

# The IS-LM Model

- Investment: Interest sensitive component of goods demand.
- IS curve: equilibrium in the goods market.
  - As interest rates rise, output falls.
- LM curve: equilibrium in the money market.
  - As output rises, interest rates rise.
- Comparative statics:
  - Changes in autonomous spending.
  - Policy: fiscal and monetary.

# Investment demand

- Investment demand:

$$I = I(Y, i)$$

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- As output rises, investment demand increases.
  - As interest rates rise, investment demand falls.
- Intuition:
    - Firms borrow to pay for investment project. With higher cost of borrowing, project is less likely to make a profit (net of interest payments).
    - Alternative view: Manager should only put money in investment projects that yield a rate of return that is higher than the shareholder's opportunity cost of funds.

# IS Curve

- Demand:

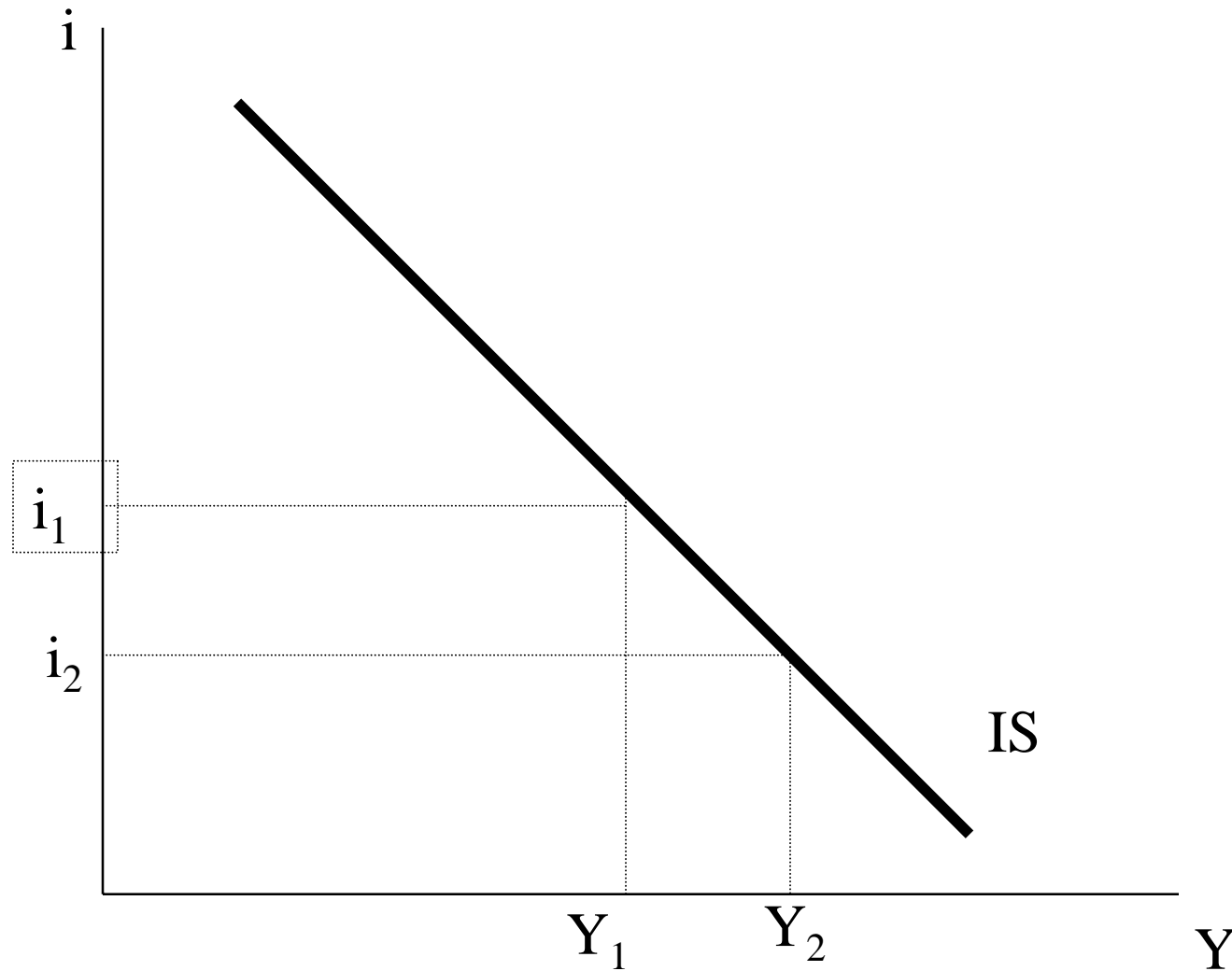
$$Z = C(Y-T) + I(Y,i) + G$$

- Equilibrium:

