ECO5002 Introduction to Economics
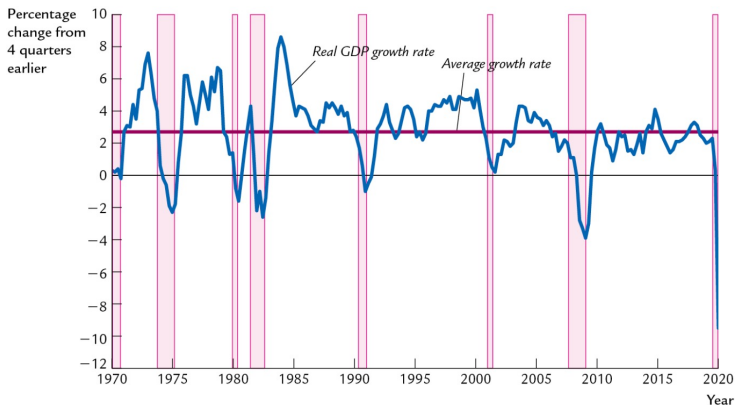
Lecture 9: Short-Run Economic Fluctuations

Long Ma

School of Management and Economics
Chinese University of Hong Kong, Shenzhen
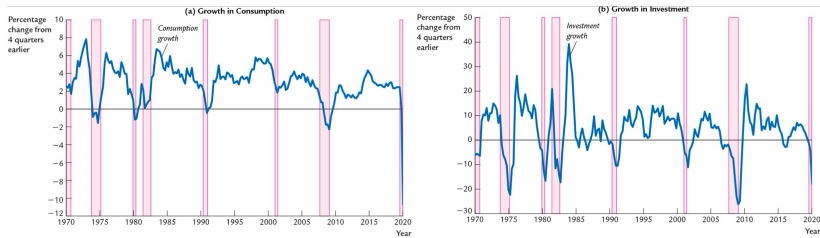
July-August, 2024

I. Facts about the Business Cycle

Economic growth is not steady and occasionally turns negative.
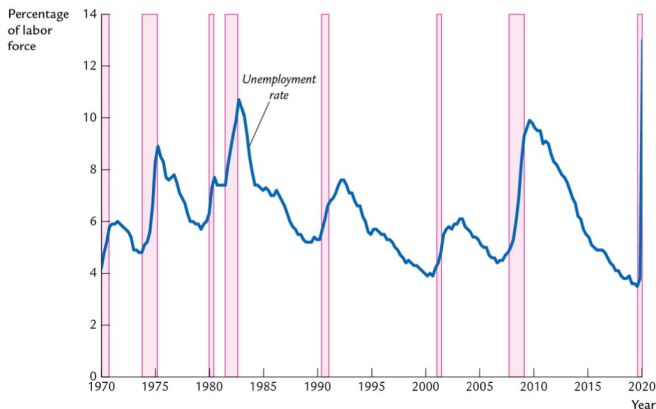
I. Facts about the Business Cycle

Growth in both <u>consumption</u> and <u>investment</u> declines during recessions. Investment is far more volatile than consumption over the business cycle.

I. Facts about the Business Cycle

During economic downturns, jobs are harder to find.

- **Okun's law**: increases in the unemployment rate should be associated with decreases in real GDP.

I. Facts about the Business Cycle

Summary

1. Economic fluctuations are irregular and unpredictable.
2. Most macroeconomic quantities fluctuate together.
3. As output falls, unemployment rises.

- Most economists believe that classical theory describes the world in the long run but not in the short run.
- To understand how the economy works in the short run, we need a new model. This new model can be built using many of the tools we developed in previous chapters, but it must abandon the **classical dichotomy** and the **neutrality of money**. Our new model focuses on how real and nominal variables interact.

II. AD-AS Framework

- We focus on two variables: (real) output and average price.
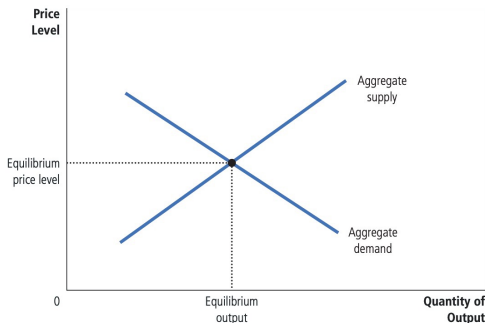
- **AD curve**: a curve that shows the quantity of goods and services that households, firms, the government, and customers abroad want to buy at each price level.
- **AS curve**: a curve that shows the quantity of goods and services that firms choose to produce and sell at each price level.

