Exam 2. Econ520. Fall 2013

Professor Lutz Hendricks

UNC

Instructions:

- Answer all questions.
- Clearly number your answers. Write legibly.
- Do *not* write your answers on the question sheets.
- *Explain* your answers – do not just state them.
- *Show* your derivations – do not just state the final result.
- Do not refer to any notes or books. You may use a calculator.
- The total time is 75 minutes.
- The total number of points is 100.

1 AS/AD Model

Recall the equations for the AS/AD model: AS: $P = (1+m)P^eF(1-Y/L, z)$. AD: $Y = C(Y - T) + G + I(Y, i)$ with $M/P = YL(i)$.

Suppose the economy starts in the medium run equilibrium and experiences an adverse supply shock ($m \uparrow$).

1. [20 points] Graph the short-run and medium-run changes in Y and P for the case where monetary and fiscal policies do not respond to the shock. *Explain your graph.*
2. [16 points] Explain the outcomes if monetary or fiscal policies attempt to stabilize prices.
3. [16 points] Explain the outcomes if monetary or fiscal policies attempt to stabilize output.

2 Phillips Curve

The aggregate supply curve implies a Phillips curve of the form $\pi = \pi^e + (m + z) - \alpha u$.

1. [10 points] Explain how the Phillips curve leads to the idea of a NAIRU. What key assumption is necessary for a NAIRU to exist?
2. [10 points] Suppose a stable NAIRU exists. What does this imply for the policy trade-off between inflation an unemployment?
3. [8 points] German Chancellor Schmidt once remarked that he would rather have 10% inflation than 10% unemployment. What would you reply?

3 Exchange Rates

Uncovered interest parity requires $1 + i = (1 + i^*)E(t + 1)/E(t)$, where i and i^* are the domestic and foreign interest rates, respectively. In light of UIP:

1. [10 points] How would a positive interest differential $i^* > i$ inform your expectations about the future strength of the dollar? What is the intuition for this result?
2. [10 points] Suppose you expected the foreign interest rate to rise in the near future. How would this inform your expectations about the future strength of the dollar? Explain.

End of exam.

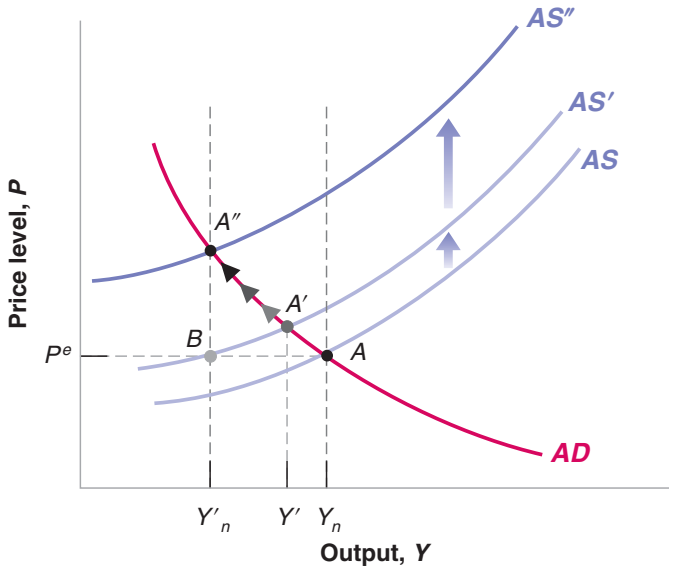

Figure 1: No policy response

4 Answers

4.1 AS/AD Model

1. We did this in class.

   MR: vertical AS curve shifts left. Y_n falls. With unchanged AD, P rises.

   SR: AS shifts up, but not all the way to MR. $Y \downarrow, P \uparrow$.

   Transition: AS shifts to MR. $Y \downarrow, P \uparrow$. See Figure 1.

2. Inflation fighting policies.

   The government can either lower M or G. Both shift AD left. See Figure 2. The SR equilibrium is now at "SR" with constant prices. The short-run recession is deeper. AS continues to shift left toward the MR equilibrium, but the government can keep prices constant by further contracting M or G.

