

# Aggregate Demand II

Ryoichi Imai

# IS-LM with Endogenous Price

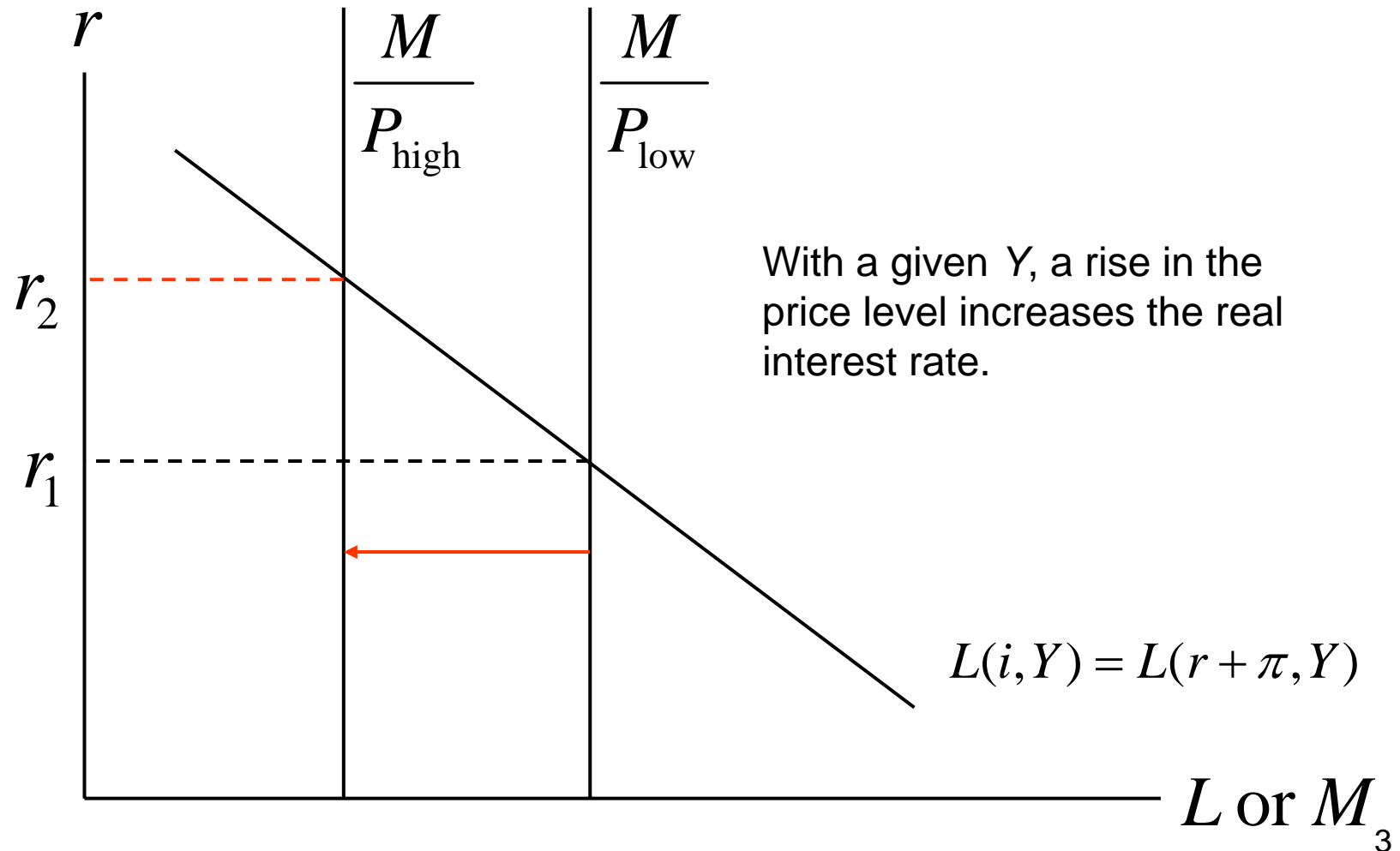
$$I(r) = S(r, Y)$$

$$L(r - \pi, Y) = \frac{M}{P}$$

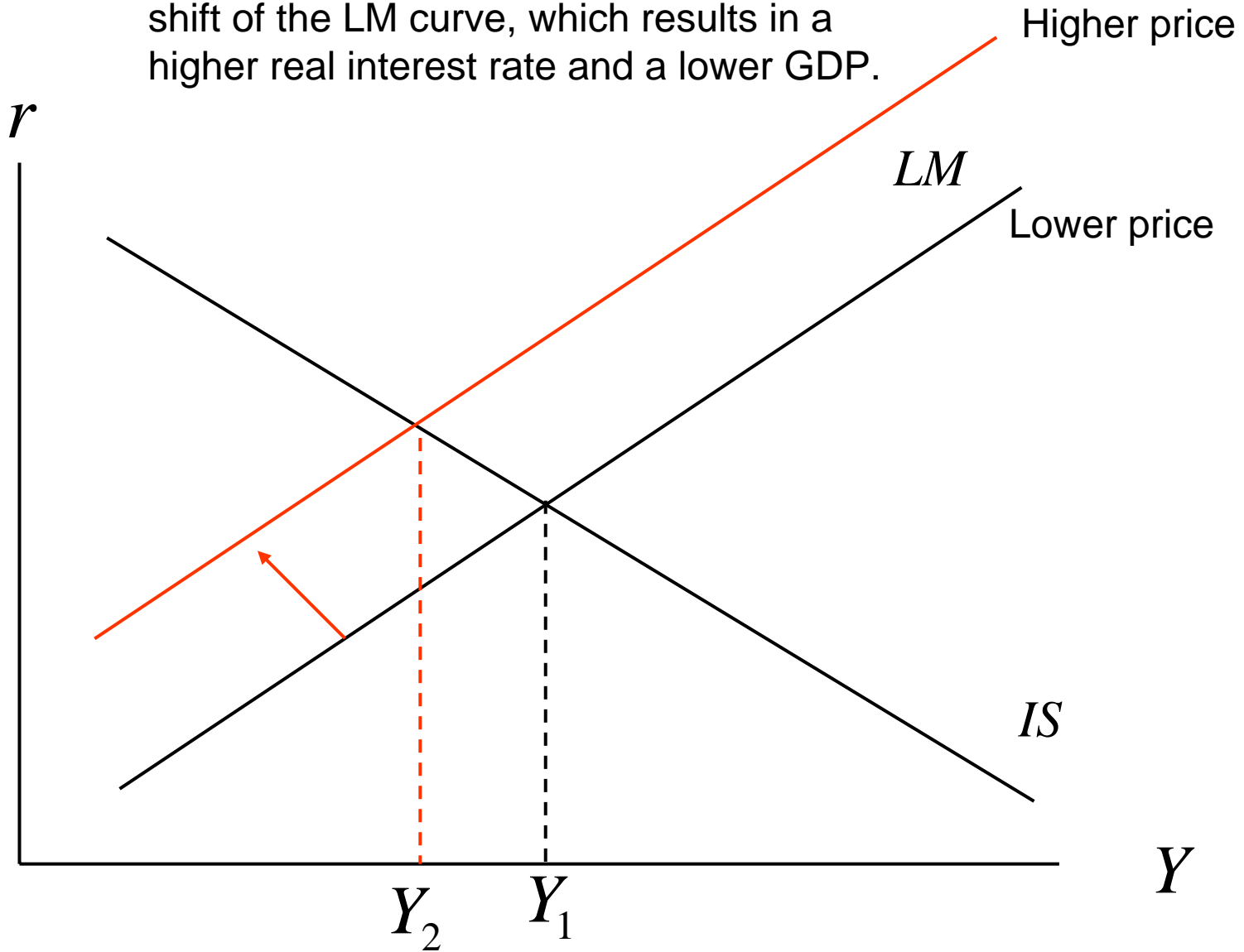
In the short - run, the rate of inflation  $\pi$  is constant.

But we can consider a level change in the price level,  $P$ .

# The market for liquidity



A rise in the price level causes an upward shift of the LM curve, which results in a higher real interest rate and a lower GDP.