II. AD-AS Framework

There are three distinct but related reasons a fall in the price level increases the quantity of goods and services demanded:

1. Consumers are wealthier, which stimulates the demand for consumption goods.
2. Interest rates fall,which stimulates the demand for investment goods.
3. The currency depreciates, which stimulates the demand for net exports.

Why might the aggregate-demand curve shift?

1. Shifts arising from changes in consumption.
2. Shifts arising from changes in investment.
3. Shifts arising from changes in government purchases.
4. Shifts arising from changes in net exports.
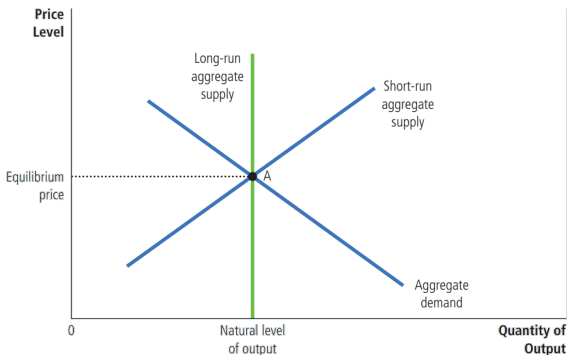
II. AD-AS Framework

In the long run, the aggregate-supply curve is **vertical**, whereas in the short run, the aggregate-supply curve slopes upward.

- In the long run, the real GDP depends on its supplies of labor, capital, and natural resources and on the available technology used to turn these factors of production into goods and services. We call it the **natural level of output**.
  - Shifts arising from changes in labor;
  - Shifts arising from changes in capital;
  - Shifts arising from changes in natural resources;
  - Shifts arising from changes in technological knowledge.

- In the short run, there would be sticky wages, and sticky prices, or misperceptions.

$$
\begin{pmatrix} \text{Quantity} \\ \text{of output} \\ \text{supplied} \end{pmatrix} = \begin{pmatrix} \text{Natural} \\ \text{level of} \\ \text{output} \end{pmatrix} + a \begin{pmatrix} \text{Actual} \\ \text{price} \\ \text{level} \end{pmatrix} - \begin{pmatrix} \text{Expected} \\ \text{price} \\ \text{level} \end{pmatrix}
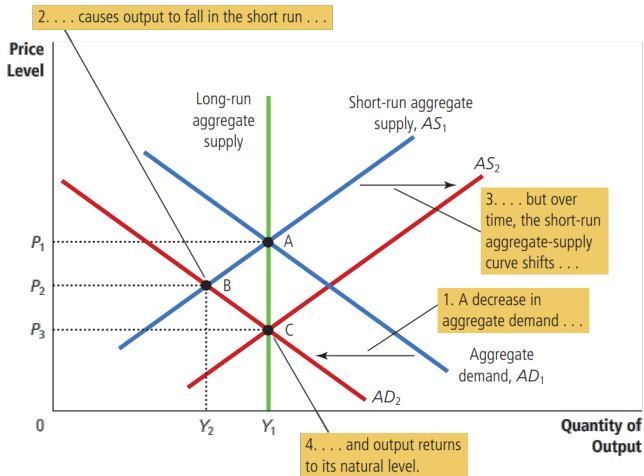$$

II. AD-AS Framework

- The long-run equilibrium of the economy is found where the AD curve crosses the long-run AS curve (point A). When the economy reaches this long-run equilibrium, the expected price level will have adjusted to equal the actual price level. As a result, the short-run AD curve crosses this point as well.
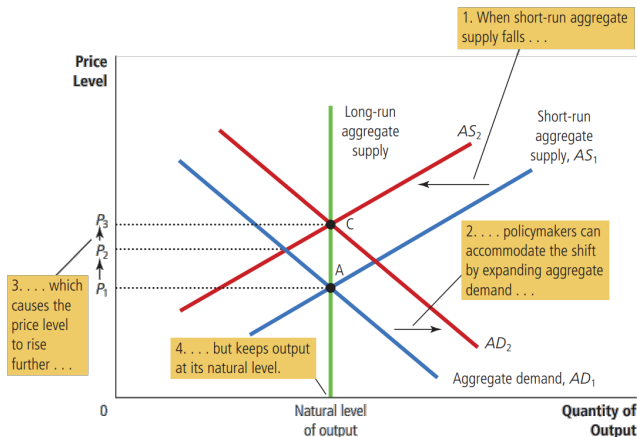
II. AD-AS Framework

- A Contraction in Aggregate Demand

II. AD-AS Framework

- An Adverse Shift in Aggregate Supply

1. When short-run aggregate supply falls . . .

Price Level

Long-run aggregate supply

AS_2

Short-run aggregate supply, AS_1

2. . . . policymakers can accommodate the shift by expanding aggregate demand . . .

