Exam 2. Econ520. Fall 2012

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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: $P = (1+m)P^e F(1 - Y/L, z)$. AD: $Y = C(Y - T) + G + I(Y, i)$ with $M/P = Y L(i)$.

Consider a balanced budget increase in taxes (G and T rise by the same amount). Assume the economy starts in the medium run equilibrium.

1. [5 points] What do you expect to happen to $C + G$, holding everything else equal?

2. [15 points] Graph the old and new medium run equilibrium.

3. [15 points] Graph the short run equilibrium.

4. [15 points] Explain the transition.

Explain what happens to I and i in the medium and short run, and during the transition. Explain what you draw.

2 Phillips Curve

The Phillips Curve postulates $\pi = \pi^e + (m + z) - \alpha u$.

1. [10 points] Suppose that inflation expecations are fixed.

2. [10 points] Suppose that inflation expectations are backward looking: $\pi_t^e = \pi_{t-1}$.

For both cases: Can monetary policy lower unemployment permanently? How? What is the intuition?

3 European Unemployment

European unemployment rose dramatically in the 1970s and has stayed high ever since. This questions studies how downward wage rigidity can cause rising unemployment.

1. [15 points] Start with a flexible labor market where wages can rise and fall depending on labor market conditions. Explain how fluctuations in AD lead to Okun's law (a negative relationship between output and unemployment). Use an AS/AD diagram.

2. [15 points] Now assume that wages are downward rigid. Explain how fluctuations in AD can lead to rising unemployment over the course of several business cycles.

<div align="center">End of exam.</div>

4 Answers

4.1 AS/AD Model

1. Marginal propensity to consume is less than 1. $C + G$ rises. The rest is is exactly the same as an increase in G or a decrease in T or any other positive demand shock. You can look up the answer in the slides.

2. New medium run: $P = P^e$ implies $Y = Y_n$ which is unchanged and still given by the same medium run supply curve: $1 = (1 + m)F(1 - Y_n/L, z)$. But AD shifts up ($C$ falls by less than G). Outcomes: $P \uparrow, I \downarrow, i \uparrow$. We know that $I \downarrow$ because $C + G + I$ must be unchanged at Y_n. For I to fall, we need higher i (or look at the money market diagram to see that i must rise).

3. Short run: P^e is sticky, so AS has not shifted yet. Equilibrium is at the intersection of AS/AD, so that Y and P both rise. From the money market we know that i must have increased (Y and P are both up). The change in I is ambiguous.

4. Transition: P^e rises gradually, shifting AS toward the long-run equilibrium. On the transition, P rises, that causes i to rise (IS/LM diagram), that crowds out I and causes AD to decline. This continues until P^e has caught up with P.

4.2 Phillips Curve

1. If inflation expecations are fixed, a constant rate of inflation (or money growth) permanently lowers unemployment. In each period, wage setters are suprised by inflation and set a wage that is "too low."

2. If inflation expectations are backward looking, an accelerating rate of inflation permanently lowers unemployment. In each period, wage setters are suprised that the inflation rate accelerated, even though it did the same in the past, and set a wage that is "too low." Of course, ever accelerating inflation is not feasible. So in the end a period of rising inflation buys temporarily lower unemployment.

4.3 European Unemployment

1. Normal labor market. AD fluctuates. Higher AD raises Y which lowers u (raises labor input). Workers raise wage demands, which are passed on by firms as higher prices. In recessions the reverse occurs. Y fluctuates around a fixed Y_n (as does u).

2. Downward wage rigidity: Nothing changes in expansions. In contractions, W does not fall (z rises), so the decline in Y is larger. In the next expansion, the economy starts with higher z and therefore higher u_n.

End of answers.