Practice Problems: AS/AD Model

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1 AS Curve

1. Explain the intuition why AS is upward sloping.
2. Explain why P^e, m, and z shift the AS curve.
3. Why is the medium run AS curve vertical? Why is it not vertical in the short run?

   Answer: Workers set W to target a particular unemployment rate, u_n. If they don't make a mistake, u_n will prevail. This is what happens in the medium run where $P^e = P$. In the short run, P^e is fixed. Demand shifts that generate inflation can erode real wages and with it unemployment.

2 AD Curve

1. Explain why AD is downward sloping.
2. What happens to the interest rate as you move along the AD curve?

3 Equilibrium

1. You should be able to analyze the effects of shocks to AD or AS on equilibrium and explain what happens in short run,

medium run, and during the transition.

2. Explain what the AS/AD model implies about the trade-off between inflation and unemployment.

   Answer: There is no long-run trade-off. Money is neutral once expectations are correct. But in the short-run and on the transition to the medium run equilibrium, the central bank can "buy" more output with higher inflation.

   If the central bank keeps expanding money supply, it can "stay ahead" of price expectations and keep unemployment permanently below u_n. But this relies on awkward assumptions about expectations not catching up with reality.

3. Would it be optimal to raise Y above Y_n through loose monetary policy?

   It depends. If labor markets work well and Y_n is close to the "Walrasian" equilibrium (with flexible prices and competition in labor markets), then it would be optimal to attain Y_n. This is a consequence of the optimality of competitive equlibria (recall the Welfare Theorems).

   But if labor markets are distorted so that Y_n is below the Walrasian equilibrium, it could be optimal to buy higher Y through inflation. Of course, we know from the Phillips Curve discussion that this would not work permanently.

4 Phillips Curve

1. Explain the intuition underlying the Phillips Curve equation $\pi = \pi^e + (m + z) - \alpha u$.

2. Explain the trade-off facing the Fed when inflation expectations are fixed. Illustrate in the AS/AD diagram.

   Answer: We did this in class. There is now a stable relationship between the level of inflation and unemployment. In the AS/AD diagram: the Fed can keep shifting up AD to "stay ahead" of the shifting AS (as P^e tries to catch up with P). By keeping inflation high, the AS curve never catches up and Y stays above Y_n permanently.

3. Explain how this changes with adaptive expectations.

   Answer: Now we have a relationship between the change in π and u. The Fed can buy a period of higher output by accepting permanently higher inflation.

4. How can the Fed bring the inflation rate down?

   Answer: One way is monetary tightening. The analysis is the reverse of a monetary expansion. The Fed keeps u high until π^e has fallen to its target level. Then u can return to u_n. Lowering inflation requires a period of recession.

   The alternative (harder to implement) is to convince markets that inflation will be lower in the future. By lowering π^e the Fed can lower π without recession.

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