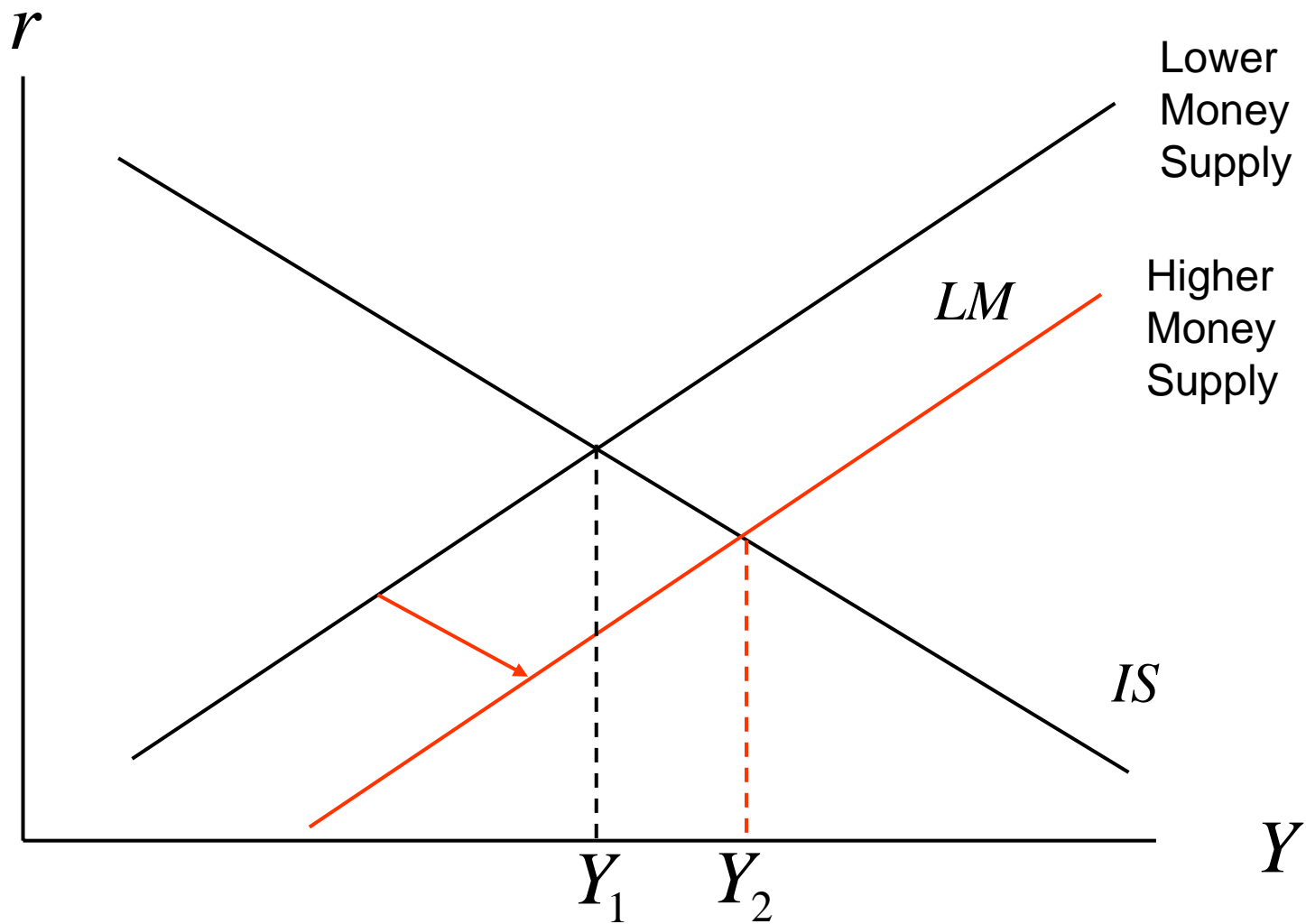


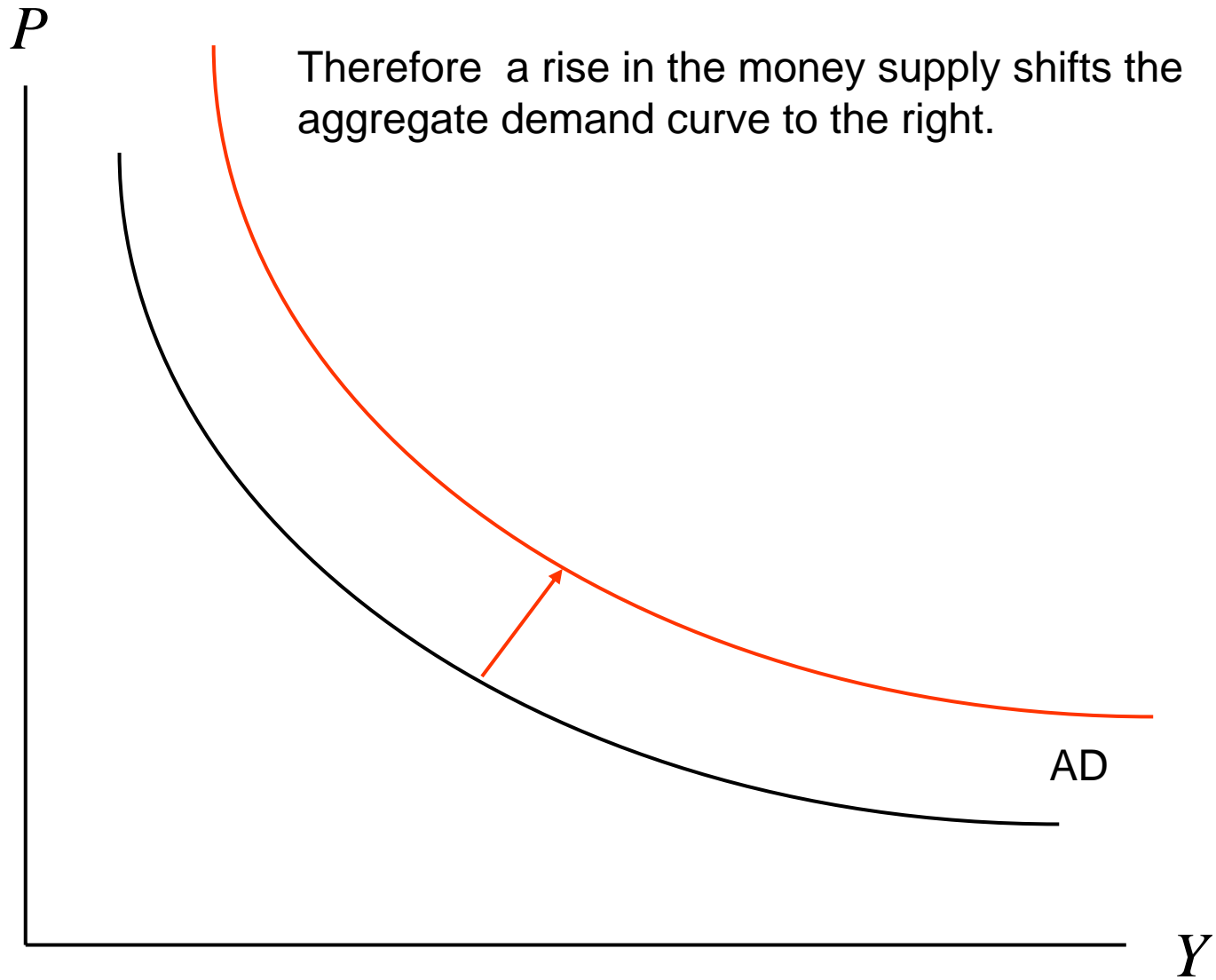
$P$

Therefore we obtain a negative relationship between the price level and the real GDP, which is called the *Aggregate Demand* curve.

