

AD-AS Model

Part 1

The IS-LM Model...

- Is about the general equilibrium of the two markets.
- Can tell us about how the two markets interacts.
- Can tell us about the effects of policies.
- Analyzes economy in the short-run.
- Assumes that Price Level is constant.

The AD-AS Model...

- Is about the “demand” and “supply” of the economy.
- Is used to analyze “BUSINESS CYCLES”. For example, what if we produce more than full-employment output?
- Can also tell us about the effects of policies.
- Analyzes the short run and a little bit of the long run.
- *******Assumes that Price Level is endogenous.*******
- P is determined by AD and AS.

Price and Inflation

- As the AD-AS allows the price level to change, there will be inflation/deflation, but inflation/deflation must disappear when the economy reaches a new equilibrium.
- Thus, the AD-AS **DOES NOT** allow for persistent inflation/deflation.
- **Nominal interest rate (i) is therefore still equal to Real interest rate (r).**

Deriving the AD-AS Model

- Note that IS-LM and AD-AS are NOT strongly related.
- Different economists developed these two models.
- We can derive the AD-AS model from Keynesian Cross.
- However, in this course, we will derive it from the IS-LM.

From IS-LM to AD-AS...

- Demand and Supply are relationships between P and Y .
- The IS curve (goods market) is NOT directly related to P .
- $Y = C(Y - T) + I(i) + G$
- This is because all variables are **REAL** variables, which do not depend on P . But, P can affect IS through LM.
- The LM curve (money market) is directly related to P .
- $M/P = L(i, Y)$
- Thus, **we will derive the AD curve from the LM curve.**

From the LM to the AD...

- **We want to plot a relationship between P and Y from the LM curve.**
- LM Equation: $M/P = L(i, Y)$
- **Real Money Supply = Real Money Demand**
- An increase in P will reduce the **Real Money Supply**.
- Smaller Real Ms will drive up interest rate.
- Higher interest rate discourages investment.
- Lower investment reduces output.

From the LM to the AD...

An increase in P is like Contractionary Monetary Policy.

Contractionary Monetary Policy: when $M \downarrow$

- Money Mkt (LM): $M \downarrow \gg i \uparrow$
- Goods Mkt (IS): $i \uparrow \gg I \downarrow \gg AE \downarrow \gg Y \downarrow$

