Chapter 9

Macroeconomic Equilibrium: Aggregate Demand and Supply

Economics, 7th Edition

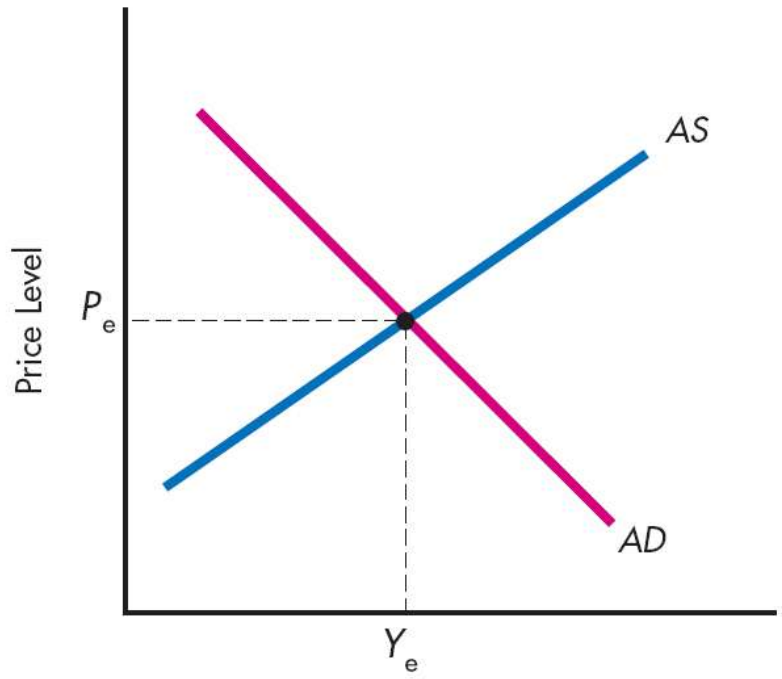
Boyes/Melvin

The Business Cycles

- Aggregate demand = **total spending** in the economy at alternative price levels.
- Aggregate supply = **total output** of the economy at alternative price levels.
- Changes in aggregate demand and supply cause the **equilibrium price level and real GDP** to change resulting in business cycles.

Aggregate Demand, Aggregate Supply, and Business Cycles

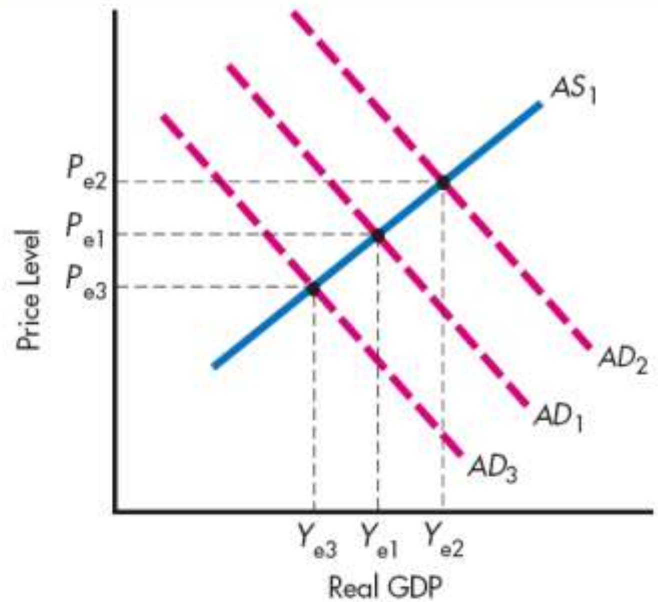
FIGURE 1 **Aggregate Demand and Aggregate Supply Equilibrium**



The equilibrium price level and real GDP are determined by the intersection of the *AD* and *AS* curves.