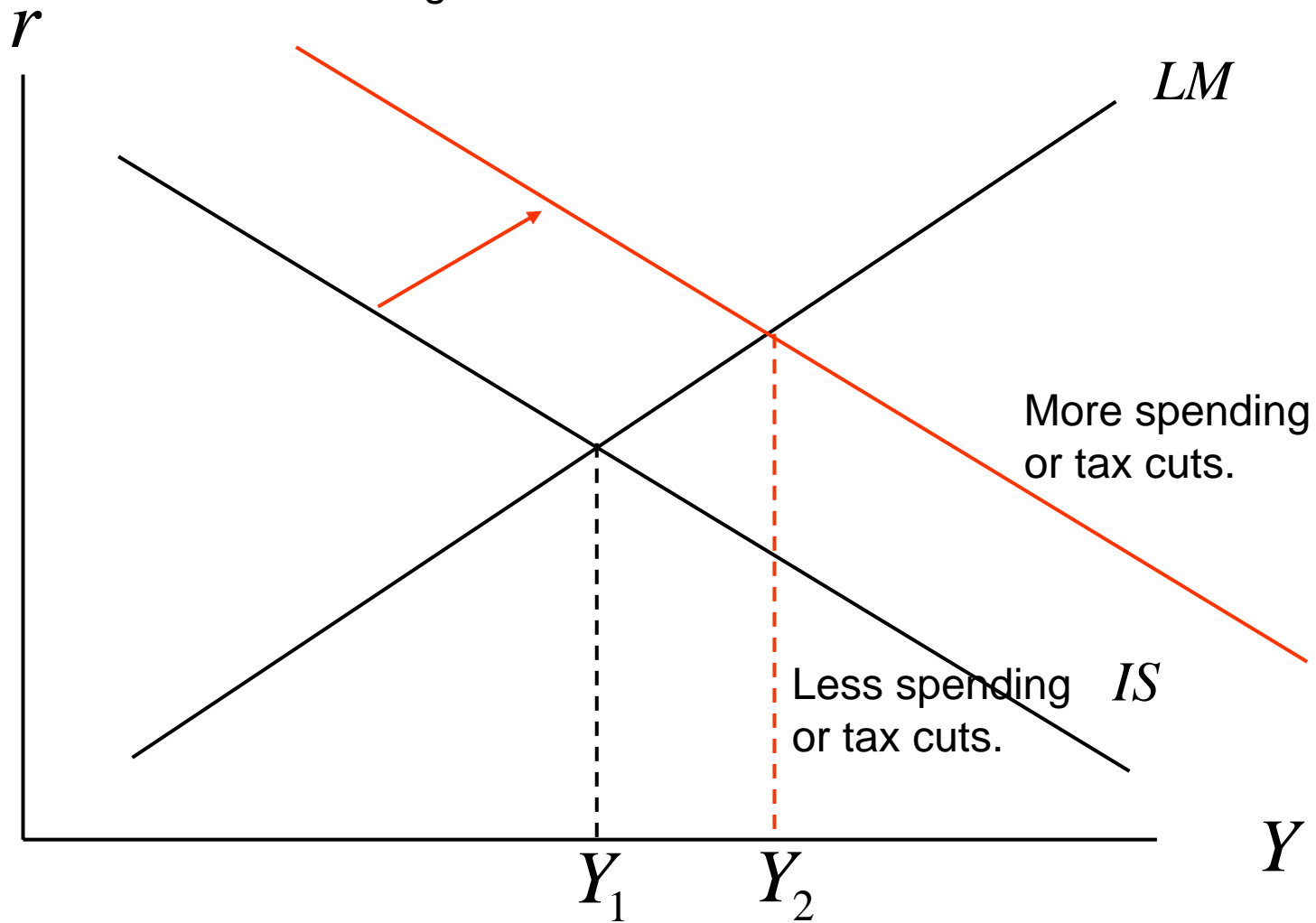


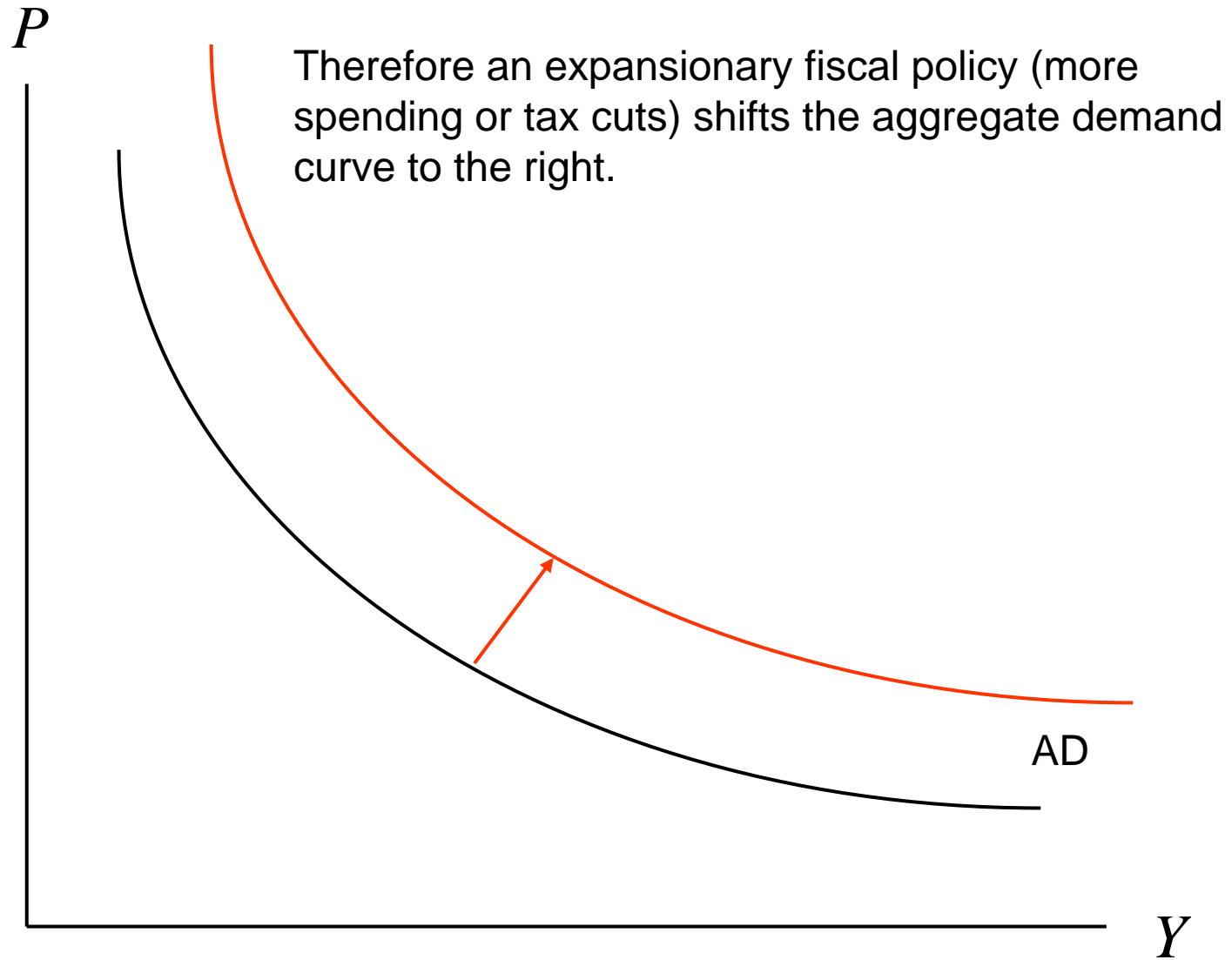
With a given price level, a rise in the money supply shifts the LM curve to the right, causing a rise in GDP.



