ECO 181 Lecture 05

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Fisher Effect

- Suppose your grandma lends you \$100 at an interest rate of 10%. And also that over the year the inflation rate is 10%.

  At end of the year you should pay your grandma:

  What's your grandma's real return?

Fisher Effect

- Economists summarize the effect of inflation on borrowers and lenders by distinguishing between the nominal interest rate and the real interest rate.

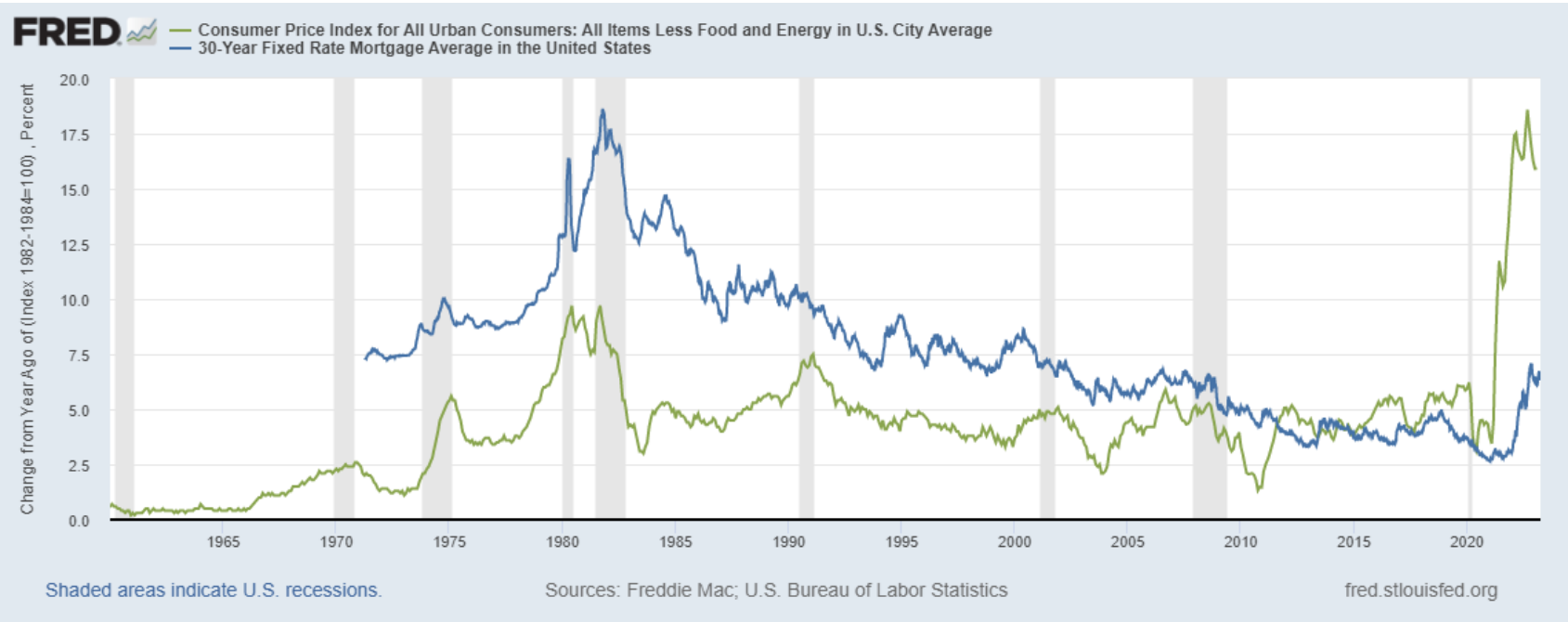
$$\text{Real interest rate} = \text{Nominal interest rate} - \text{Inflation rate}$$

- Nominal interest rate: the rate charged on paper (by grandma)
- Inflation reduce the real return on loan.

  If grandma expected the inflation rate to be 10%, in order to get a real return of 5%, she will charge you:

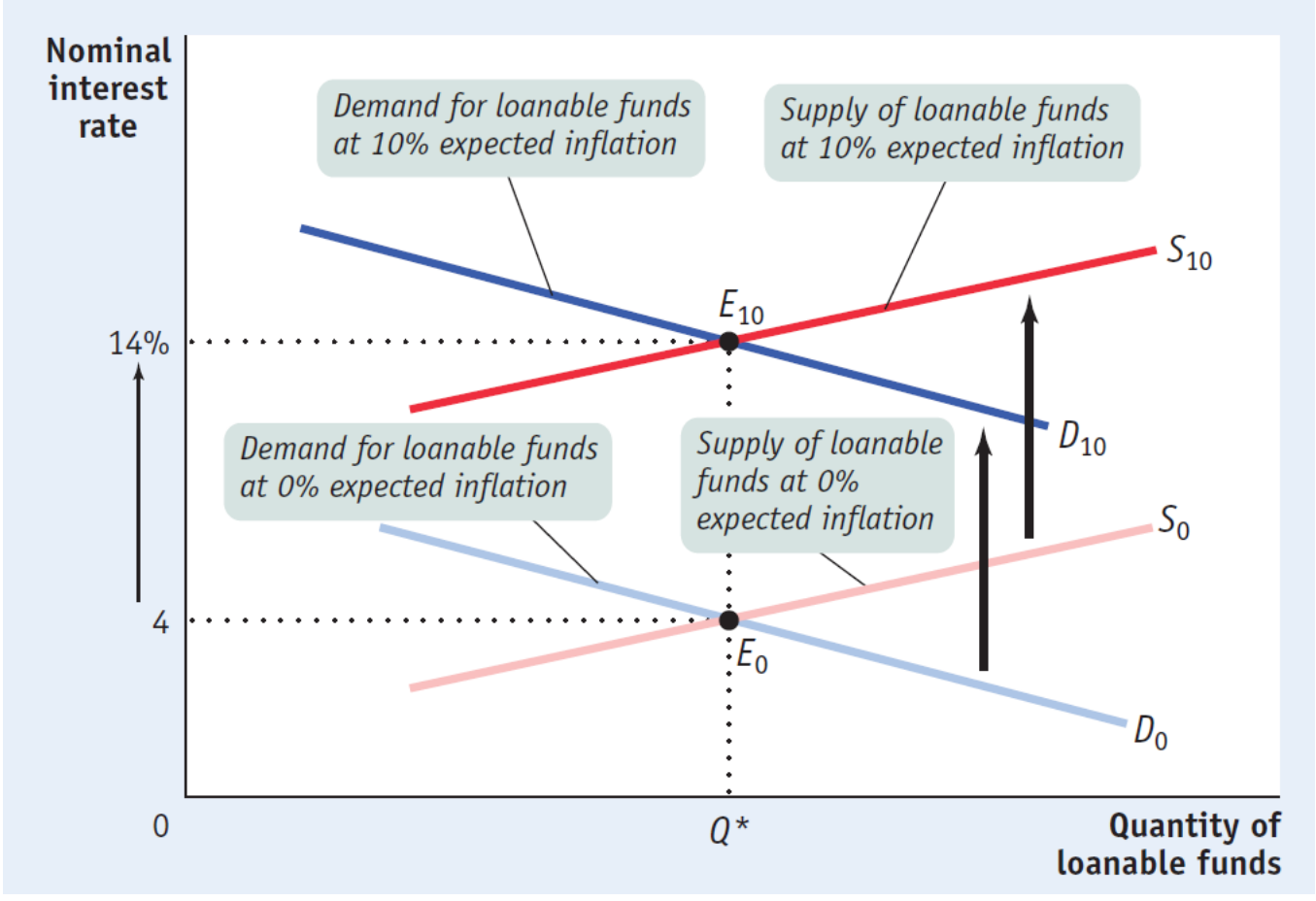
Fisher Effect

- According to the **Fisher effect**, an increase in expected future inflation drives up the nominal interest rate, leaving the expected real interest rate unchanged.



Fisher Effect

- How changes in the expected future rate of inflation are reflected in the loanable funds model



The Multiplier

- Assume there are only two sectors in the economy. (Sector A: farmer. Sector B: builder) If either of these fellows gets an extra dollar to spend, he will spend 60% of it.

  Marginal Propensity to Consume(MPC): is the increase in consumer spending when disposable income rises by \$1. (In this specific case, MPC = \$1 $\times$ 60% = \$0.6)

$$MPC = \frac{\Delta \text{Consumer spending}}{\Delta \text{Disposable income}}$$

The Multiplier

Round 1: Farmer spend $1000. Builder received $1000.