Aggregate Demand and Business Cycles

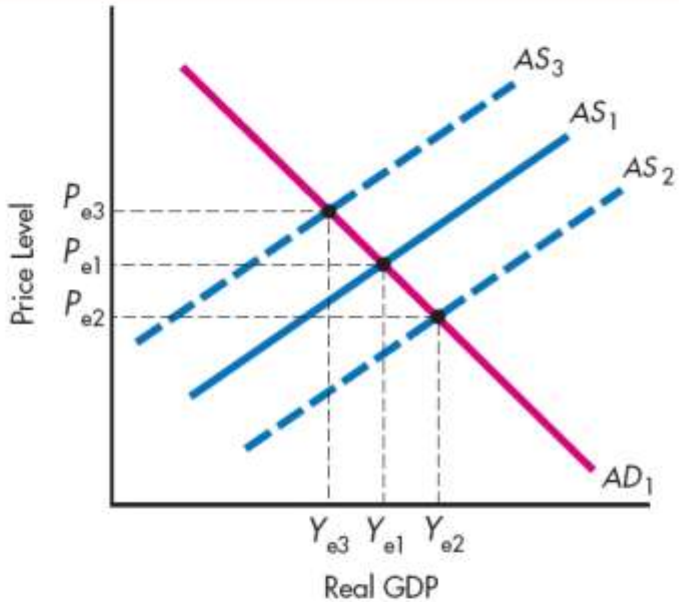
FIGURE 2 Effects of a Change in Aggregate Demand



If aggregate demand increases from AD_1 to AD_2, the equilibrium price level increases to P_{e2} and the equilibrium level of real GDP rises to Y_{e2}. If aggregate demand decreases from AD_1 to AD_3, the equilibrium price level falls to P_{e3} and the equilibrium level of real GDP drops to Y_{e3}.

Aggregate Supply and Business Cycles

FIGURE 3 Effects of a Change in Aggregate Supply



If aggregate supply increases from AS_1 to AS_2, the equilibrium price level falls from P_{e1} to P_{e2} and the equilibrium level of real GDP rises to Y_{e2}. If aggregate supply decreases from AS_1 to AS_3, the equilibrium price level rises to P_{e3} and the equilibrium level of real GDP falls to Y_{e3}.

Factors that Affect AD

$$AD = C + I + G + NX$$

- **Consumption**
  - Income
  - Wealth
  - Expectations
  - Demographics
  - Taxes
- **Investment**
  - Interest Rates
  - Technology
  - Cost of Capital Goods
  - Capacity Utilization

- **Government Spending**
- **Net Exports**
  - Domestic & Foreign Income
  - Domestic & Foreign Prices
  - Exchange Rates
  - Government Policy

Why AD slopes downward

- Wealth effect: change in the real value of wealth that causes spending to change when the level of prices change
  - If price level rises, the purchasing power of our assets fall, we buy less
  - Wealth vs. Income: Wealth is a stock, income is a flow

Why AD slopes downward

- Interest rate effect: when prices go up, people need more money. Some people will sell their bonds to get more $$. When this happens, bond prices fall and interest rates rise. If IR rise, less investment spending will occur.

Why AD slopes downward

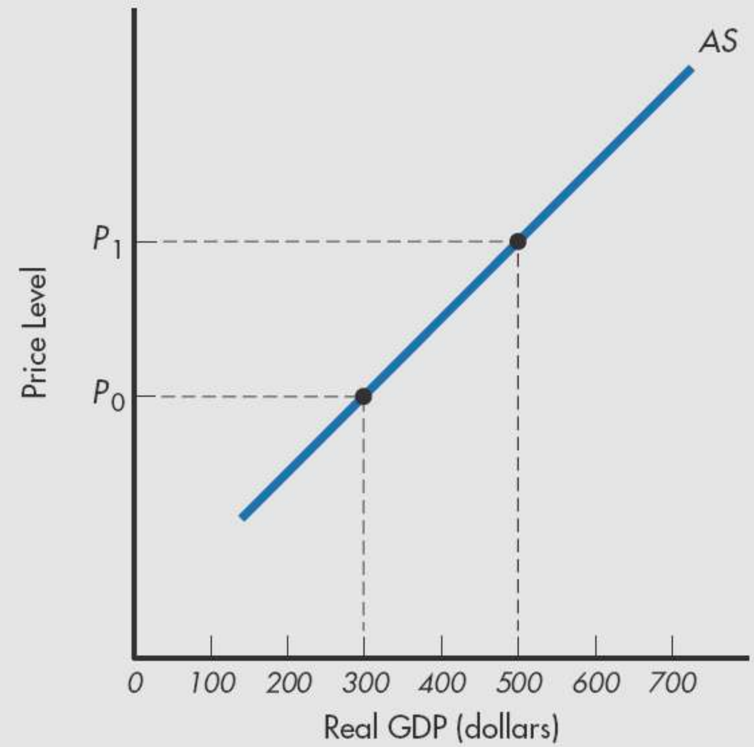
- International Trade Effect
  - A change in the domestic price level can cause exports to change.
  - When the price of domestic goods increases in relation to the price of foreign goods, net exports fall, and aggregate expenditures falls.