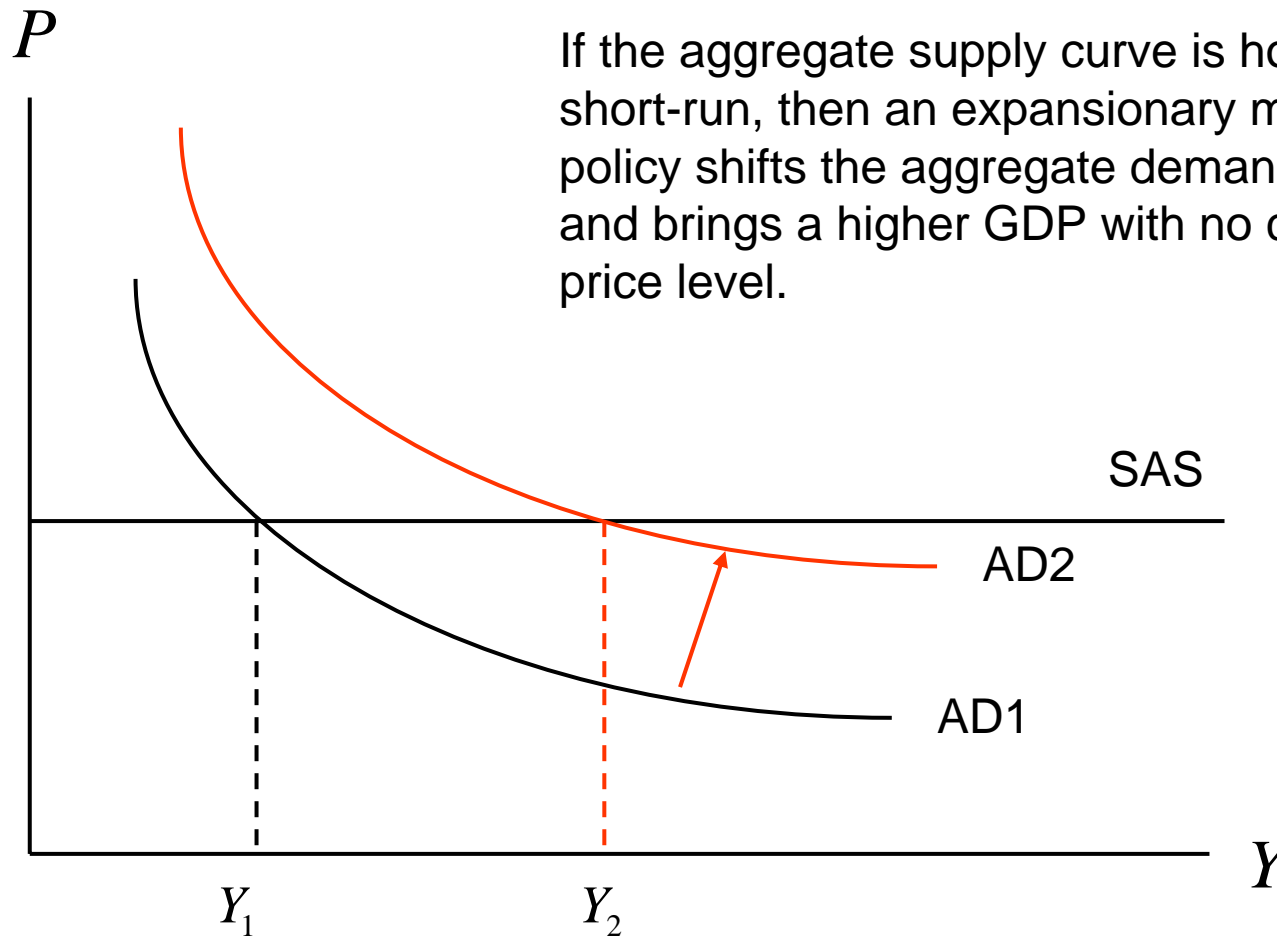


An expansionary fiscal policy (more government spending or tax cuts) shifts the IS curve to the right, causing a higher GDP and a higher interest rate.





# IS-LM and the Short-Run Aggregate Supply



If the aggregate supply curve is horizontal in the short-run, then an expansionary monetary or fiscal policy shifts the aggregate demand to the right, and brings a higher GDP with no change in the price level.

# Spending Hypothesis

- The decline in the 1930s coincided with falling interest rates, suggesting a contractionary shift in the IS curve.
- There are many reasons why the contractionary IS shift occurred: the stock market crash, low investment, etc.
- In the midst of historically high unemployment, policy makers tried to raise taxes and reduce government spending.

# The Money Hypothesis

- Milton Friedman places primary blame for the Depression on the Federal Reserve for allowing the money supply to fall by such large amount.
- That is, a contractionary shift of the LM curve is the main cause for the Depression.

# Two Problems of the Money Hypothesis

1. Due to the decline of the price level, the real money balances,  $M/P$ , rose slightly, which contradicts the leftward shift of the LM curve.
2. If a contractionary shift of the LM curve triggered the Depression, we should have observed higher interest rates, which contradicts the fact.

