

# The AS-AD Model

## Lecture Notes

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# Aggregate Supply

What is a realistic relationship between the Price Level and the total quantity of goods and services that firms would like to produce, i.e. aggregate supply?

**Aggregate Supply:** the total quantity of goods and services that firms are willing to produce *holding technology and factor prices constant*

# Aggregate Supply - Slope

What shape would we expect the slope of the AS-curve to have? Why?

- ▶ Costs and Output: As output is increased, firms may have to employ less efficient resources, i.e. diminishing returns
  - ▶ Thus, the per unit price of output is increasing
- ▶ Price and Output:
  - ▶ Price Setters: will pass increased unit costs along to consumers
  - ▶ Price Takers: will require higher prices in order to produce higher levels of output
  - ▶ Either way ... total output will be positively related to price
- ▶ Thus, the aggregate supply curve will be upward sloping

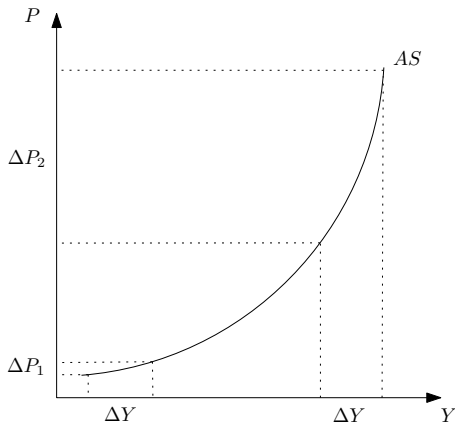
# Aggregate Supply - Curvature

Is the AS-curve linear, i.e. a straight line? Why not?

- ▶ At low output:
  - ▶ Excess capacity and idle resources
  - ▶ Unit costs increase slowly
- ▶ At high output
  - ▶ Resources are over-utilized and additional resources are scarce
  - ▶ Unit costs increase quickly
- ▶ Implies that the AS-curve should be relatively flat at low levels of output and relatively steep at high levels of output

# The AS-Curve

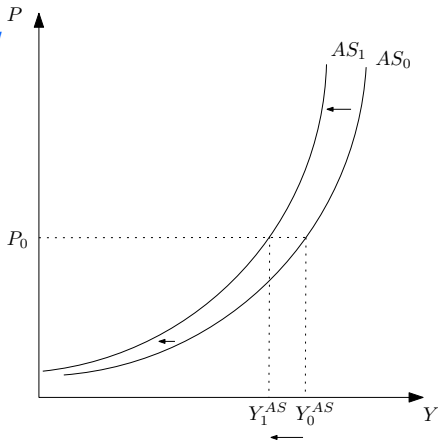
slope gets steeper when  
there's a higher production



# Changes in Aggregate Supply

What happens to aggregate supply if there is an increase in the worldwide price of oil? Why?

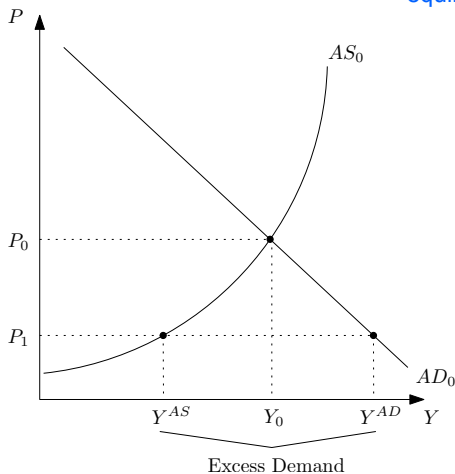
when price of inputs/  
factor goes up,  
aggregate supply  
shifts to the left; vice  
versa



Increased unit costs cause firm to decrease output at all Price Levels

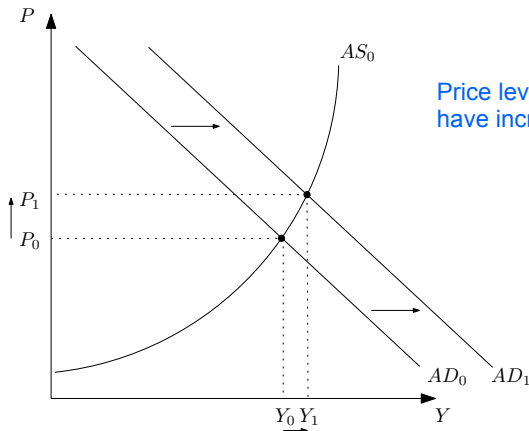
# Macroeconomic Equilibrium

Real GDP and price level  
is determined from the  
equilibrium point



# Aggregate Demand Shocks

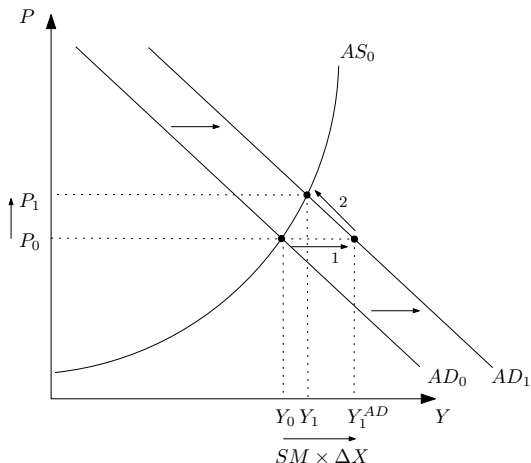
Consider an exogenous increase in foreign national income. What effect will this have in domestic national income and the price level?