Aggregate Supply Curve

Shows the amount of real GDP produced at different price levels

Aggregate Supply

FIGURE 9 **Aggregate Supply**



The aggregate supply curve shows the amount of real GDP produced at different price levels. The *AS* curve slopes up, indicating that the higher the price level, the greater the quantity of output produced.

Why AS slopes upward

- As Price Level rises, producers are willing to supply a greater Q of goods. The higher the price level the higher the profits, ceterus peribus.

Shape of Short-run AS (SRAS)

- In the short-run, the capital stock is held constant.
- Increasing the number of workers increases output, but at a diminishing rate.
- Diminishing returns manifest as an ever-steeper SRAS curve.

What changes SRAS? Shifts of the Curve

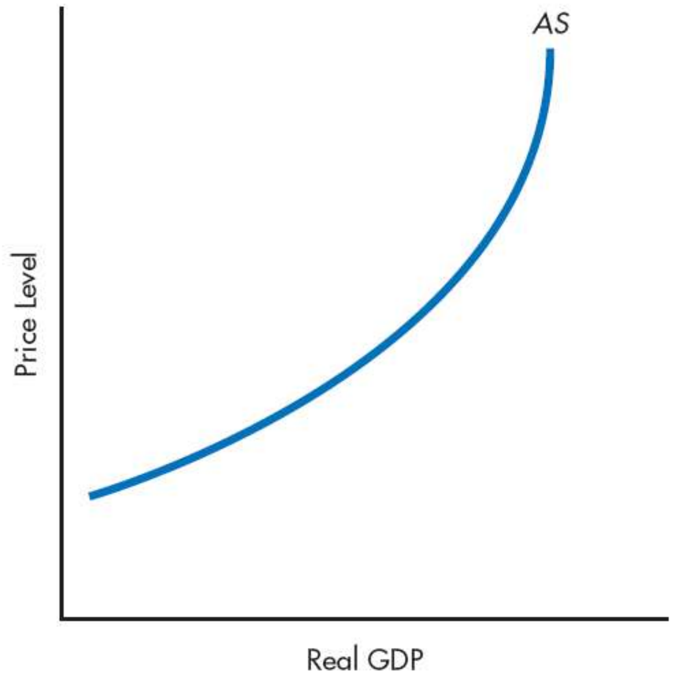
- Resource Prices: As they increase, AS decreases

- Technology: As it gets better, AS increases

- Expectations: If higher price level expected, workers will demand more $$$, AS decreases

The Shape of the Short-Run Aggregate Supply Curve

FIGURE 10 The Shape of the Short-Run Aggregate Supply Curve



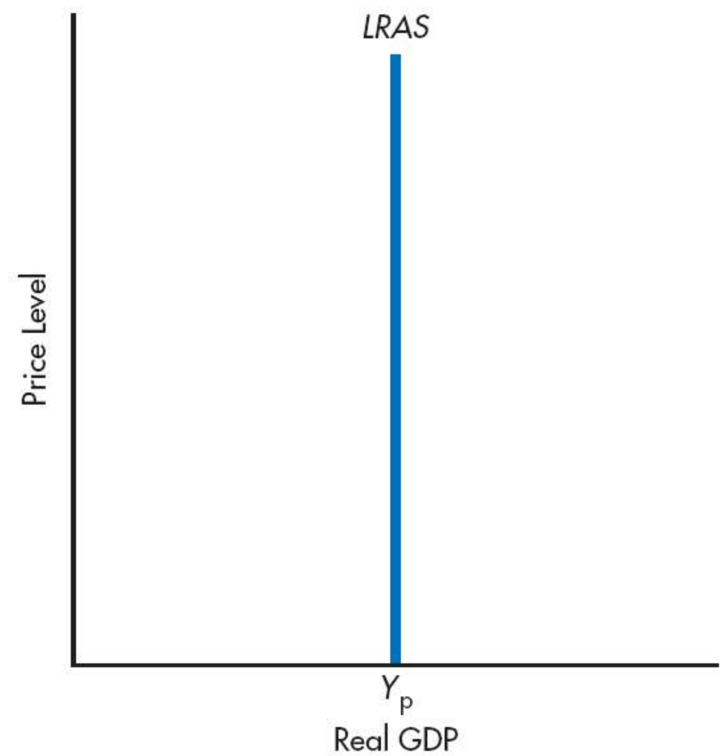
The upward-sloping aggregate supply curve occurs when the price level must rise to induce further increases in output. The curve gets steeper as real GDP increases, since the closer the economy comes to the capacity level of output, the less output will rise in response to higher prices as more and more firms reach their maximum level of output in the short run.