# The Stabilizing Effects of Deflation

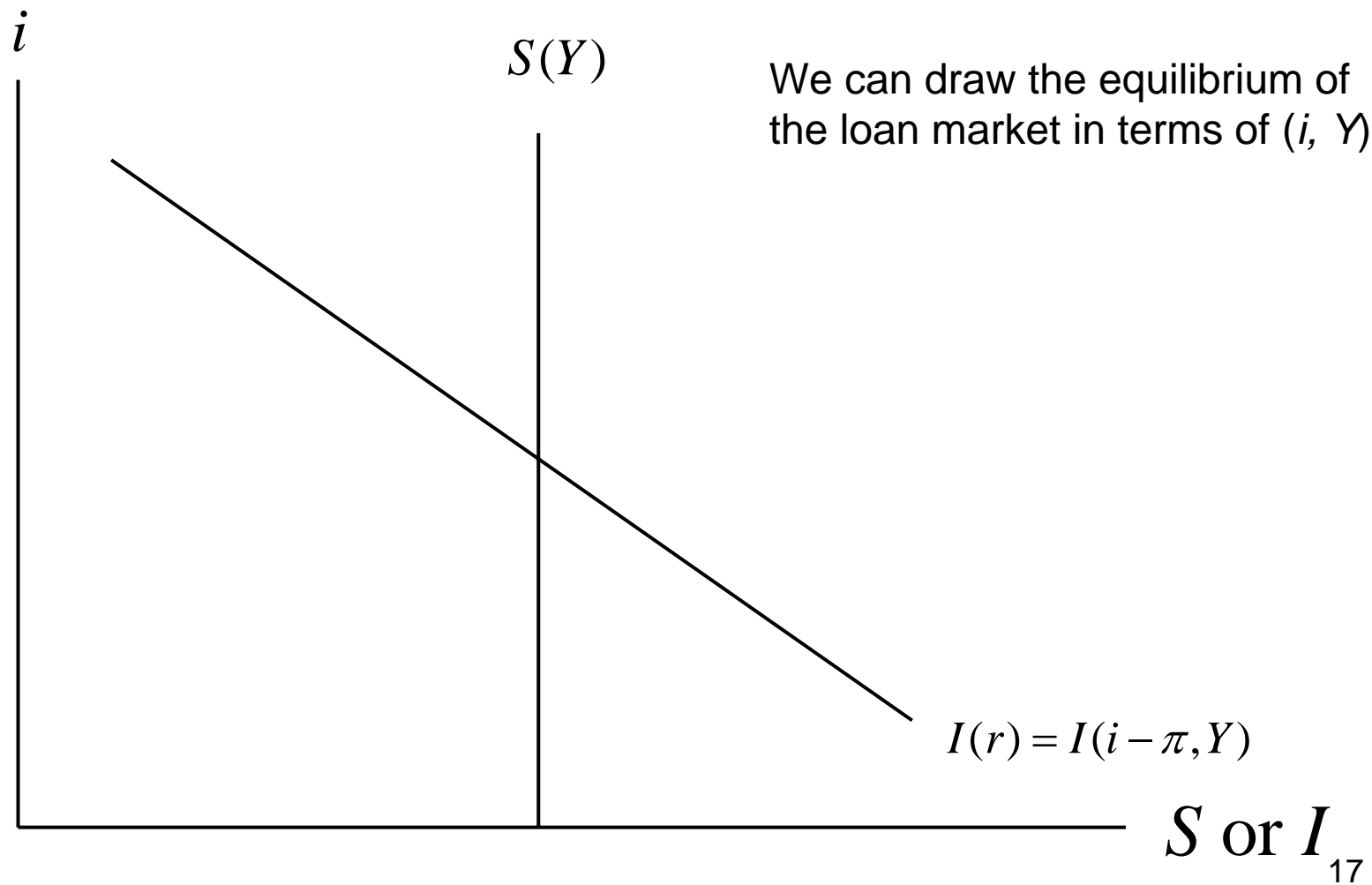
- A decline in the price level will increase the real money balance, causing an expansionary shift of the LM curve and a higher GDP.
- (the *Pigou Effect*) A decline in the price level will increase the real money balance, making people feel wealthier and spend more.