   This is a reasonable policy option. Eventually, lower output is unavoidable. The government just accelerates the transition to the new MR Y_n.

3. Recession fighting policies.

   The government could try to raise M or G to keep output constant. That shifts AD right and drives up prices. The SR equilibrium is at "SR." Now AS starts shifting up. The government can continue to fight the contraction by further raising M or G.

   Eventually expectations catch up with policies and the government will have to allow output to fall to the new MR level. It delays the recession at the expense of permanently higher inflation.

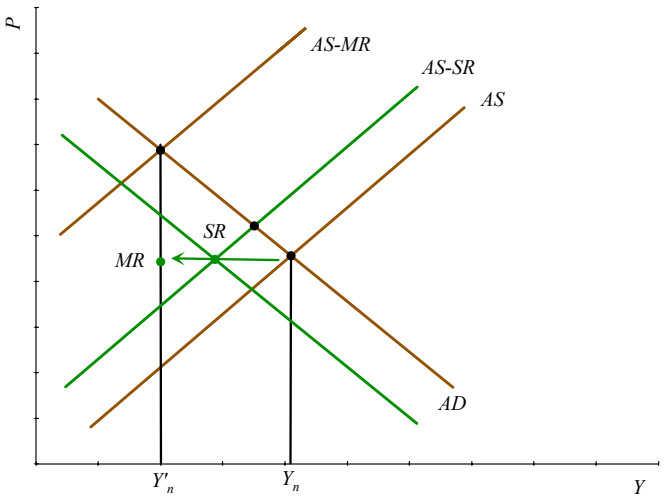

Figure 2: Inflation fighting policy

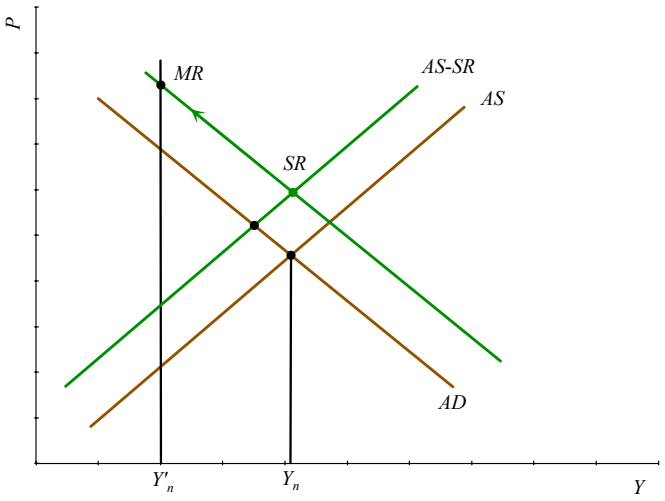

Figure 3: Recession fighting policy

4.2 Phillips Curve

1. NAIRU = non accelerating inflation rate of unemployment. If $\pi_t^e = \pi_{t-1}$, then the Phillips curve becomes $\pi_t - \pi_{t-1} = m + z - \alpha u$. It implies a relationship between unemployment and the rate of inflation change. There is one unemployment rate (NAIRU) for which inflation is constant.

2. NAIRU implies that one can buy lower unemployment with rising inflation. Of course, inflation cannot keep rising forever. Effectively, the government can buy a period of lower unemployment by accepting permanently higher inflation.

3. A stable trade-off between inflation and unemployment does not exist. Expectations eventually catch up with reality. Then inflation becomes neutral and does not buy lower unemployment.

4.3 Exchange Rates

1. Solve for $E(t) = E(t+1)(1+i^*)/(1+i)$. Given the way I have written the UIP condition, E must be in \$/Euro, so that a higher E is a dollar depreciation. If $i^* > i$, we must have $E(t+1) < E(t)$, so we expect a dollar appreciation. Intuition: the appreciation compensates investors for the lower interest income.

2. I would expect the dollar to depreciate when i^* rises (in response to the news). Afterwards, I would expect the dollar to be strong (by the logic of #1).

End of answers.