The Shape of Long-run AS (LRAS)

- Resource costs are NOT fixed.
- The amount of capital is NOT fixed.
- In the long-run, AS is set by the production possibilities curve—the capacity of the economy, and is not affected by prices, hence is vertical.

The Shape of the Long-Run Aggregate Supply Curve

FIGURE 11 **The Shape of the Long-Run Aggregate Supply Curve**



In the long run, the *AS* curve is a vertical line at the potential level of real GDP, which indicates that there is no relationship between price-level changes and the quantity of output produced.

Why this shape?

In LR, all costs are variable, so costs will increase with P level

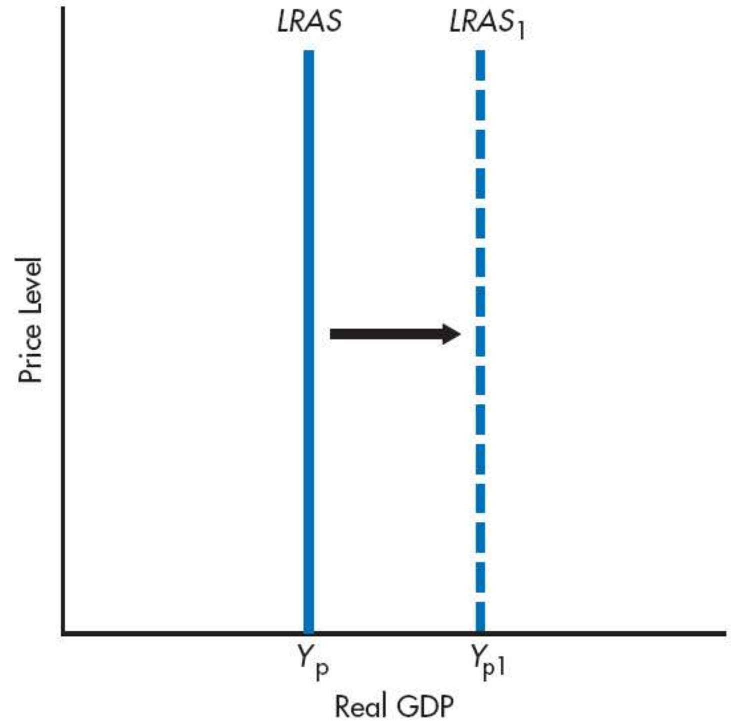
Because there's no extra profit to be made in increasing supply, LRAS is vertical line at potential level of output