# The Destabilizing Effects of Deflation 1: Debt Deflation Theory

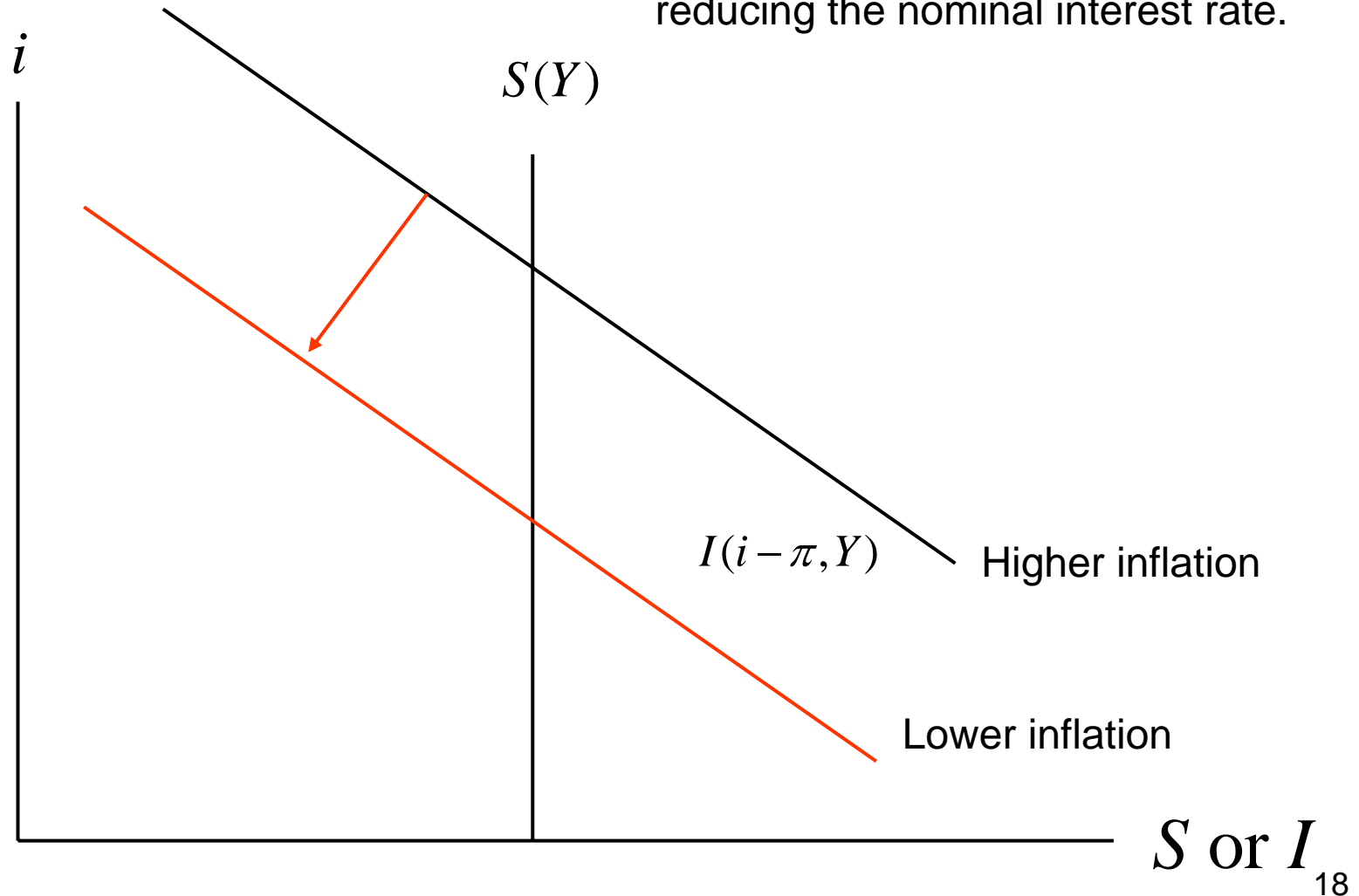
- An unexpected deflation enriches creditors and impoverishes debtors, since it transfers *real wealth* from the latter to the former.
- Debtors have higher propensities to spend than creditors. The income redistribution from debtors to creditors decreases aggregate spending and results in a contractionary shift of the IS curve.