Round 2:

Round 3:

Total Output:

The Multiplier

Round ∞:

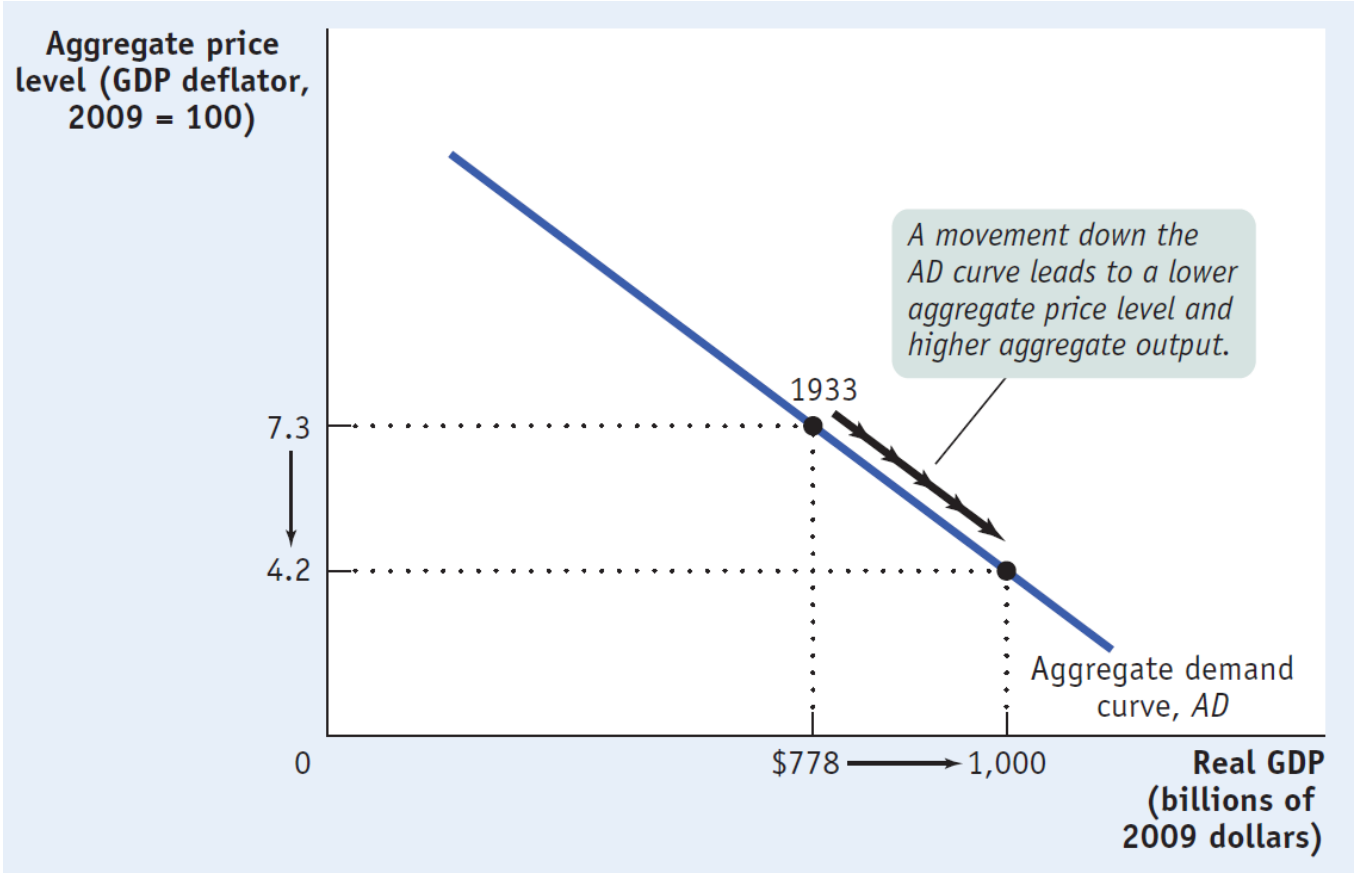
The Multiplier

- The **multiplier** is the ratio of the total change in real GDP caused by an autonomous change in aggregate spending to the size of that autonomous change.
  - An initial rise or fall in aggregate spending at a given level of real GDP is called an **autonomous change in aggregate spending**.

$$Multiplier = \frac{1}{1 - MPC}$$

Aggregate Demand

- **The aggregate demand curve** shows the relationship between the aggregate price level and the quantity of aggregate output demanded by households, businesses, the government, and the rest of the world.



Aggregate Demand

Why Is the Aggregate Demand Curve Downward Sloping?

- Law of demand? $\rightarrow$ The demand curve for any individual good
- Aggregate demand(AD) $\rightarrow$ a simultaneous change in the prices of all final goods and services
  1. The Wealth Effect
  2. The Interest Rate Effect

Aggregate Demand

Why Is the Aggregate Demand Curve Downward Sloping?

1. **The Wealth Effect**: the effect on consumer spending caused by the effect of a change in the aggregate price level on the purchasing power of consumers' assets.

Aggregate Demand

Why Is the Aggregate Demand Curve Downward Sloping?

2. **The Interest Rate Effect**: the effect on consumer spending and investment spending caused by the effect of a change in the aggregate price level on the purchasing power of consumers' and firms' money holdings.

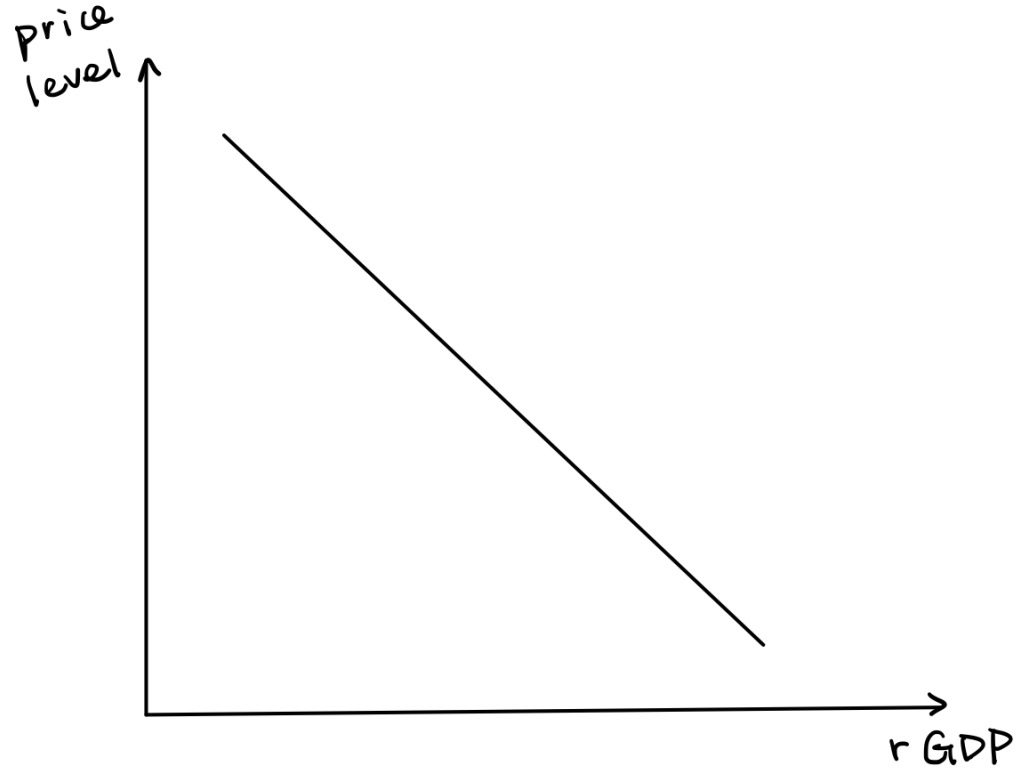
Shifts of the Aggregate Demand Curve

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

Shifts of the Aggregate Demand Curve

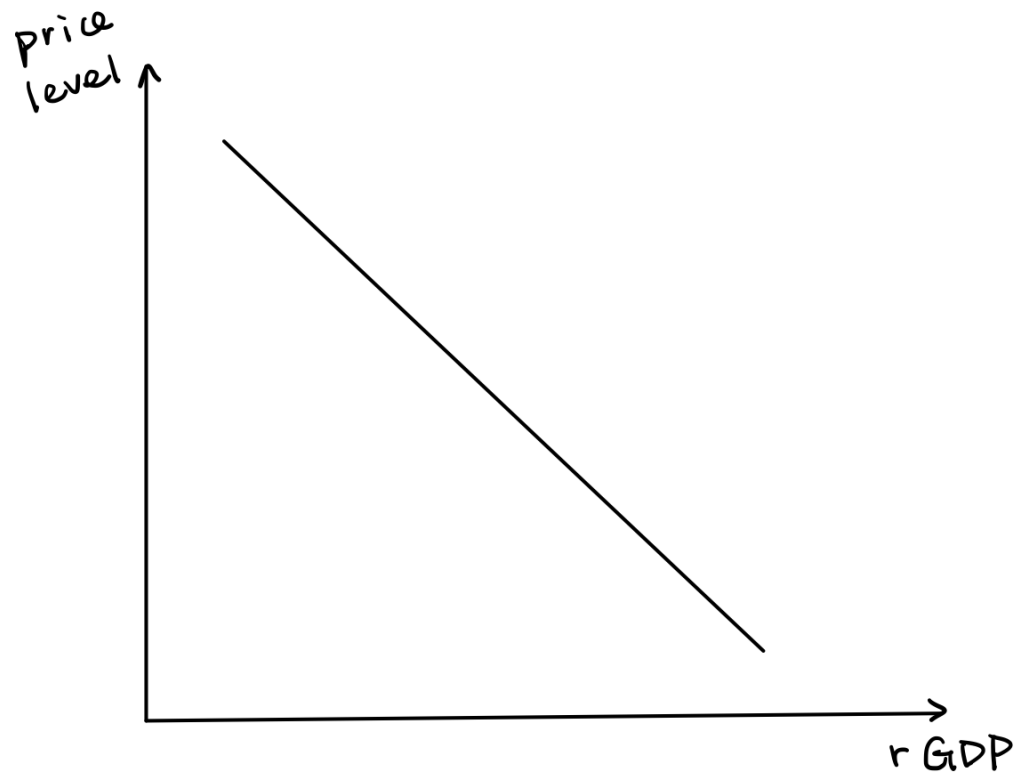
1. Shifts Arising from Changes in Consumption

   e.g. Suppose Americans suddenly become more concerned about saving for retirement.