At LRAS, there's no cyclical unemployment, all resources are being fully used

Shifting the Long-Run Aggregate Supply Curve

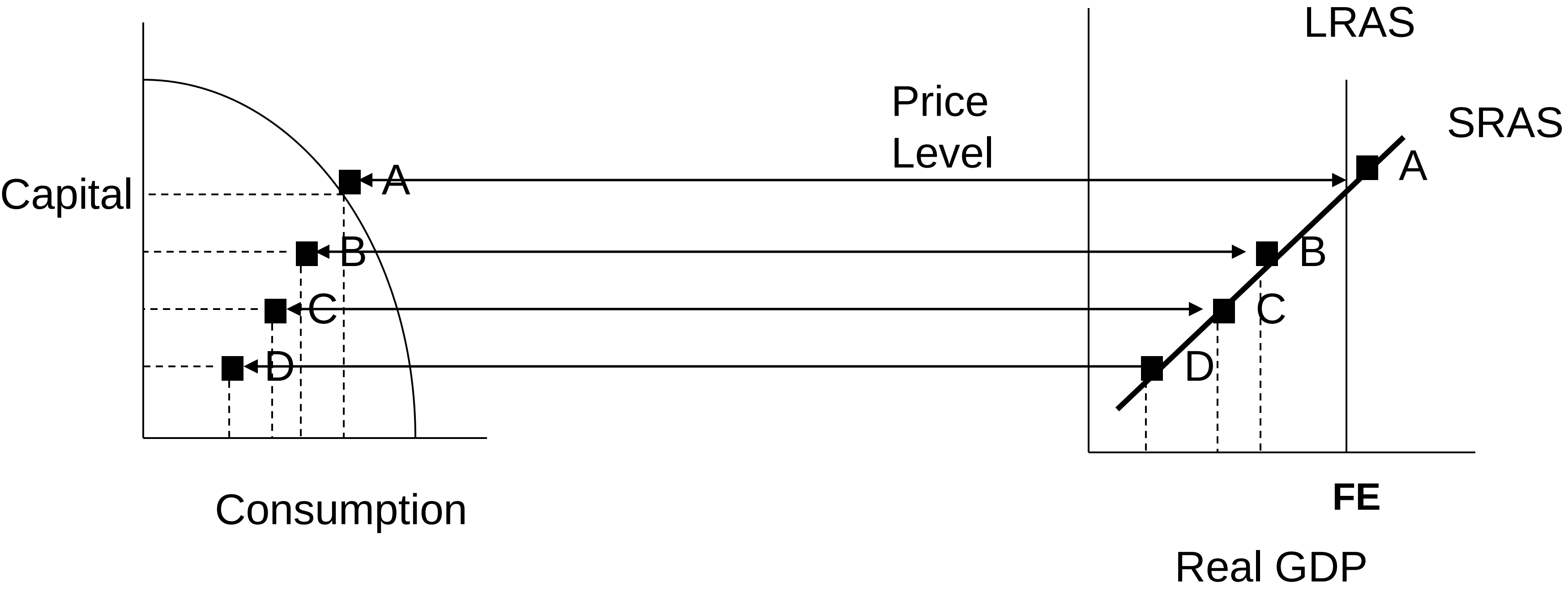
Growth occurs as the labor force and the capital stock grow, as technological innovation improves production efficiency.

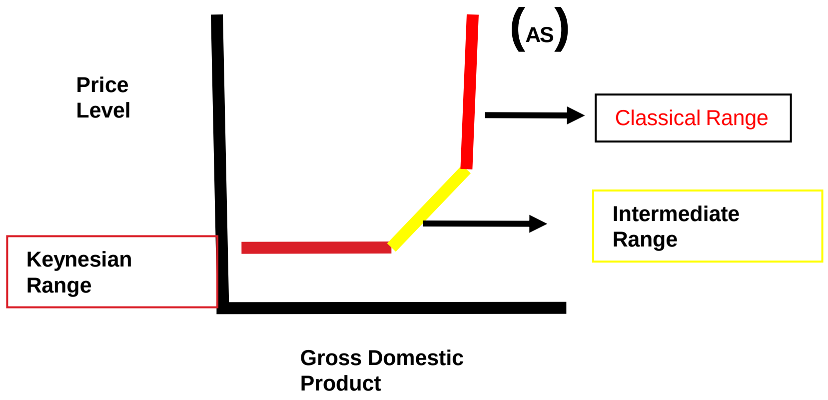
FIGURE 14 **Shifting the Long-Run Aggregate Supply Curve**



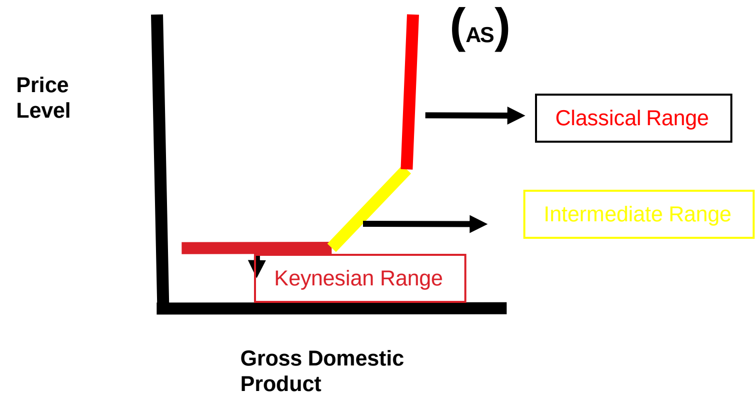
Changes in technology and the availability and quality of resources can shift the *LRAS* curve. For instance, a new technology that increases productivity would move the curve to the right, from *LRAS* to $LRAS_1$.

