Chapter 9: Introduction to Economic Fluctuations (A short Run Model)

Figure 9-1 shows that on average the real GDP of US grows about 3 percent per year. However, the growth (and employment) is not smooth. Growth is higher in some years than in others.

The economy is said to be in recession if the growth of GDP is negative. In Figure 9-1, recessions are shaded.

Economists call these short-run fluctuations in output and employment the business cycle, even though these fluctuations are actually irregular.

In the subsequent chapters we will learn what may cause recession, and what policy tools can be used to stabilize business cycle.

The facts about the business cycle

Fact (1): Investment is more volatile than consumption, see Figure 9-2.

Fact(2): There is a negative relationship between unemployment and GDP, called Okun’s Law. The unemployment rate rises significantly during periods of recession, see Figure 9-3.

Question: what is the intuition behind Okun’s Law.
Fact(3): There are some leading economic indicators which may help forecast recession.

Discuss why the following variables are good indicators. They indicate what component of GDP?

(I) New building permits issued
(II) Index of stock prices
(III) Money supply (M2)

**Time Horizons in Macroeconomics**

The key difference between the short run and the long run is the behavior of *prices* (*wages, rents, etc*).

In the long run, prices are *flexible* and can respond to changes in supply or demand. Real variables such as output and employment may remain unchanged.

In the short run, prices are *sticky* at some predetermined level. Therefore real variables must do some of the adjusting instead.

Read case study on page 262 about why prices are sticky.

**Exercise:**
Suppose there is an exogenous increase in labor supply. Compare the labor market in the short run (when wage is sticky) and in the long run (when wage is flexible).
Classical Model vs. Keynesian Model

The classical model (in chapter 3) is a long-run model based on the assumption of flexible prices. According to the classical model, the fluctuations in output (business cycle) can only be caused by changes in inputs (capital and labor) or changes in production function (technology). In other words, only variation in real variables (supply shocks) can generate business cycle. The latest version of this kind of flexible-price model is called real business cycle theory.

The classical model cannot explain the big depression in 1933 and great recession in 2009 since during these periods there were no big changes in capital, labor or technology (no supply shocks).

However, we do observe that the total demand for goods and services decreases a lot during recessions (after, say, stock market crashed, or housing market crashed). Therefore we need a new theory to explain why the business cycle may be caused by changes in total demand (or demand shocks).

This new theory is Keynesian IS-LM model and AD-AS model. Both models are short-run. Both models assume sticky prices. Both models emphasize demand shock instead of supply shock.

Introduction of AD-AS model
We can derive the aggregate demand (AD) curve from the quantity theory:

\[ MV = PY \]  \hspace{1cm} (1)

Questions: What does each letter stand for in (1)?

Assuming constant \( M \) and \( V \), we see

\[ \frac{\bar{M}}{\bar{P}} = \bar{k}Y, \quad \bar{k} = \frac{1}{\bar{V}} \]  \hspace{1cm} (2)

Equation (2) shows that output (\( Y \)) and price level (\( P \)) are negatively related on the demand side. So the AD curve is downward-sloping. See figure 9-5.

Exercise: show that an increase in money supply (\( M \)) will shift AD curve to (left, right)

Exercise: show that an increase in velocity of money (\( V \)) will shift AD curve to (left, right)

On the supply side, the relationship between output and price depends on the time horizon.
The **long-run aggregate supply** curve (LRAS) is **vertical** since inputs (capital and labor) are fixed, so output is fixed (at the full-employment, or **natural**, level). See Figure 9-7.

The **short-run aggregate supply** curve (SRAS) is **horizontal** since price is fixed at predetermined level. See Figure 9-9.

Exercise: show how an economy responds to a reduction in aggregate demand in the short run and in the long run (Figure 9-12). Read the case study on page 272.

Step 1: AD curve__________________________

Step 2: LRAS curve________________________

Step 3: SRAS curve________________________

Step 4: Price _____________________________

Step 5: Output ___________________________
Exercise: show how an economy responds to a reduction in aggregate supply (adverse supply shock) in the short run and in the long run (Figure 9-14). Read the case study on page 276.

Step 1: AD curve__________________________

Step 2: LRAS curve________________________

Step 3: SRAS curve________________________

Step 4: Price ______________________________

Step 5: Output _____________________________

**Stabilization Policy**

Stabilization policy refers to policy actions aimed at reducing the severity of short-run economic fluctuations.

Exercise: show how to use monetary policy as stabilization policy after an adverse supply shock (Figure 9-15). What is the government does nothing?