the next period, would you expect the equilibrium value of the unemployment rate to be the same, higher, or lower than you found in part (a)? Defend your answers.

Part II. Material From the Entire Course (75 points total; 64 minutes total)**Question 5 (18 points total; 15 minutes total)**

In the Fed's statement following the May 2-3 FOMC meeting, they included a paragraph that economists refer to as "forward guidance" - an explanation of what the FOMC will consider in making future decisions to raise or lower the target for the federal funds rate.

The specifics of the paragraph are not important for this question, but if you're interested in reading it, the entire FOMC statement is on the last page of the exam. The forward guidance paragraph is paragraph 4.

- A. (8 points) Explain why an increase in interest rates leads to a decrease in investment spending, all else constant. Your explanation should mention both external finance and internal finance.
- B. (10 points) Many economists believe that "forward guidance" alone can trigger a change in investment spending, even before the central bank meets and decides to change its target for the federal funds rate. Explain how this would work. Be sure your explanation clearly indicates what sort of expectations - static, adaptive, or rational - you are invoking.

Question 6 (8 points; 7 minutes)

What did the logic truth tables we covered in the first two weeks have to do with the rest of the course?

Question 7 (16 points total; 14 minutes total)

Consider our standard equation for the real exchange rate: $\varepsilon = \varepsilon_0 - \varepsilon_r (r - r^f)$

- A. (4 points) Is this a behavioral equation, identity equation, or equilibrium equation? Defend your answer.
- B. (12 points) Suppose there are two groups, Group W and Group P:
- Group W: people in group W like to take financial risks, and therefore have a high tolerance for holding foreign assets
 - Group P: people in group P do not like to take financial risks, and therefore do not hold any foreign assets

Now suppose there is an increase in inequality: Wealth shifts away from Group P and toward Group W, so that a larger share of wealth is held by Group W.

What effect would this increase in inequality have on the real exchange rate? On gross exports? Defend your answers.

Question 8 (27 points total; 23 minutes total)

Suppose medical advances and affordable health insurance and health care increase the expected life length of individuals. Further suppose that people are forward looking, realize their life expectancy has increased, and therefore increase their saving for retirement. Suppose these changes are never reversed.

- A. (9 points) In the long run, what effect will these changes in life expectancy have on real interest rates? Why? Supplement your answer with a graph.
- b. (9 points) From generation to generation, what effect will these changes in life expectancy have on the standard of living? On the growth rate of the standard of living? Why? Supplement your answer with a graph.
- c. (9 points) In the short run, with static expectations of inflation, what effect will these changes in life expectancy have on unemployment? Why? Supplement your answer with a graph.

Plus FOMC statement

May 03, 2017

Federal Reserve issues FOMC statement

Information received since the Federal Open Market Committee met in March indicates that the labor market has continued to strengthen even as growth in economic activity slowed. Job gains were solid, on average, in recent months, and the unemployment rate declined. Household spending rose only modestly, but the fundamentals underpinning the continued growth of consumption remained solid. Business fixed investment firmed. Inflation measured on a 12-month basis recently has been running close to the Committee's 2 percent longer-run objective. Excluding energy and food, consumer prices declined in March and inflation continued to run somewhat below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.

Consistent with its statutory mandate, the Committee seeks to foster maximum employment and price stability. The Committee views the slowing in growth during the first quarter as likely to be transitory and continues to expect that, with gradual adjustments in the stance of monetary policy, economic activity will expand at a moderate pace, labor market conditions will strengthen somewhat further, and inflation will stabilize around 2 percent over the medium term. Near-term risks to the economic outlook appear roughly balanced. The Committee continues to closely monitor inflation indicators and global economic and financial developments.

In view of realized and expected labor market conditions and inflation, the Committee decided to maintain the target range for the federal funds rate at 3/4 to 1 percent. The stance of monetary policy remains accommodative, thereby supporting some further strengthening in labor market conditions and a sustained return to 2 percent inflation.

In determining the timing and size of future adjustments to the target range for the federal funds rate, the Committee will assess realized and expected economic conditions relative to its objectives of maximum employment and 2 percent inflation. This assessment will take into account a wide range of information, including measures of labor market conditions, indicators of inflation pressures and inflation expectations, and readings on financial and international developments. The Committee will carefully monitor actual and expected inflation developments relative to its symmetric inflation goal. The Committee expects that economic conditions will evolve in a manner that will warrant gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run. However, the actual path of the federal funds rate will depend on the economic outlook as informed by incoming data.

The Committee is maintaining its existing policy of reinvesting principal payments from its holdings of agency debt and agency mortgage-backed securities in agency mortgage-backed securities and of rolling over maturing Treasury securities at auction, and it anticipates doing so until normalization of the level of the federal funds rate is well under way. This policy, by keeping the Committee's holdings of longer-term securities at sizable levels, should help maintain accommodative financial conditions.

Voting for the FOMC monetary policy action were: Janet L. Yellen, Chair; William C. Dudley, Vice Chairman; Lael Brainard; Charles L. Evans; Stanley Fischer; Patrick Harker; Robert S. Kaplan; Neel Kashkari; and Jerome H. Powell.