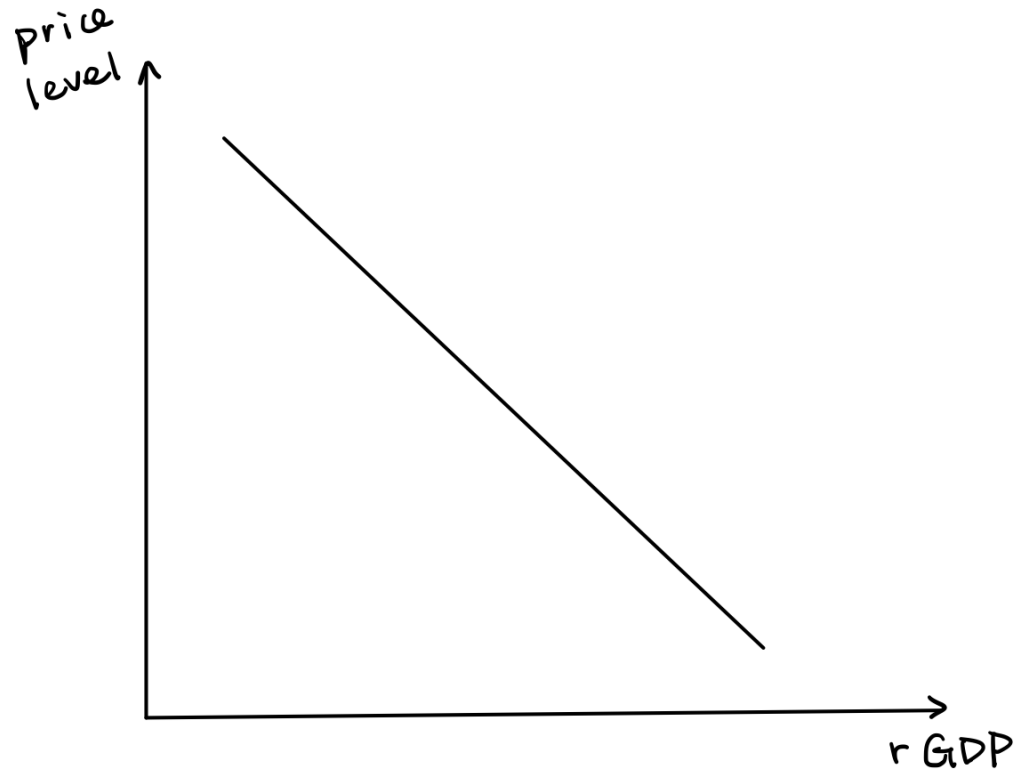
Shifts of the Aggregate Demand Curve

2. Shifts Arising from Changes in Investment
   e.g. The computer industry introduces a faster line of computers, and many firms decide to invest in new computer systems.



Shifts of the Aggregate Demand Curve

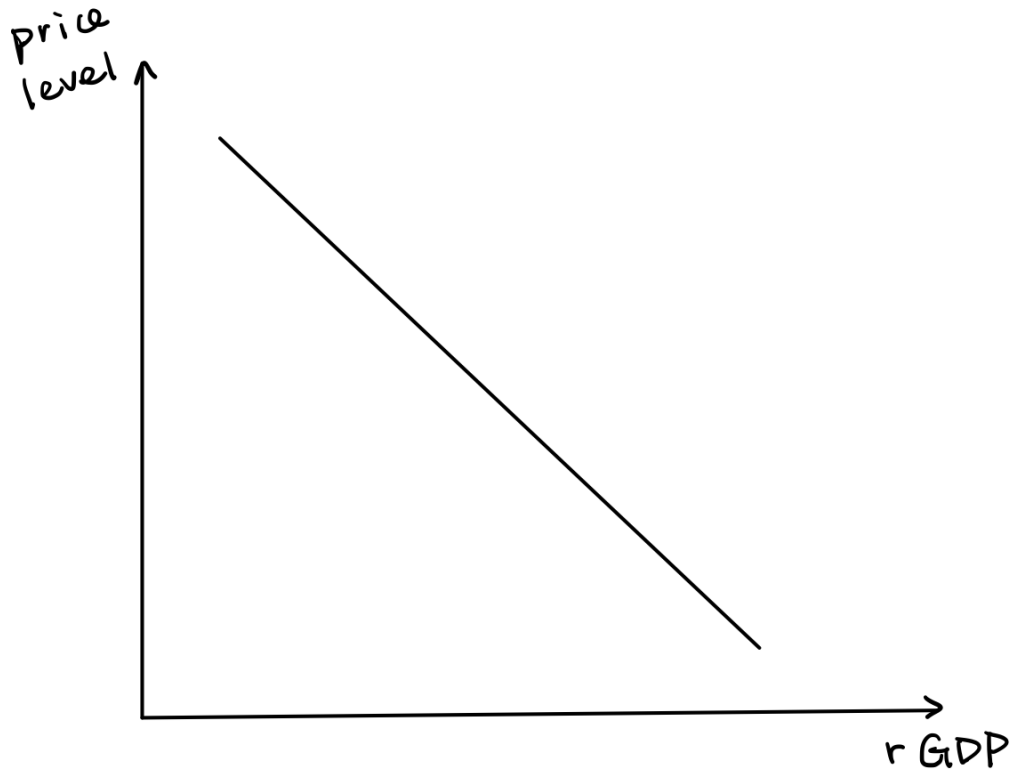
3. Shifts Arising from Changes in Government Purchases
   e.g. Congress decides to reduce purchases of new weapons systems.



Shifts of the Aggregate Demand Curve

4. Shifts Arising from Changes in Net Exports

   e.g. Europe experiences a recession, it buys fewer goods from the United States.



Aggregate Supply Curve

- The **aggregate supply curve** shows the relationship between the aggregate price level and the quantity of aggregate output supplied in the economy.
- The Short-Run Aggregate Supply Curve
- The Long-Run Aggregate Supply Curve

Short-Run vs Long-Run

- The **short run** in macroeconomics is a period in which wages and some other prices are sticky.

  Sticky wages are nominal wages that are slow to fall even in the face of high unemployment and slow to rise even in the face of labor shortages. (The **nominal wage** is the dollar amount of the wage paid.)

- The **long run** is a period in which full wage and price flexibility, and market adjustment, has been achieved, so that the economy is at the natural level of employment and potential output.