Similarly, when $P \uparrow$

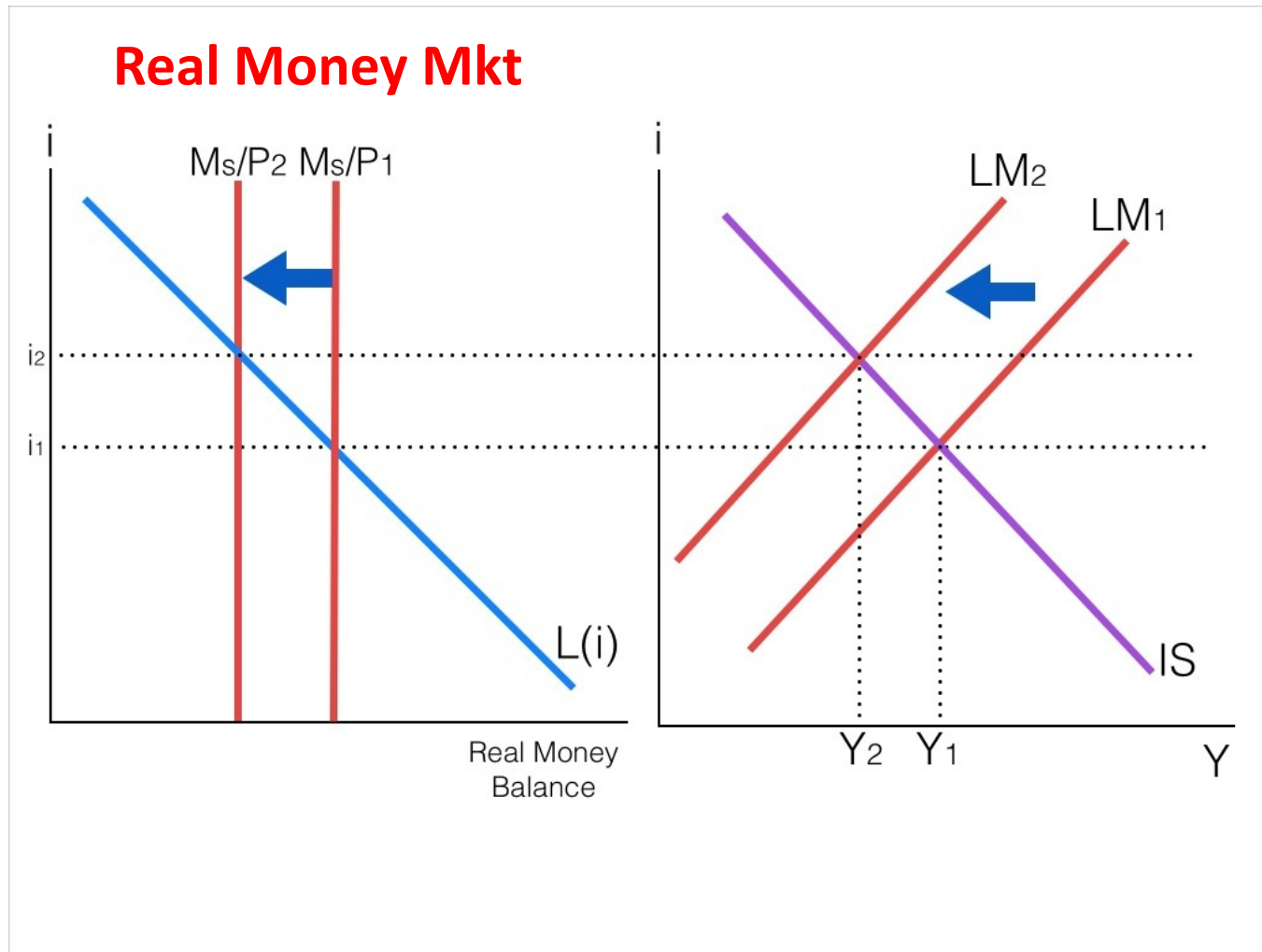
- Money Mkt (LM): $P \uparrow \gg i \uparrow$
- Goods Mkt (IS): $i \uparrow \gg I \downarrow \gg AE \downarrow \gg Y \downarrow$

Thus, we have the AD relationship: $P \uparrow \gg Y \downarrow$

Interest rate is what makes the AD downward-sloping.

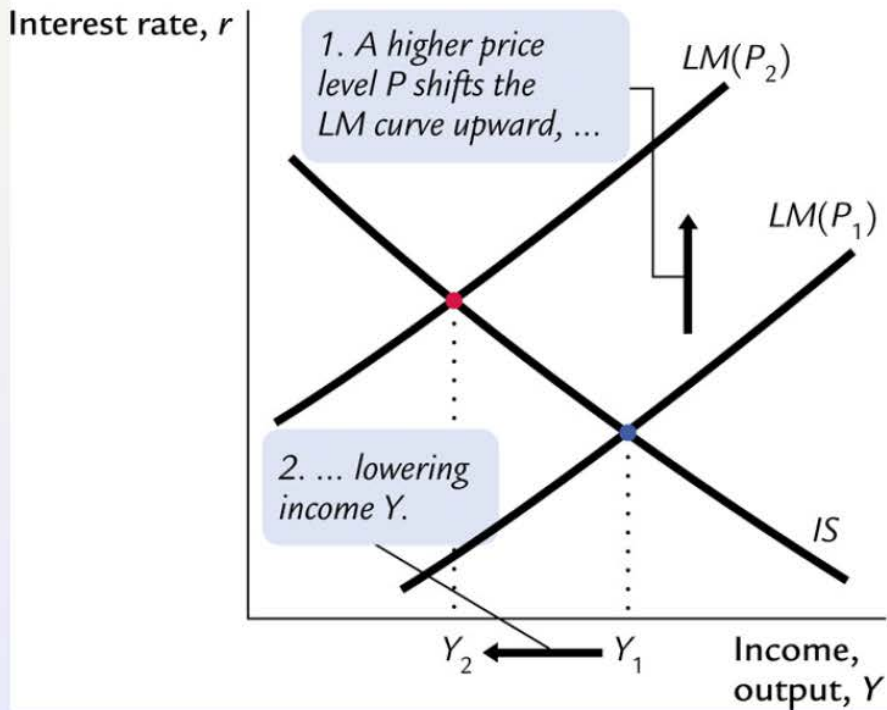
Higher P reduces Real Ms

LM curve then shifts to the LEFT.