P_3 — C
P_2
P_1 — A

3. . . . which causes the price level to rise further . . .

AD_2

Aggregate demand, AD_1

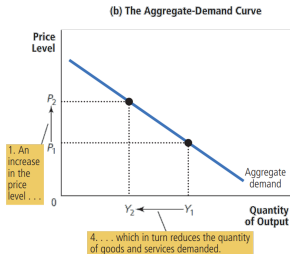4. . . . but keeps output at its natural level.

0

Natural level of output

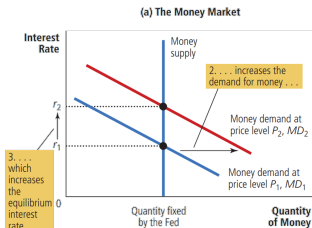Quantity of Output

- Stagflation: a period of falling output and rising prices.

III. Monetary and Fiscal Policy

We discuss monetary policy by revisiting the interest-rate effect.
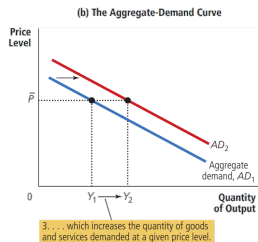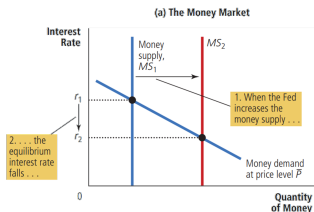
III. Monetary and Fiscal Policy

Fiscal policy: the setting of the level of government spending and taxation by government policymakers.

- When the government alters its own purchases of goods and services, it shifts the aggregate-demand curve **directly**.
- **Multiplier effect**: the additional shifts in aggregate demand that result when expansionary fiscal policy increases income and thereby increases consumer spending.
- **Crowding-out effect**: the offset in aggregate demand that results when expansionary fiscal policy raises the interest rate and thereby reduces investment spending.

IV. IS-LM Model

- Another way to construct an AD curve: goods market clears (IS) and money market clears (LM). They are all shown in the framework of real interest rate and real output.

- **IS Curve** could be derived by equations:

$$y = c + i + g$$
$$c = \alpha + \beta y$$
$$i = \gamma - \theta r$$

- the first equation is the national income identity, which also implies that $i = y - c - g = s$.
- the second equation is the consumption function. β is the marginal propensity to consume which is in $(0, 1)$.
- the third equation is the investment function. θ captures the sensitivity to the real interest rate.

$$r = -\frac{1 - \beta}{\theta} y + \frac{\alpha + \gamma + g}{\theta}$$

IV. IS-LM Model

- **LM Curve** could be derived by equations:

$$l = \xi y - \zeta r$$
$$m = \frac{M}{P}$$

- the first equation is the money demand: (i) transaction motive (ii) precautionary motive (iii) speculative motive.
- the second equation is the money supply: M is the nominal money supply, P is the price level, and m is the real money supply.

$$r = \frac{\xi}{\zeta}y - \frac{M}{\zeta P}$$

- the intersection point of IS and LM the equilibrium where goods market and money market clear simultaneously.

IV. IS-LM Model

- Put IS and LM equation together, then we get the AD curve:

$$P = \frac{M/\zeta}{\left(\frac{\xi}{\zeta} + \frac{1-\beta}{\theta}\right) y - \frac{\alpha+\gamma+g}{\theta}}$$

- **Expansionary monetary policy** means $M \uparrow$. For a given y, $P \uparrow$. AD curve shifts to the right.
- **Expansionary fiscal policy** means $g \uparrow$. For a given y, $P \uparrow$. AD curve shifts to the right.

Reading

- Chapter 33 ~ 34, *Principles of Economics* by Mankiw.
- Chapter 11, *Macroeconomics* by Mankiw.