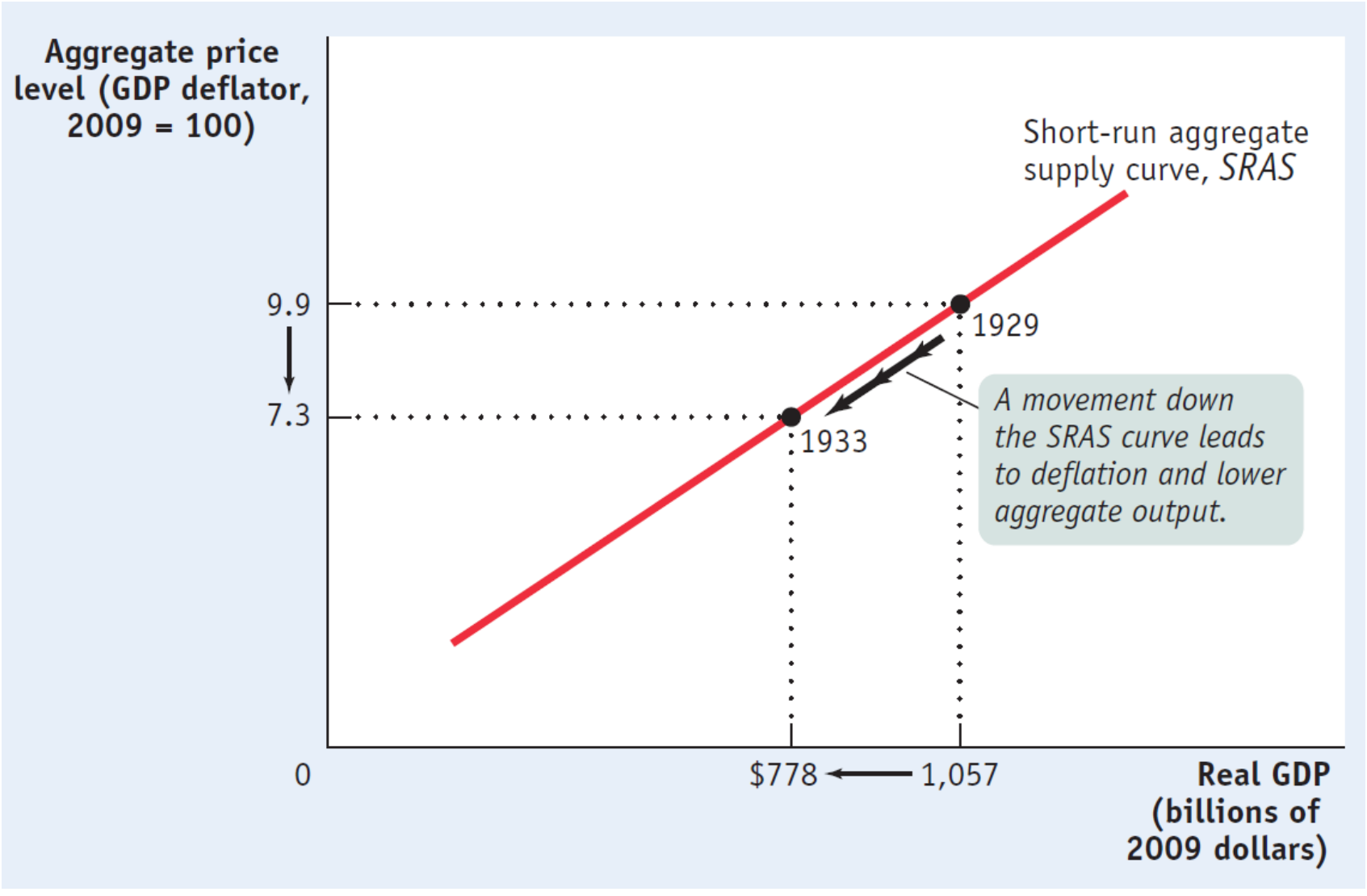
How long is the long-run?

- Long enough! That might seem a little vague, but that is kind of the point. The long-run isn't actually a specific time frame. It's just "long enough" for prices to adjust fully. If prices haven't fully adjusted, then it's not the long-run yet.

The Short-Run Aggregate Supply Curve

Why Is the Short-run Aggregate Supply Curve Upward Sloping?

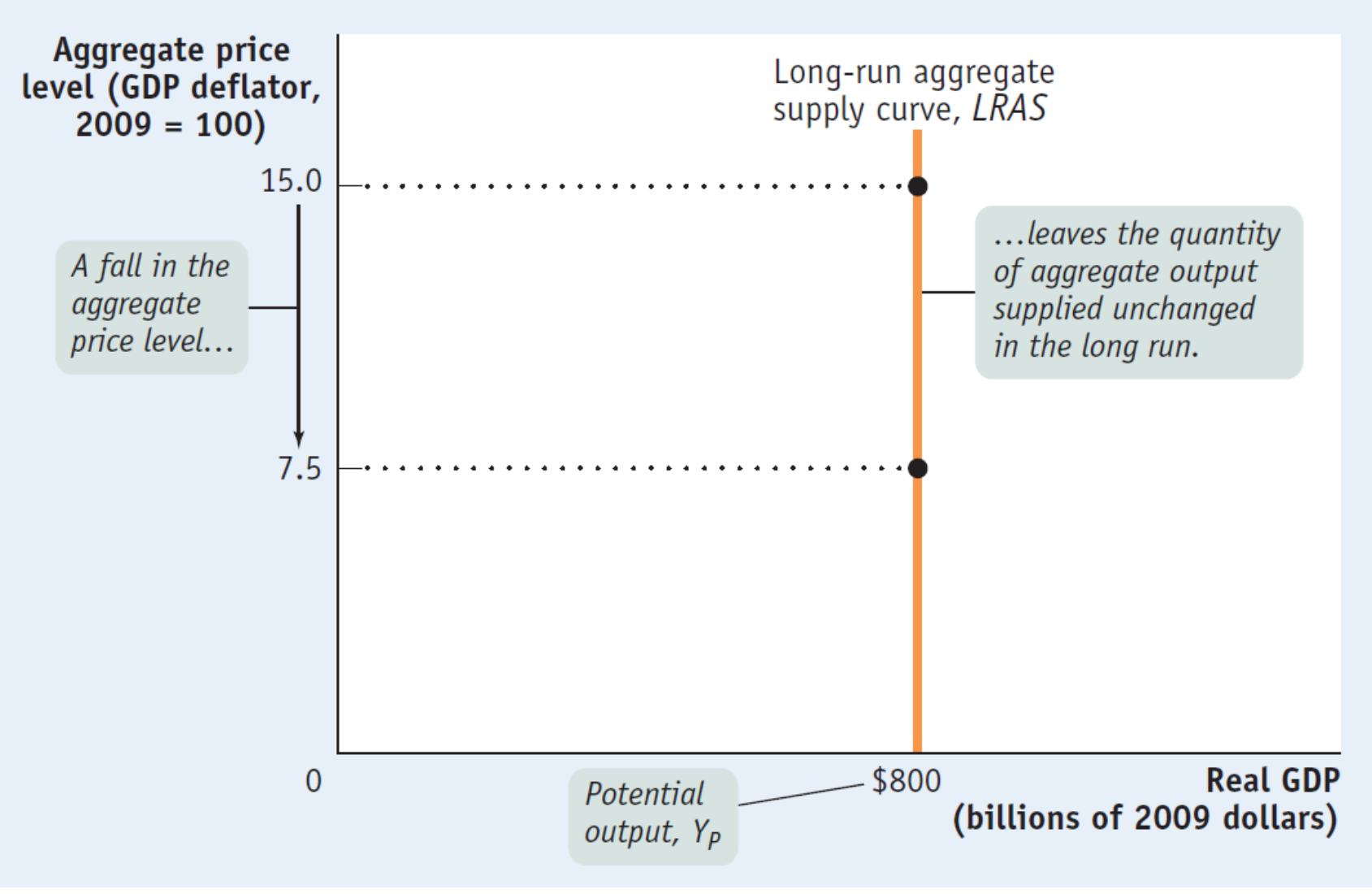
The Short-Run Aggregate Supply Curve



The Long-Run Aggregate Supply Curve

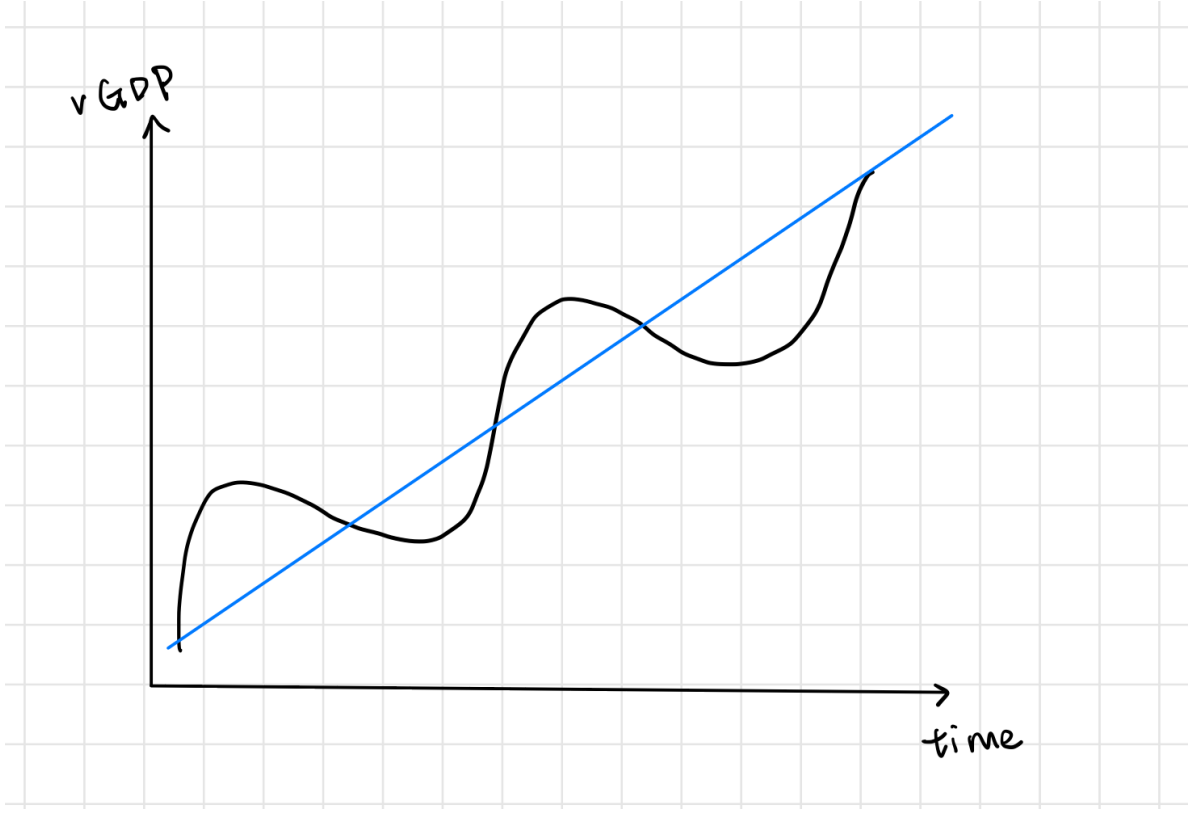
- **The long-run aggregate supply curve** shows the relationship between the aggregate price level and the quantity of aggregate output supplied that would exist if all prices, including nominal wages, were fully flexible.