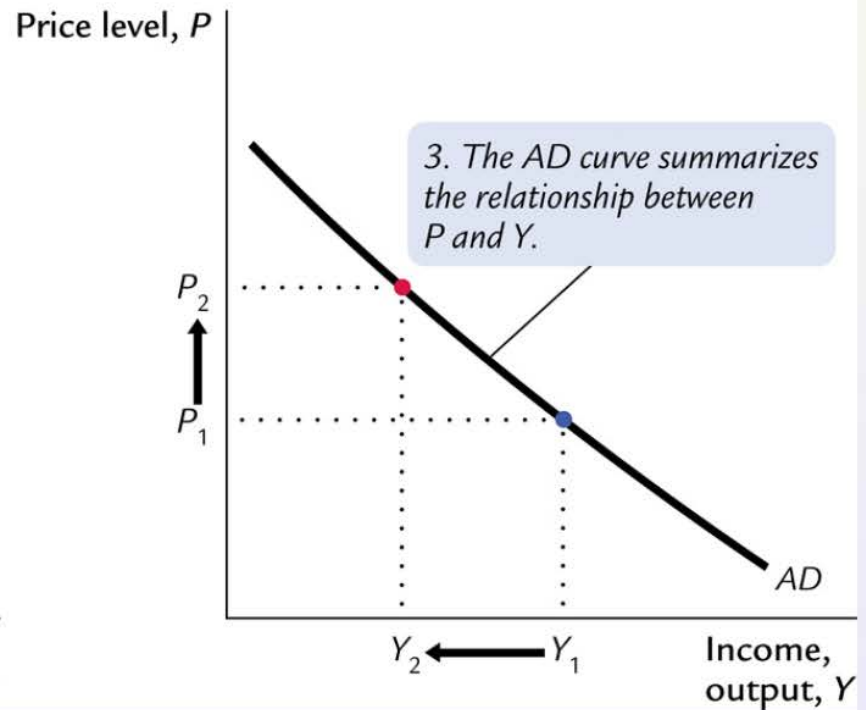


From the LM to the AD...