# The Destabilizing Effects of Deflation 2: Expected Deflation

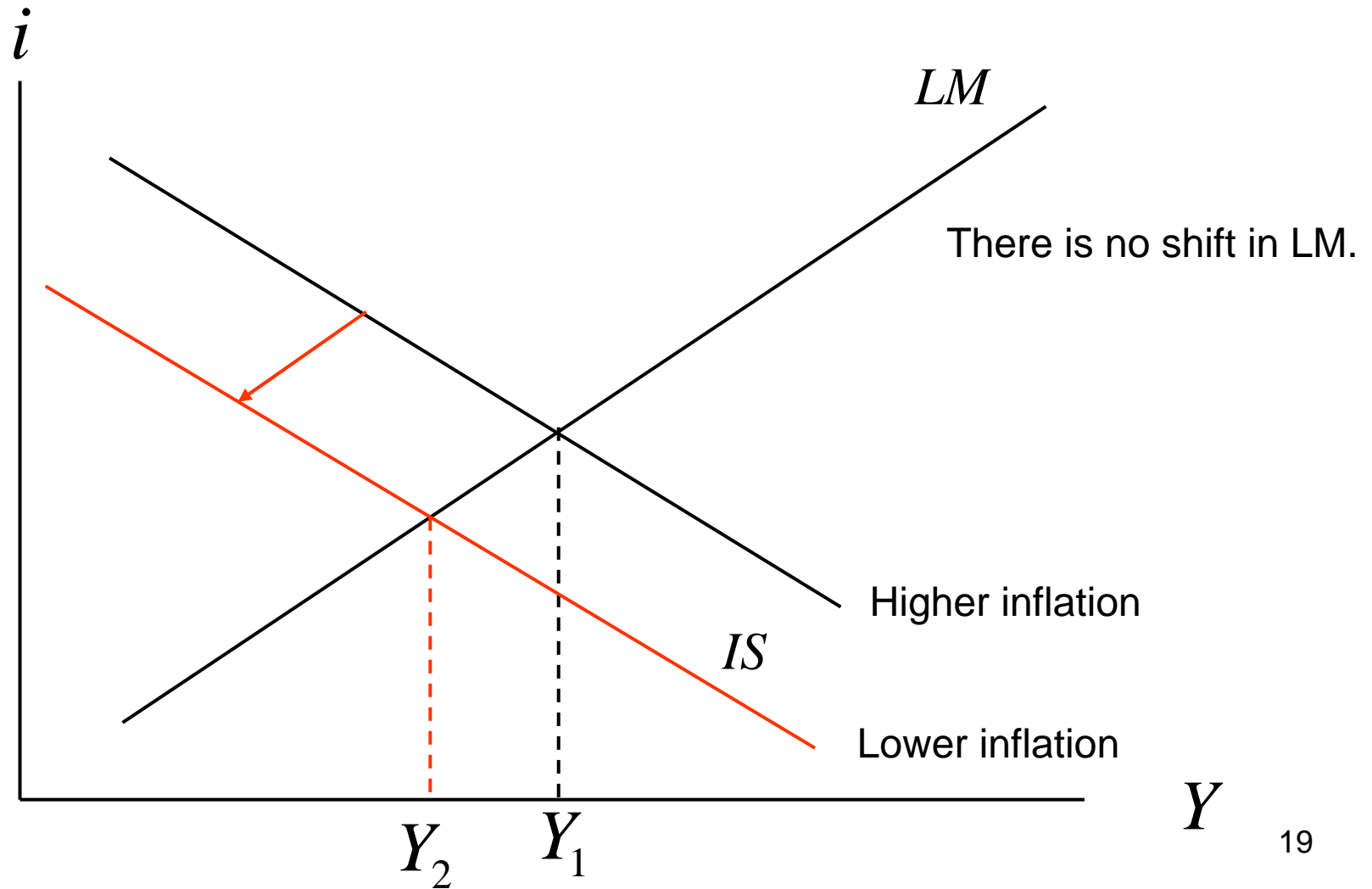
- Expected deflation brings a higher *real* interest rate, which discourages firms to invest.
- The higher real interest rate shifts the planned investment to the left, reducing the nominal interest rate, in the  $(i, S=I)$  plane.