The Long-Run Aggregate Supply Curve



The Long-Run Aggregate Supply Curve

- **Potential output** is the level of real GDP the economy would produce if all prices, including nominal wages, were fully flexible.

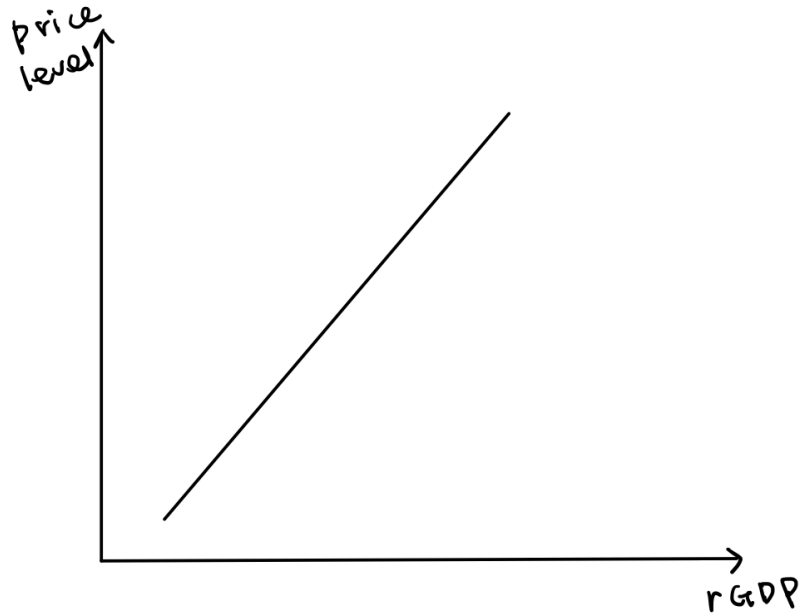


Shifts of the Short-Run Aggregate Supply Curve

1. Changes in Commodity Prices
2. Changes in Nominal Wages
3. Changes in Productivity

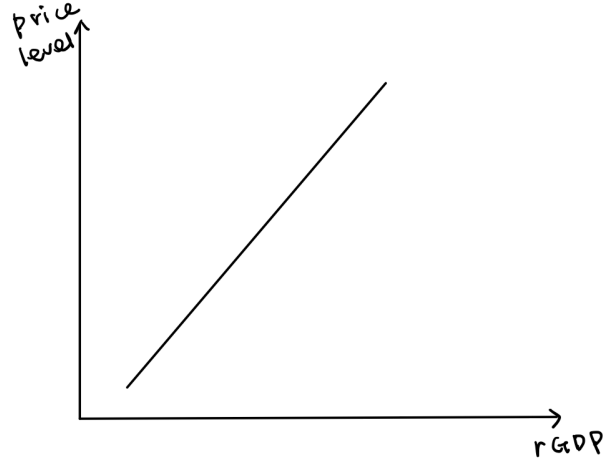
Shifts of the Short-Run Aggregate Supply Curve

1. Changes in Commodity Prices
   e.g. Oil is a commodity, a standardized input bought and sold in bulk quantities. An increase in the price of a commodity—oil



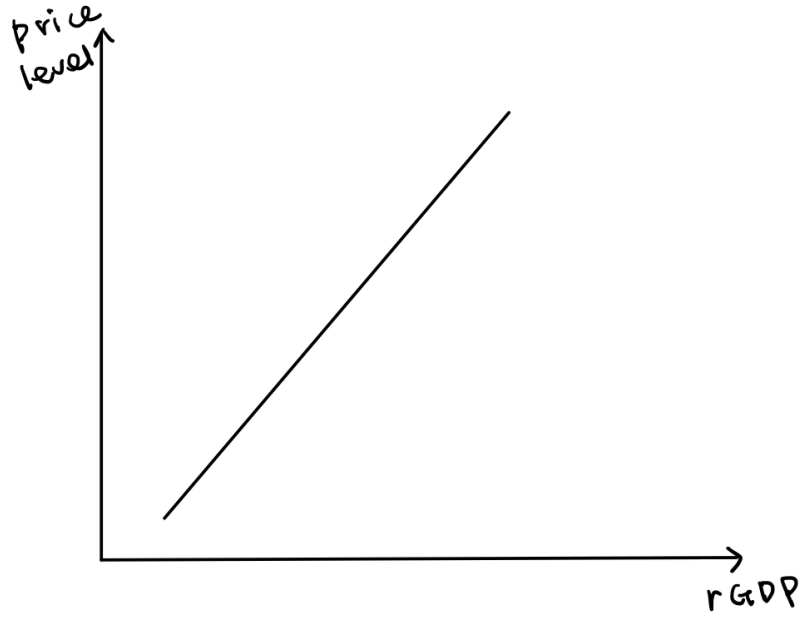
Shifts of the Short-Run Aggregate Supply Curve

1. Changes in Nominal Wages
   e.g. Suppose, for example, that there is an economy-wide rise in the cost of health care insurance premiums paid by employers as part of employees' wages. From the employers' perspective, this is equivalent to a rise in nominal wages because it is an increase in employer-paid compensation.



Shifts of the Short-Run Aggregate Supply Curve

1. Changes in Productivity



Shifts of the Long-Run Aggregate Supply Curve

$$Y = A \times f(L, K, H)$$

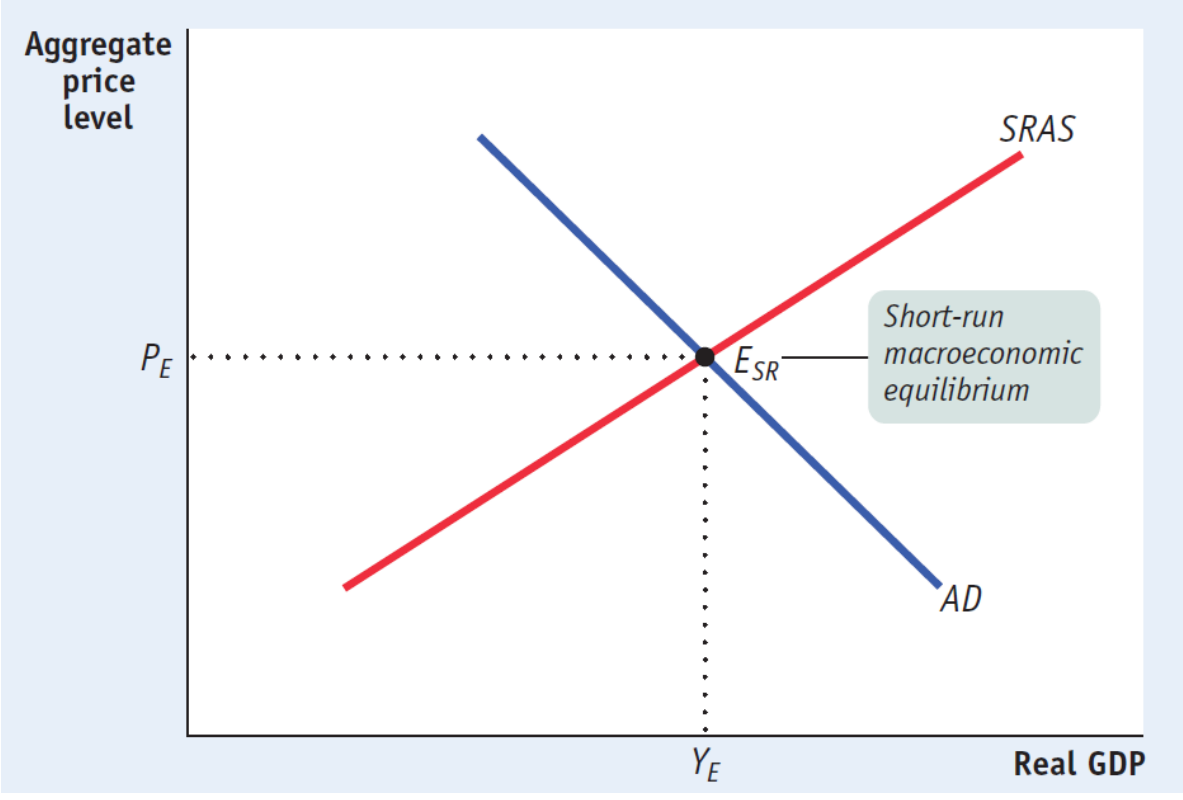
- Examples:
  - More immigration or pop growth - L↑
  - Expansion of factories and stores K↑
  - More people go to college H↑
  - The internet increases the speed of innovation A↑

The AD–AS Model

In the **AD–AS model**, the aggregate supply curve and the aggregate demand curve are used together to analyze economic fluctuations.