Production Possibilities Curve/Gross Domestic Product Connection

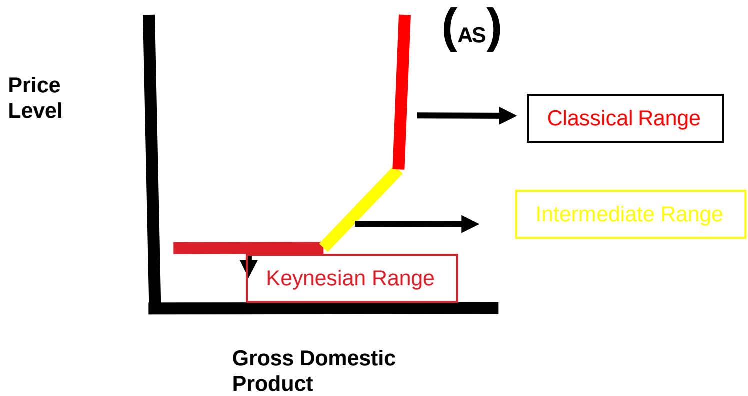




- Under what conditions would AS be in the horizontal range?
  - **When there are a lot of unemployed resources – a recession or a depression**

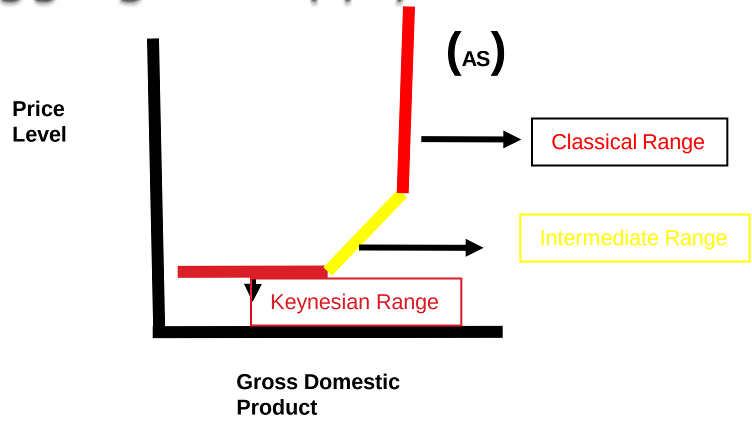


- Under what conditions would AS be in the vertical range?
  - AS in vertical when Real GDP is at a level with unemployment below the Full-Employment level where any increase in demand will result only in an increase in prices.

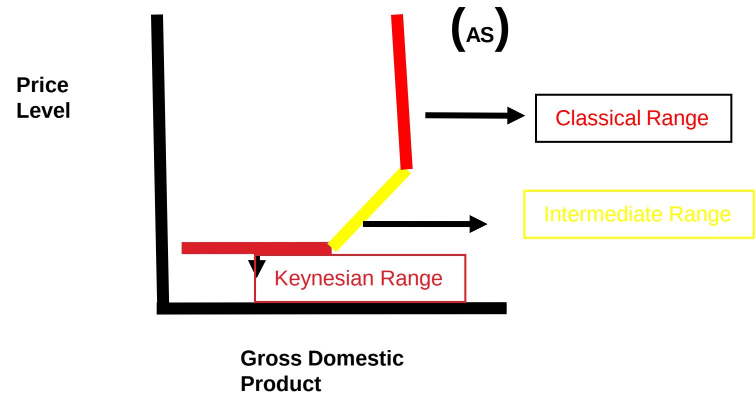


- Under what conditions would AS be in the intermediate range?
  - In this range, resources are getting closer to Full-Employment levels, which creates upward pressure on wages and prices (Inflation)

Why does the Aggregate Supply Curve Look So Funny?



- What difference does it make if AS in in the horizontal, intermediate, or vertical range?
  - **Increasing or decreasing AD will have a different effect on real output and the price level depending on how fully resources are employed.**



- Economists believe that AS in the Vertical range represents potential GDP at Full-Employment. Why?

Because there are no more resource to employ, output cannot increase.