Econ 330: Money and Banking

Spring 2015, Handout 11

Chapter 22 : Aggregate Demand and Supply Analysis

Aggregate Demand Curve

1. A downward sloping curve: the total quantity of final goods and services demanded in an economy is negatively correlated with the inflation rate.

2. Why downward sloping?

   Deriving the Aggregate Demand Curve

   Substitute the MP Curve $r = \bar{r} + \lambda\pi$ into the IS curve $Y = \frac{1}{1-mpc}\left[\bar{C} + \bar{I} - d\bar{f} + \bar{G} + \overline{NX} - mpc \times T\right] - \frac{d+x}{1-mpc}r$, we have the aggregate demand curve:

   $$Y = \frac{1}{1-mpc}\left[\bar{C} + \bar{I} - d\bar{f} + \bar{G} + \overline{NX} - mpc \times \bar{T}\right] - \frac{d+x}{1-mpc}\left(\bar{r} + \lambda\pi\right)$$

   - $\pi \downarrow \Rightarrow r \downarrow \Rightarrow I \uparrow \Rightarrow Y^{ad} \uparrow$
   - $\pi \downarrow \Rightarrow r \downarrow \Rightarrow NX \uparrow \Rightarrow Y^{ad} \uparrow$

3. Factors that shifts the AD curve to the RIGHT:

   Any factor that shifts the IS curve shifts the aggregate demand curve in the same direction $\overline{C} \uparrow$, $\overline{I} \uparrow$, $\bar{G} \uparrow$, $\overline{T} \downarrow$, $\overline{NX} \uparrow$, $\bar{f} \downarrow$

   An autonomous easing of monetary policy - that is, a fall in the real interest rate at any given inflation rate - shifts the aggregate demand curve to the right. $\bar{r} \downarrow$

Aggregate Supply Curve

1. Long-Run Aggregate Supply Curve

   - Natural rate of unemployment: to which the economy gravitates in the long run at which demand for labor equals supply (assumed 5%).
   - Natural rate of output (Potential Output Y^P) : the level of aggregate output produced at the natural rate of unemployment.
   - Depends on
     - Capital (K)
     - Labor (L)
     - Technology

- Shifts RIGHT when
  - $K \uparrow$, $L \uparrow$, Technology$\uparrow$, Natural rate of unemployment$\downarrow$

2. Short-Run Aggregate Supply Curve

$$\pi = \pi^e + \gamma \left(Y - Y^P \right) + \rho$$

- An upward sloping curve: the total quantity of final goods and services offered for sale is positively correlated with the inflation rate.
- Depends on
  - Expected inflation (π^e)
  - Output Gap $\left(Y - Y^P \right)$
  - Price (Supply) Shocks (ρ)
- Shifts UPWARD and to the LEFT (increase in cost of production) when
  - Expected inflation $\pi^e \uparrow$: When the economy is booming or we there is a rise in expected price level
  - Price (Supply) Shocks $\rho \uparrow$: negative supply shock (increase in oil prices)
  - output gap $Y - Y^P \uparrow$: labor market gets tight or workers demand higher wages

Long-run equilibrium

1. It occurs when $AD = AS$ at $Y = Y^P$.
2. Self-correcting mechanism: an economy always returns to the natural rate level of output and unemployment.

   Example:

   $Y > Y^P$

   $\Rightarrow$ Unemployment is lower than the natural rate of unemployment

   $\Rightarrow$ Excessive tightness in a labor market

   $\Rightarrow$ Wage goes up

   $\Rightarrow$ Production cost increases

   $\Rightarrow$ AS shits to the left until $AD = AS$ at $Y = Y^P$

Applications

1. Negative Demand shocks (Figure 10, Figure 11 in the textbook)

   - SR: $Y \downarrow$, $\pi \downarrow$
   - LR: Y doesn't change, $\pi \downarrow$

2. Temporary Negative Supply shocks (Figure 12 in the textbook)

   - SR: $Y \downarrow$, $\pi \uparrow$
   - LR: Y and π do NOT change

Practice questions: Chapter 22

[Q1] Everything else held constant, aggregate demand increases when
A) taxes are cut.
B) government spending is reduced.
C) animal spirits decrease.
D) the money supply is reduced.

[Q2] Everything else held constant, when output is _____ the natural rate level, wages will begin to _____, increasing short-run aggregate supply.
A) above; fall
B) above; rise
C) below; fall
D) below; rise

[Q3] Suppose the economy is producing at the natural rate of output. An open market purchase of bonds by the Fed will cause _____ in real GDP and _____ in the inflation in the short run, everything else held constant.
A) an increase; an increase
B) a decrease; a decrease
C) no change; an increase
D) no change; a decrease

[Q4] Suppose the U.S. economy is operating at potential output. A negative supply shock that is accommodated by an open market purchase by the Federal Reserve will cause _____ in real GDP and _____ in the inflation in the long run, everything else held constant.

A) no change; an increase

B) no change; a decrease

C) an increase; an increase

D) a decrease; a decrease

[Q5] (Fall 2010 Qn 10) A shift in tastes toward American goods _____ net exports in the US and causes the quantity of aggregate output demanded to _____ in the US, everything else held constant.

A) increase; fall

B) increases; rise

C) decreases; rise

D) decreases; fall

[Q6] (Fall 2010 Qn 22) Everything else held constant, a change in workers' expectations about the aggregate price level will cause _____ to change.

A) long-run aggregate supply

B) aggregate demand

C) short-run aggregate supply

D) the production function

[Q7] (Fall 2010 Qn 24) In the Keynesian cross diagram, a decrease in investment spending because companies become more pessimistic about investment profitability causes the aggregate demand function to shift _____ and the equilibrium level of aggregate output to _____, everything else held constant.

A) down; fall

B) up; rise

C) up; fall

D) down; rise