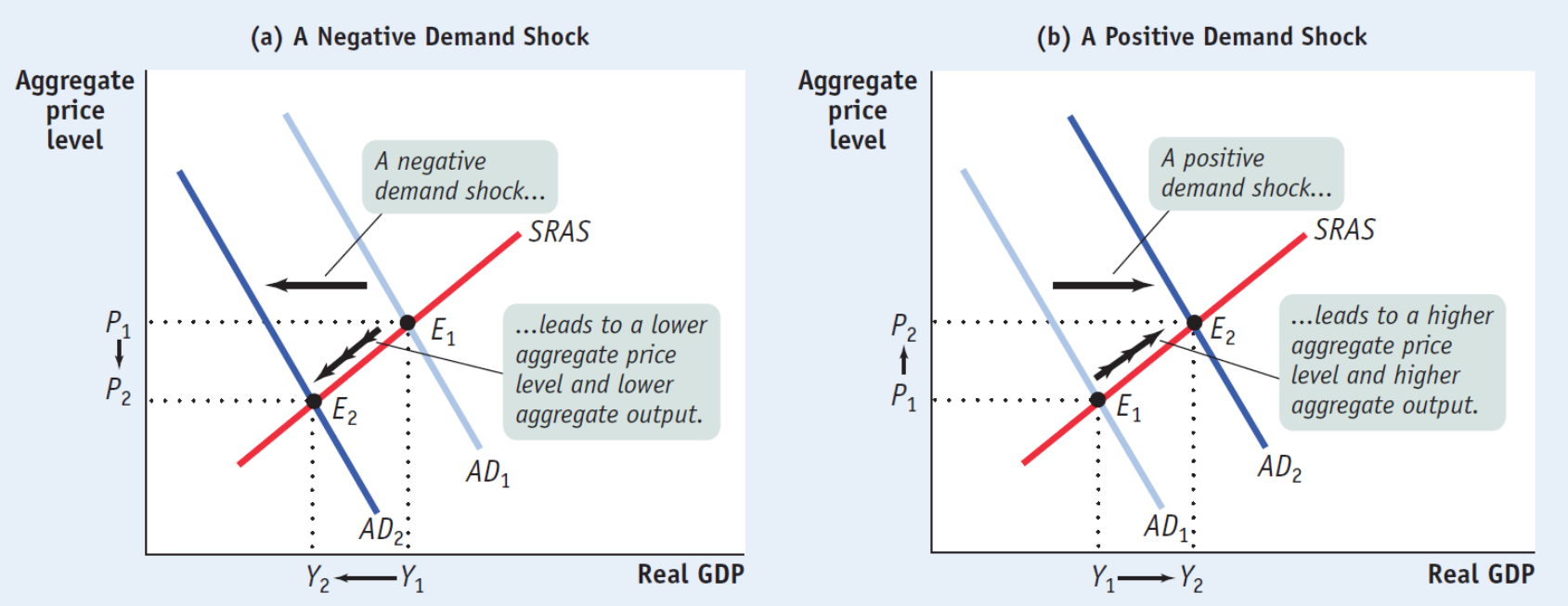
The AD–AS Model

- The economy is in **short-run macroeconomic equilibrium** when the quantity of aggregate output supplied is equal to the quantity demanded.



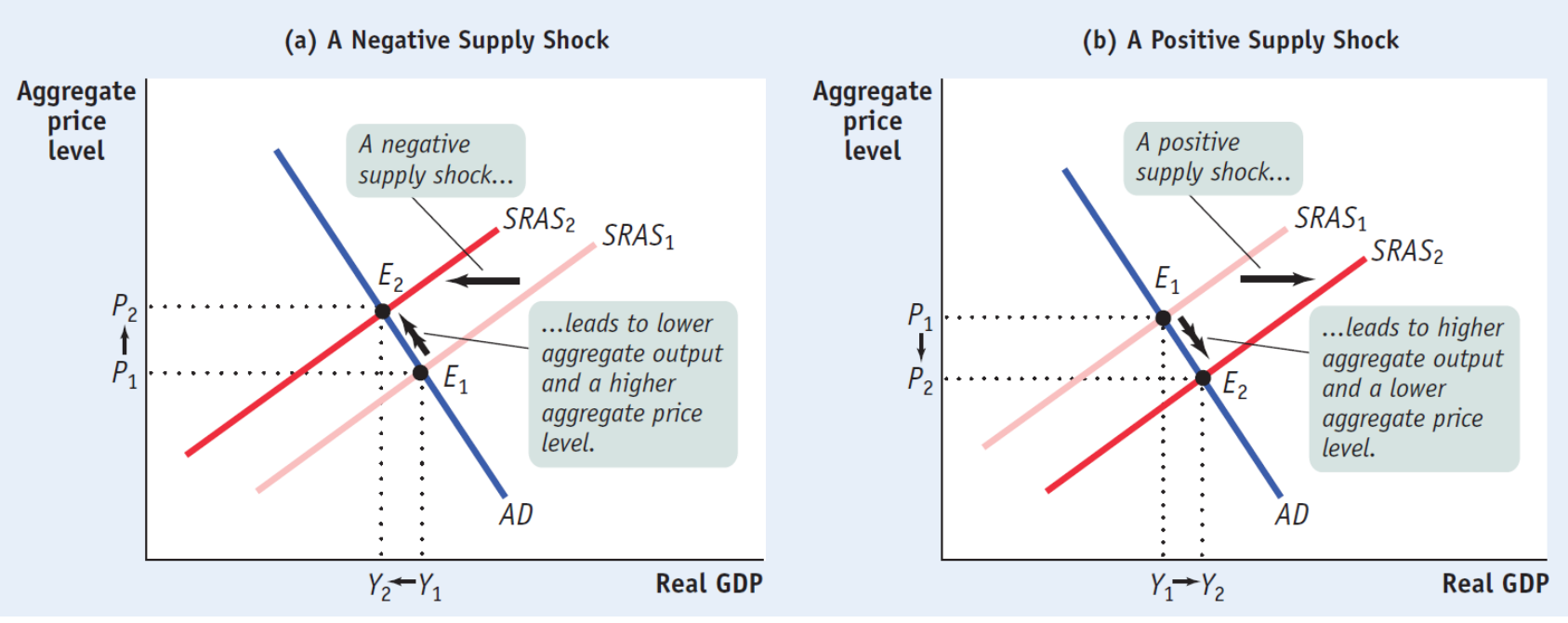
The AD–AS Model

- An event that shifts the aggregate demand curve is a **demand shock**.



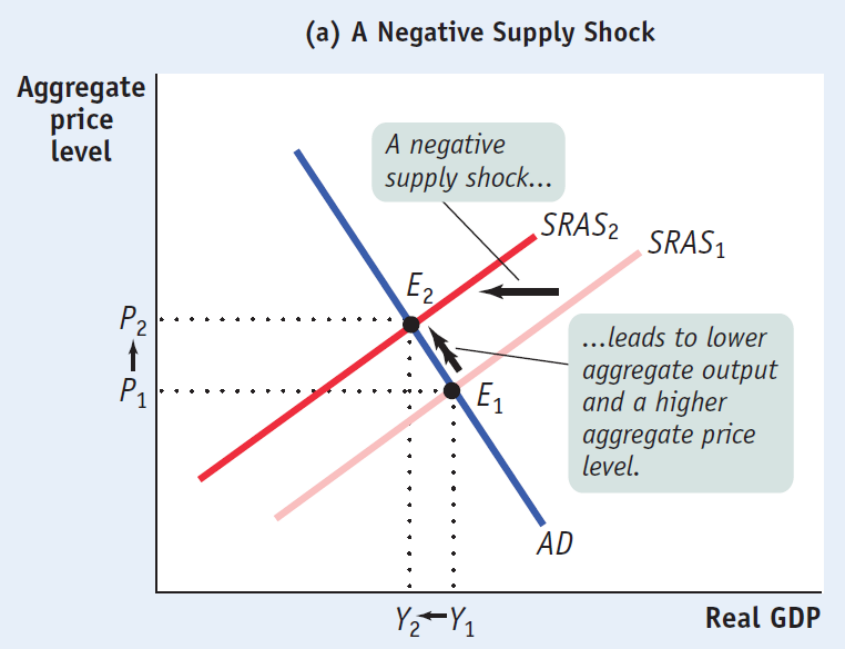
The AD–AS Model

- An event that shifts the short-run aggregate supply curve is a **supply shock**.



