

Exam 3 – Econ420 – Fall 2009
Professor Lutz Hendricks

Instructions:

- Answer all questions.
- Explain your answers - do not just state them.
- Show your derivations - do not just state the final result.
- The total time is 75 minutes.
- The total number of points is 100.

1 Short-run Model

[25 points] The short-run model consists of:

- IS curve: $\tilde{Y}_t = a - b(R_t - \bar{r})$
- MP curve: R_t is fixed by the Fed.
- Philips curve: $\pi_t = \pi_{t-1} + v\tilde{Y}_t + o_t$.

Assume the economy is in its long-run equilibrium with $a=0$ and π constant over time. Explain and graph what happens if the Fed decides to bring down the inflation rate by raising the federal funds rate.

2 AS/AD Model

[35 points] The AS/AD model replaces the MP curve of the IS/LM model with a monetary policy reaction function: $R_t - \bar{r} = m(\pi_t - \bar{\pi})$.

In this framework, explain and graph the effects of a permanent increase in government spending. Plot the path of R_t over time.

3 International Trade

- [12 points] There are 2 countries and 2 goods that are produced from labor. One worker in country A produces 10 units of good 1 and 100 units of good 2. One worker in country B produces 50 units of good 1 and 200 units of good 2. Which country has a comparative advantage in good 1? Explain your answer and support it with an inequality formula.
- [13 points] What characteristics would lead a country to run a trade deficit? Explain your answer using an equation that relates the trade balance to saving and investment.

4 International Finance

- [5 points] What does Relative Purchasing Power Parity assert about the real exchange rate?
- [10 points] Uncovered interest parity implies that $1 + i_{\$} = (1 + i_{peso})E_{t+1}/E_t$.
 - Exactly what does this equation say in words?
 - Imagine that the U.S. interest rate rises. What do you expect to happen to the value of the dollar on impact? What is the intuition for this?

5 Answers

5.1 Short-run Model

R rises. Move along the IS curve north-west. Y falls. In the Philips curve diagram $Y = 0$ implies falling inflation. When inflation has fallen to a level that is acceptable to the Fed, R is increased to \bar{r} , inflation levels off, and Y jumps back to 0.

5.2 AS/AD Model

a rises, shifting the AD curve right. Moving along the Philips (AS) curve, inflation rises. In the background, the Fed raises R according to the monetary policy rule. Period 2: Last period's inflation is higher. The AS curve shifts up so that it goes through $Y = 0$ and $\pi_t = \pi_{t-1}$. The result is more inflation and a contraction in output. Period 3 and so on: the shifting of AS continues until $Y = 0$ again, but with higher inflation and R .

We know that in the long run $a = 0$. Eventually a must fall, shifting AD back to its original position. But now AS is higher – a recession with deflation ensues. Over time, AS shifts back down to complete the inflation output cycle.

5.3 International Trade

- a) Comparative advantage is determined by the ratio of labor productivities: country A's ratio is 10/100. Country B's ratio is 50/200, which is higher than A's. B has a comparative advantage in good 1.
- b) The key equation is $NX = S^P + S^G - I$. Countries with high private saving, low budget deficits and low investment run trade surpluses. What could give rise to those? Examples are: slow growth (low I and possibly high S), high taxes, large fraction of the population middle aged.

5.4 International Finance

- a) Relative PPP asserts that each country's RER tends towards a fixed value.
- b) UIP says that the dollar return of investing in Peso bonds is the same as the dollar return of investing in U.S. bonds. If the U.S. interest rate rises, the dollar initially gets stronger. The reason is that dollars became more attractive. Capital flows into the U.S. until the expected depreciation of the dollar compensates for the higher interest earned.