(a) The IS-LM Model



(b) The Aggregate Demand Curve



EXTRA – Price and Money

- Normally, we write the money market equilibrium as

$$M/P = L(i, Y)$$

Real Money Supply = Real Money Demand

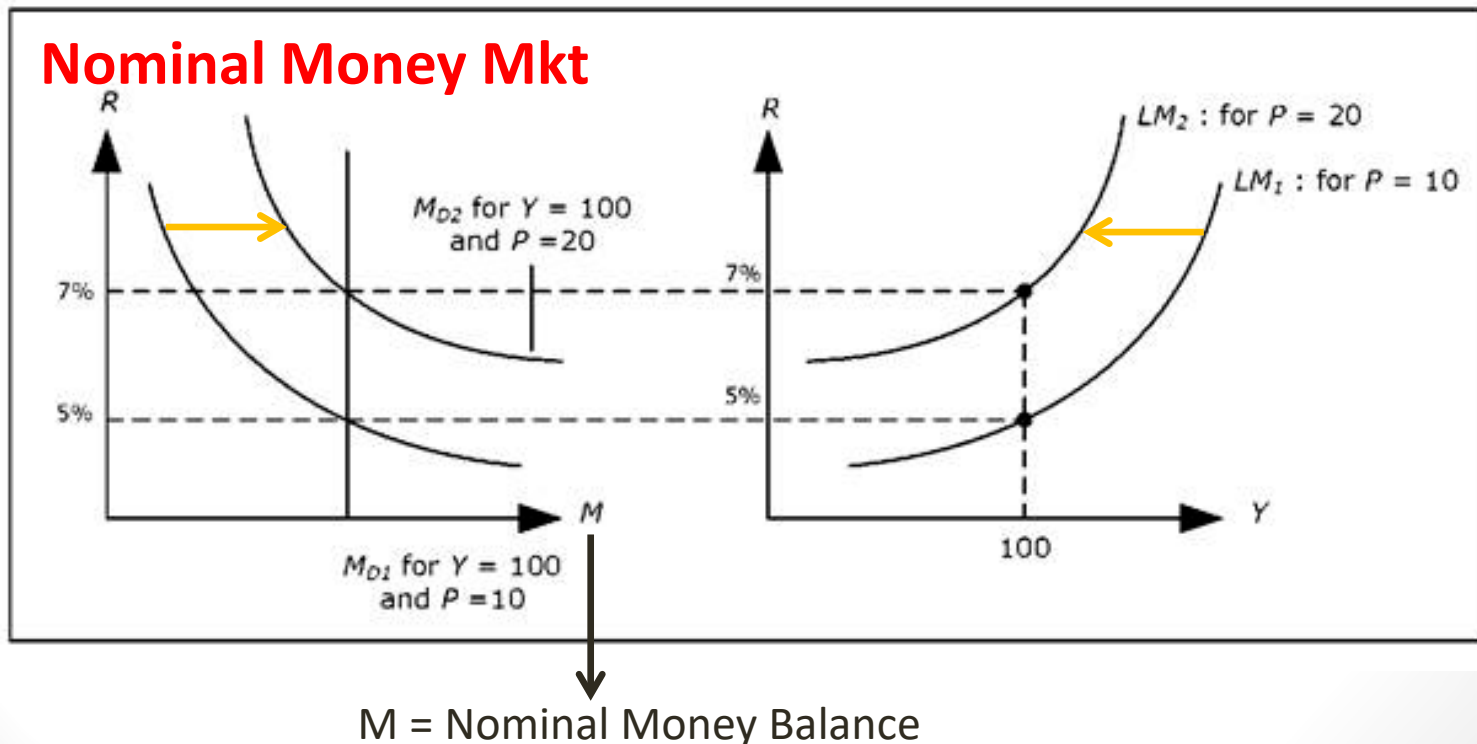
- An increase in P will decrease the **Real Money Supply**.
- However, we can rewrite the above equation as follows:
 $M = P \cdot L(i, Y)$, which means
Nominal Money Supply = Nominal Money Demand
- Here, an increase in P will increase the **Nominal Money Demand**.

EXTRA

Higher P raises Nominal M_d

LM curve then shifts to the LEFT.

This graph is included to show that regardless of how you plot the money market (REAL vs NOMINAL), the LM shifts in the same way.



Shifts in the AD Curve

- Changes in Price cause **movement** along the AD curve.
- Shift in the AD means that **output changes while the price remains constant**.
- Therefore, the factors that shifts the AD, are the **NON-PRICE** factors that shift the IS-LM.