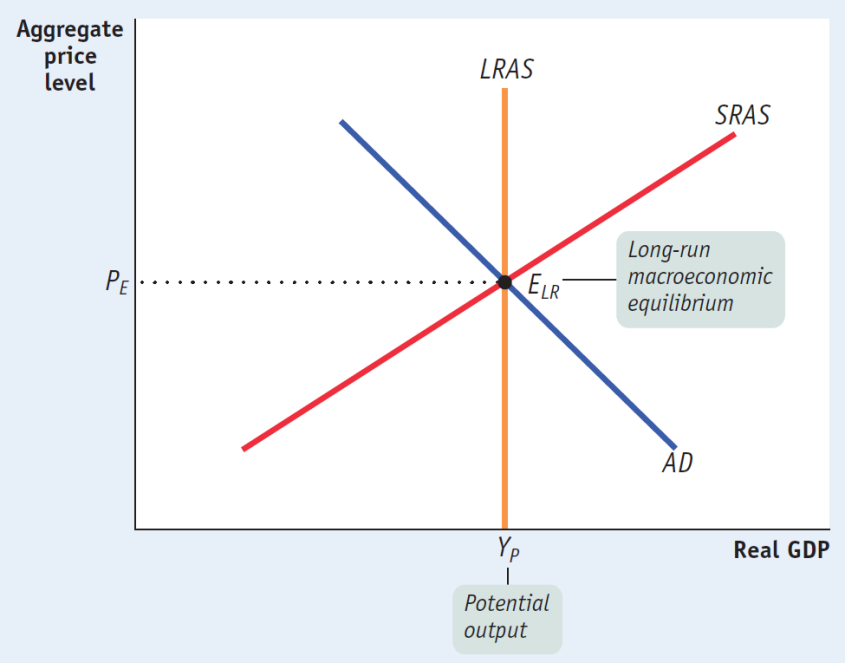
The AD–AS Model

- **Stagflation** is the combination of inflation and falling aggregate output. (falling aggregate output leads to rising unemployment, and people feel that their purchasing power is squeezed by rising prices.)

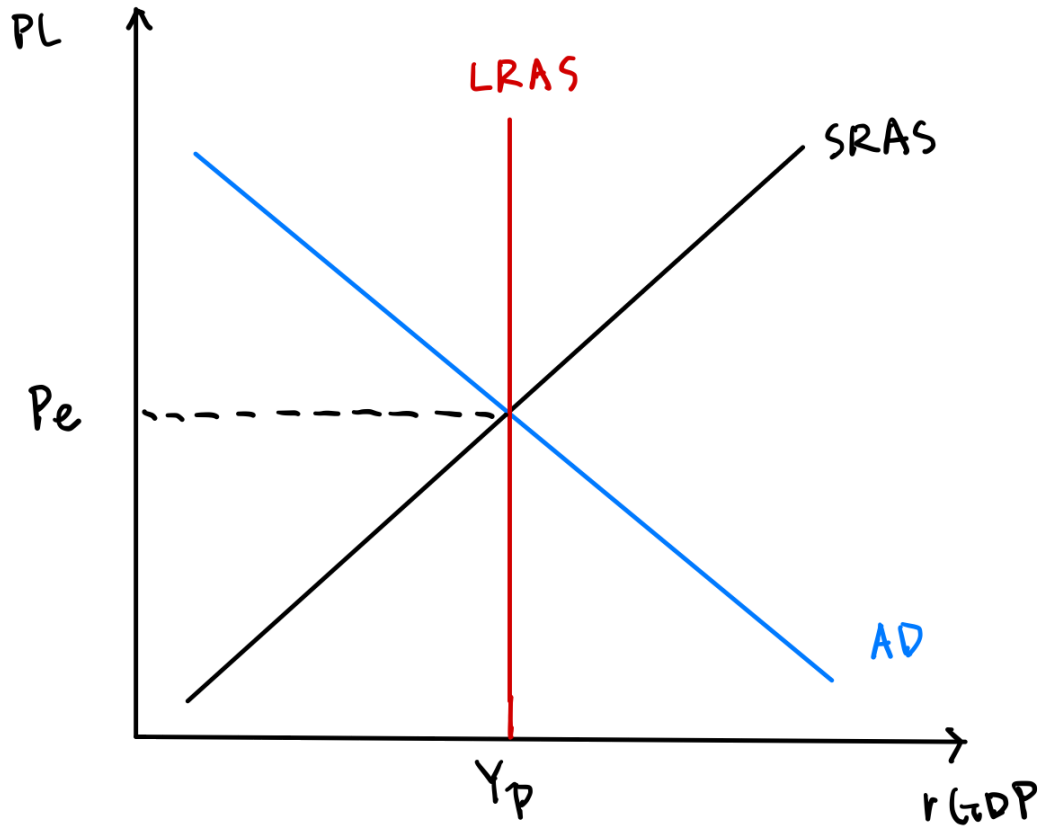


The AD–AS Model

- The economy is in **long-run macroeconomic equilibrium** when the point of short-run macroeconomic equilibrium is on the long-run aggregate supply curve.