With a given nominal interest rate, a lower rate of *expected* inflation increases the real inflation rate, reducing the nominal interest rate.



Then a lower expected inflation shifts down the IS curve, causing a decline both in the nominal interest rate and real GDP.



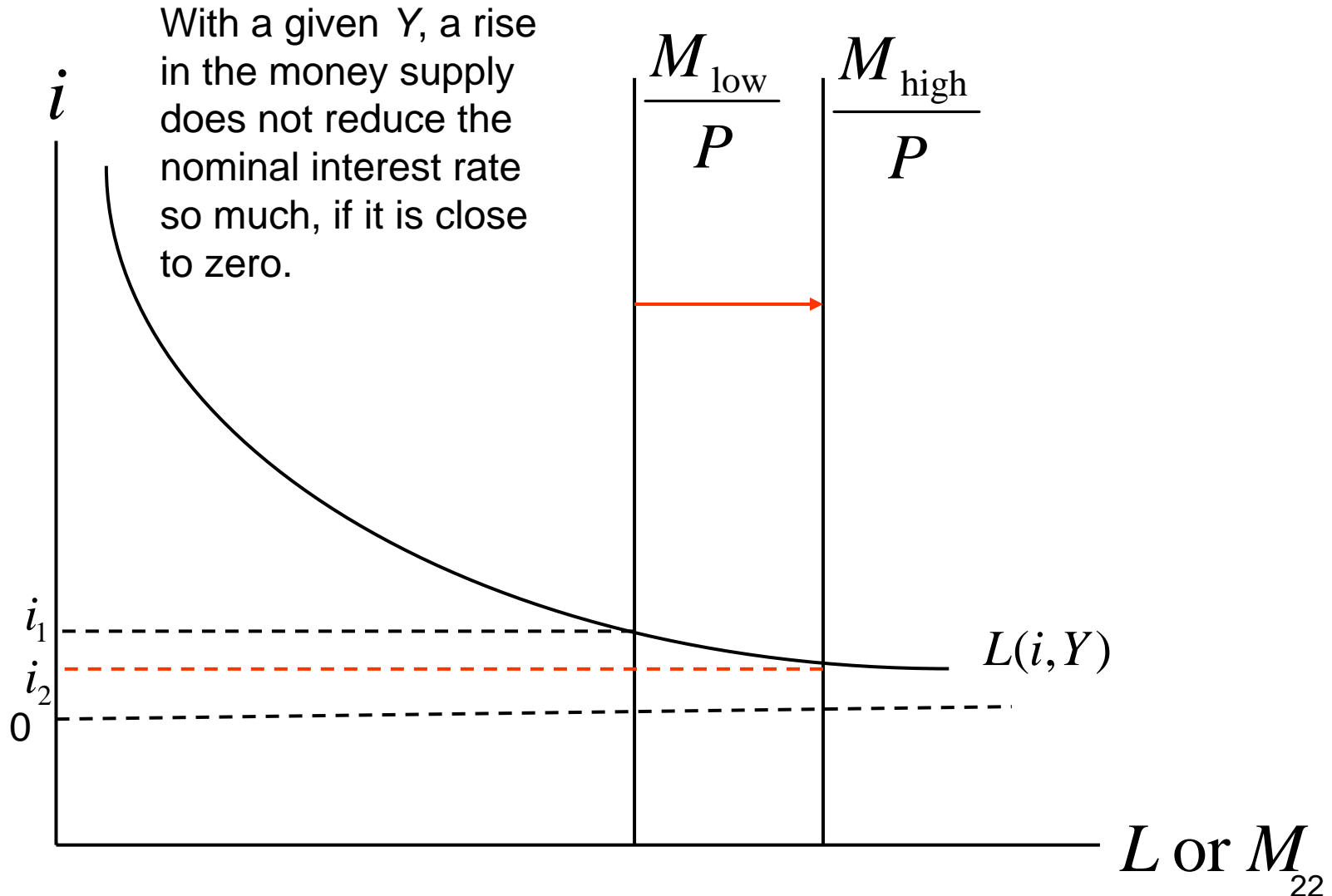
# The Japanese Slump

- It shares similar episodes with the Depression in US, although its magnitude is not comparable.
  1. It started with the stock market crash.
  2. The value of collateral fell and the banks went into trouble.
  3. The low nominal interest rates (IS shift)
  4. Policymakers are reluctant to cut taxes.

# The Liquidity Trap (Keynes)

- With the very low nominal interest rate, the monetary policy is no longer effective.
- If the nominal interest rate approaches zero, it is not attractive for people to buy bonds. They would simply hold cash.
- With no associated change in the nominal interest rate, the monetary policy makes no significant impact on GDP.

# The market for liquidity



For a very low nominal interest rates, a rightward shift of the LM curve causes no significant changes in the nominal interest rate and the real GDP.