Shifts in the AD Curve

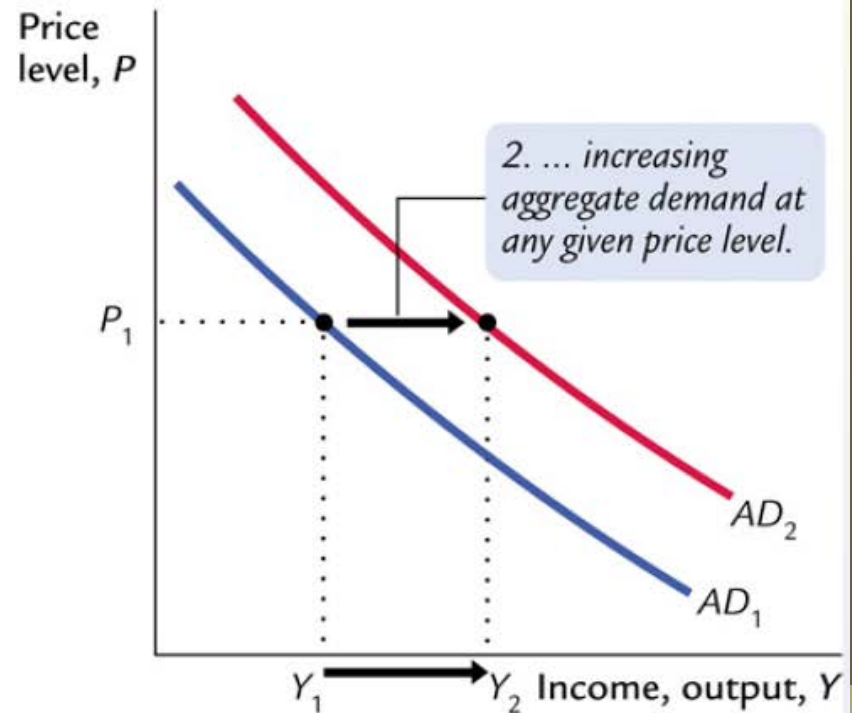
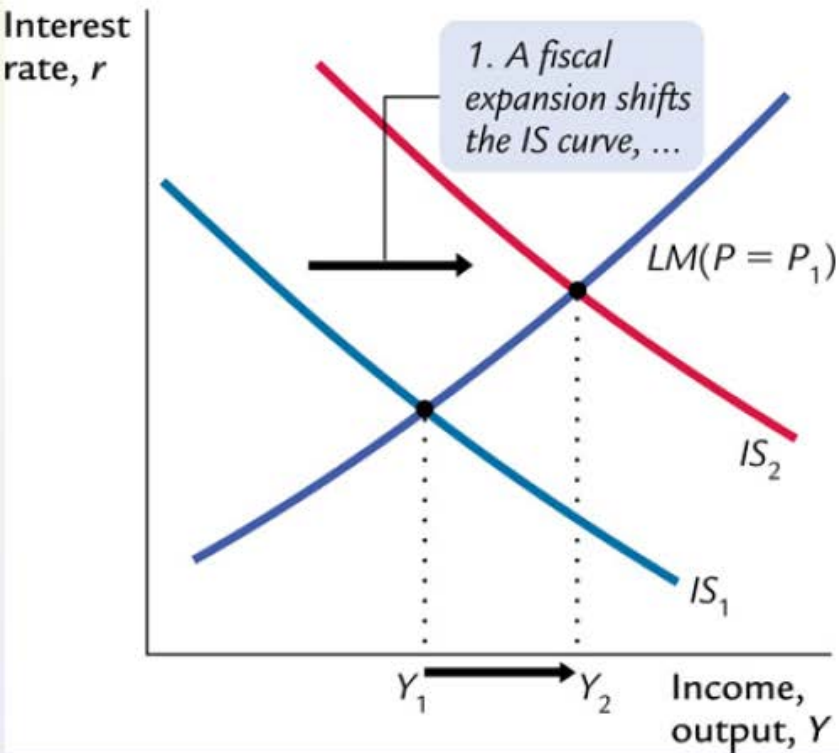
Non-Price factors (in **Red**) that shifts the IS-LM

Shifts in the IS: $Y = AE = C + I + G$

- $C = \mathbf{C}_0 + C_1(Y - \mathbf{T})$
 - $I = \mathbf{I}_0 - I_1 \cdot I$
 - $G = \mathbf{G}_0$
 - $T = \mathbf{T}_0$
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- Fiscal Policy (G and T) can shift the AD.
 - Changes in Autonomous C and I can shift the AD too.

Shifts in the AD Curve

(b) Expansionary Fiscal Policy



Shifts in the AD Curve

Non-Price factors (in **Bold**) that shifts the IS-LM

Shifts in the LM: $M/P = L(i, Y)$

- $L(i, Y) = L_0 \cdot Y - L_1 \cdot i$
- $M = \mathbf{M}_0$
- $P = P_0$
- Monetary Policy (M) can shift the AD.

Shifts in the AD Curve

(a) Expansionary Monetary Policy