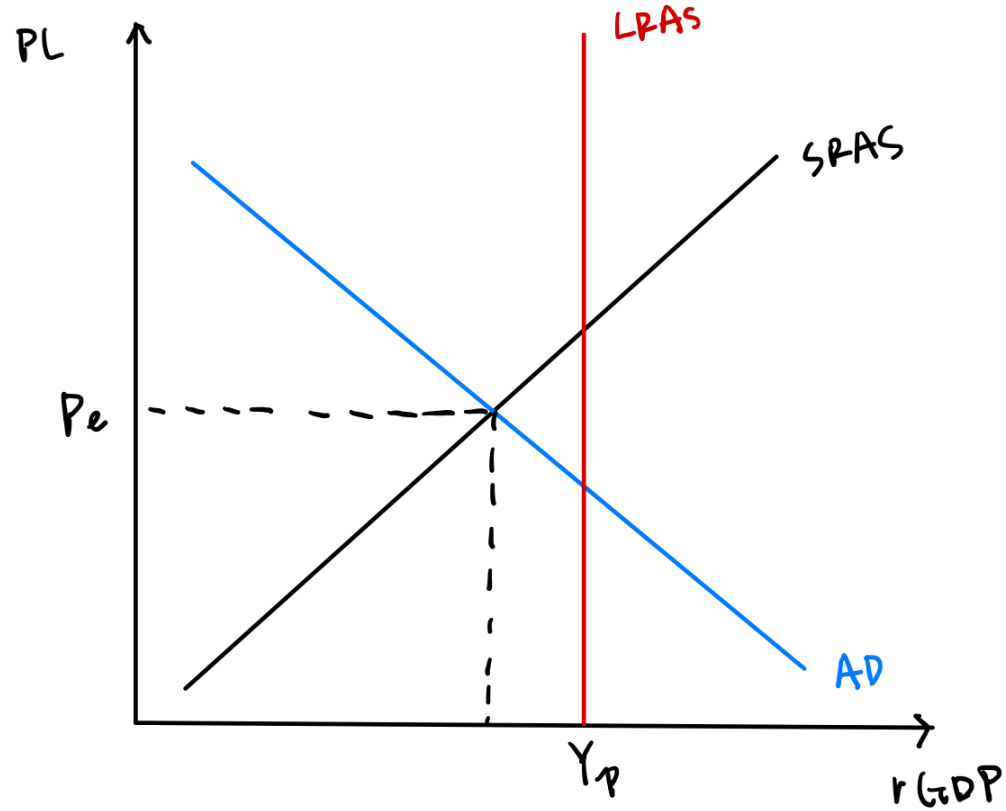


Short-run Equilibrium - 3 possible outcomes



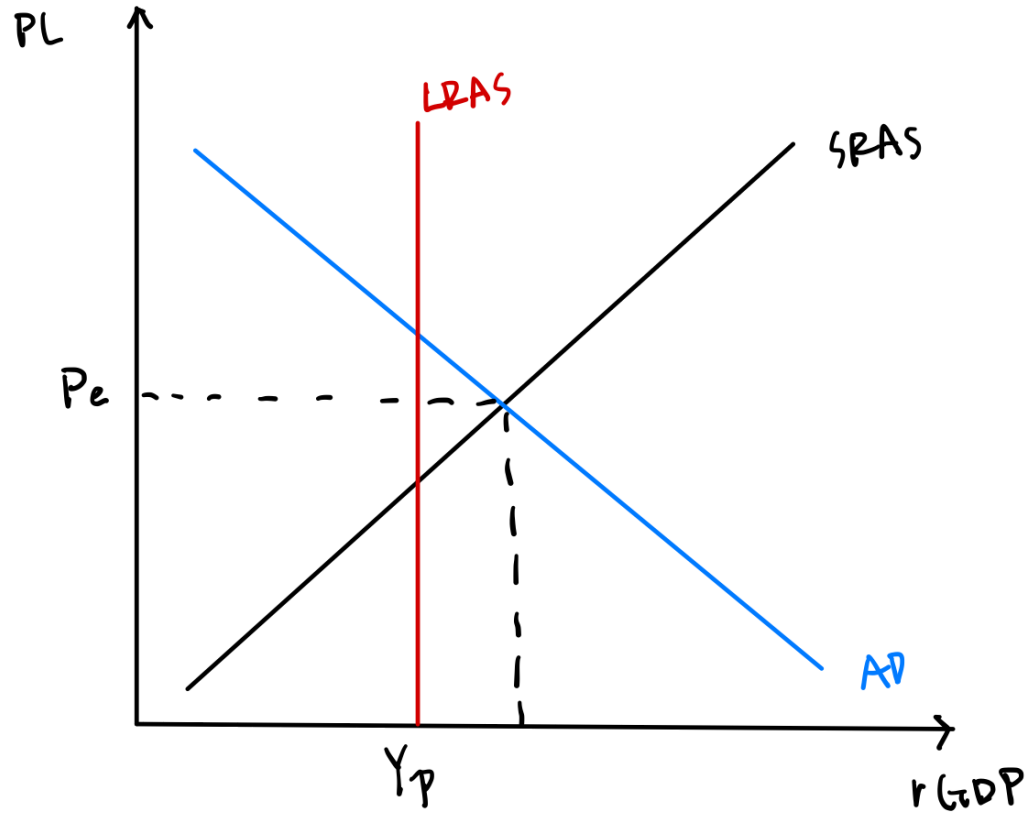
Short-run Equilibrium - 3 possible outcomes

- There is a **recessionary gap** when aggregate output is below potential output.



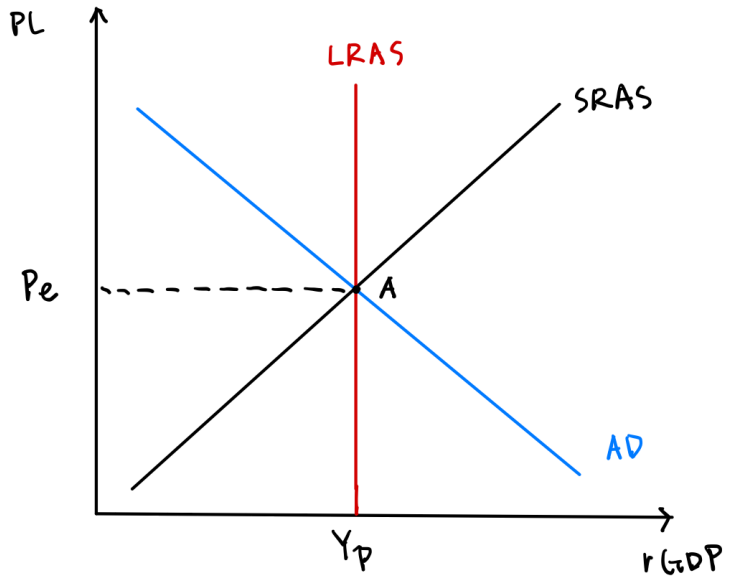
Short-run Equilibrium - 3 possible outcomes

- There is an **inflationary gap** when aggregate output is above potential output.



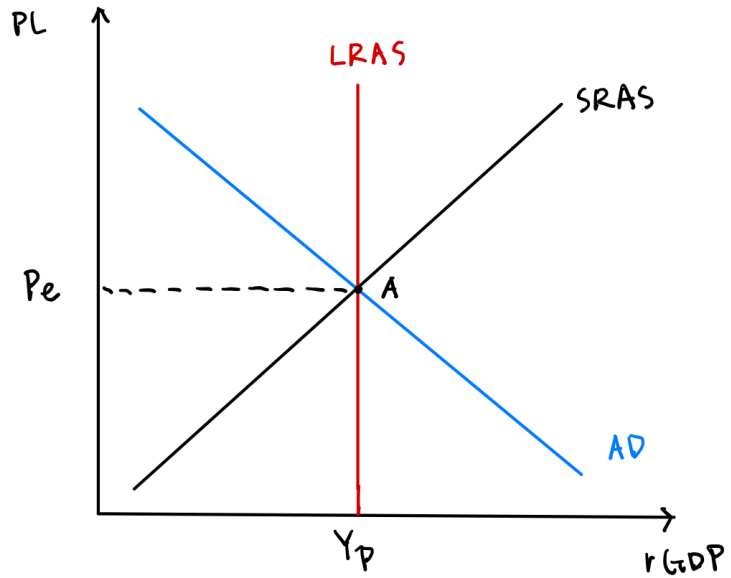
Negative Demand Shock

- Always Start at Long-run Equilibrium (point ___)
- In the short-run: AD shift inward. (end up at point ___) This is because although PL ___, some input price are ___, thus profitability is ___ and firms must ___ output.
- In the long-run: as new contracts come up, wages and other input prices will ___, this will shift the ___ curve ___ until _____.



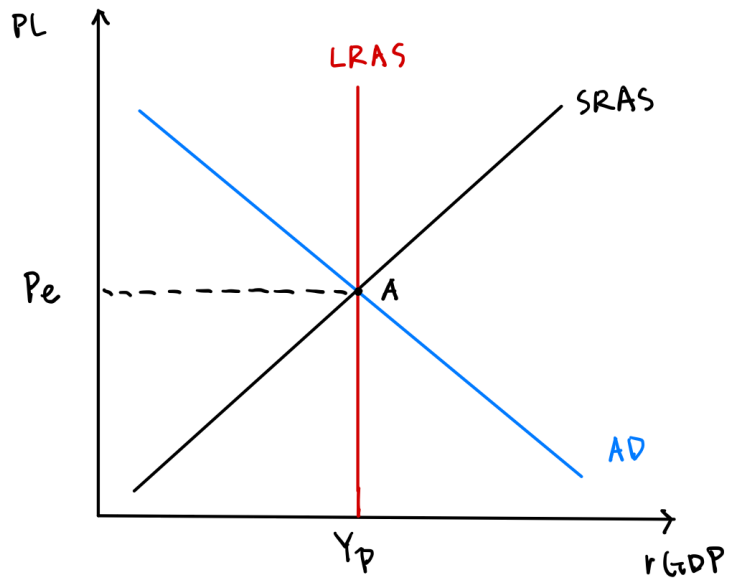
Positive Demand Shock

- Always Start at Long-run Equilibrium (point ___)
- In the short-run: AD shift outward. (end up at point ___) This is because although PL ___, some input price are ___, thus profitability is ___ and firms must ___ output.
- In the long-run: as new contracts come up, wages and other input prices will ___, this will shift the ___ curve ___ until _____.



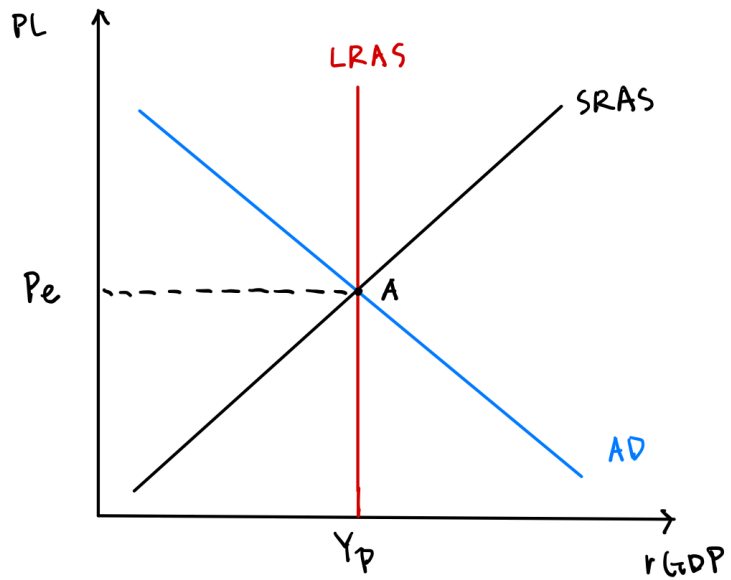
Negative Supply Shock

- Always Start at Long-run Equilibrium (point ___)
- In the short-run: SRAS shifts inward. (end up at point ___)
- Eventually, as input prices fall again, the SRAS will shift ___ until _____.



Positive Supply Shock

- Always Start at Long-run Equilibrium (point ___)
- In the short-run: SRAS shift outward. (end up at point ___)
- Eventually, as input prices increase again, the SRAS will shift ___ until _____.



Summary

- rGDP, unemployment and inflation will deviate in the short-run due to changes in AD or SRAS.
- The economy is **self-correcting** in the long run: it will eventually trend back to potential output. However, if the shock is significant, then this may take years. Many economists advocate active **stabilization policy**: using fiscal or monetary policy.