Price level and real GDP have increased

# The Simple Multiplier

Suppose we want to know the exact size of the change in national income in the previous example. Can we use the simple multiplier?



# The Multiplier

- ▶ The Multiplier (as opposed to the Simple Multiplier) is given by:

$$\text{Multiplier} = \frac{\Delta Y}{\Delta A}$$

- ▶ The Multiplier is necessarily smaller than the simple multiplier. Why?

EXPLAIN IN WORDS  
AND GRAPHS

- ▶ From the diagram above

$$Y_1^{AD} - Y_0 = \Delta Y^{AD} > \Delta Y = Y_1 - Y_0$$

- ▶ Thus

$$SM = \frac{\Delta Y^{AD}}{\Delta A} > \frac{\Delta Y}{\Delta A} = M$$

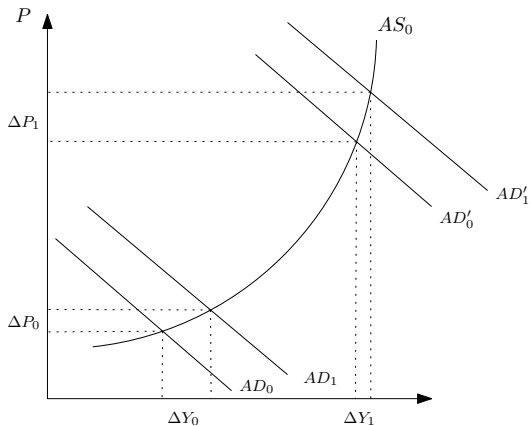
- ▶ Why? The price level adjusts to decrease aggregate demand to the equilibrium level
- ▶ Obviously, this effect is not present in the demand determined model

# The Shape of the AS-Curve

Why does the shape of the AS-Curve matter?

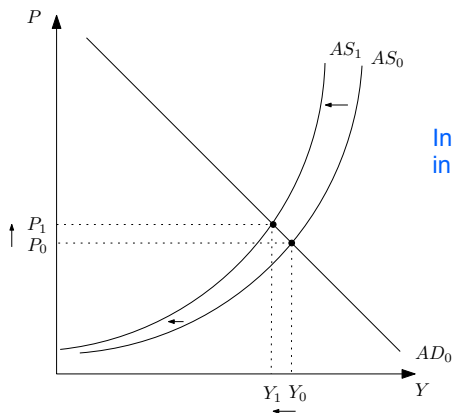
The value of the multiplier

The multiplier changes depends on the level of production



# Aggregate Supply Shocks

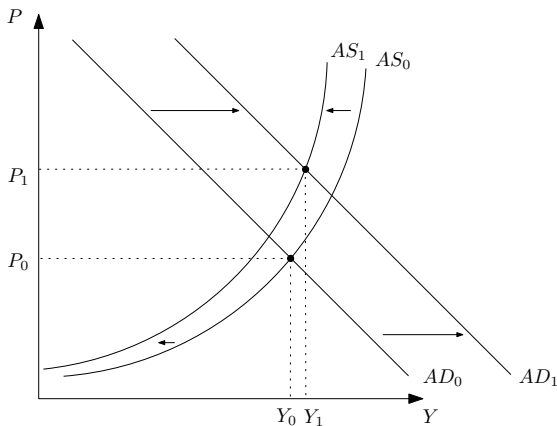
Consider the increase in the worldwide price of oil from before. What effect will this have on National Income and the Price Level?



Inflation and a decreased in national income

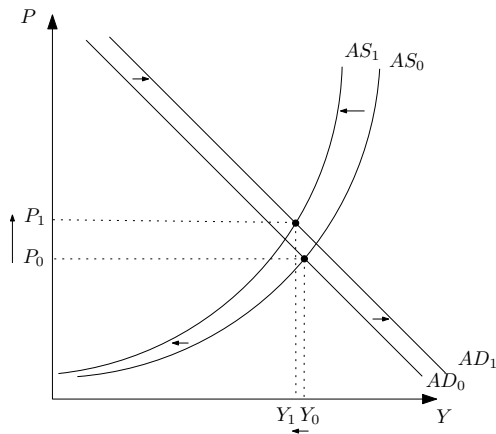
A decrease in National Income coupled with an increase in the Price Level is called **Stagflation**

Very often we would expect *both* Aggregate Demand and Aggregate Supply to change in response to a given shock. How might an increase in the world price of oil affect Aggregate Demand?



There is definitely an increase in the Price Level, but what about National Income?

## What about ...



The effect on National Income depends on the size of the shifts of the AD and AS curves. Thus, the effect is ambiguous.