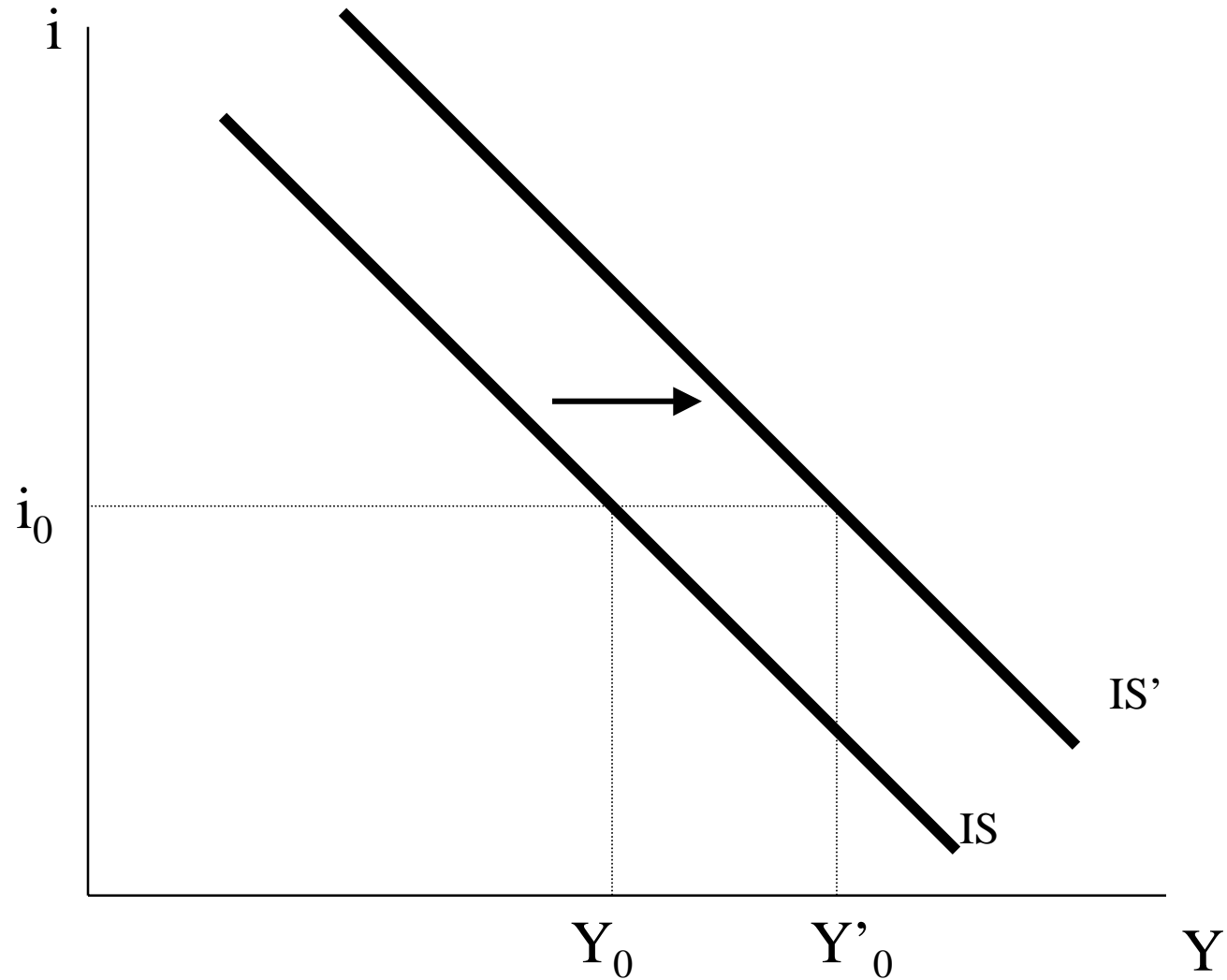
$$Y = C(Y-T) + I(Y,i) + G$$

- Movements along the IS curve: As interest rates rise, output falls.
- Shifts in the IS curve: As government spending increases, output increases for any given interest rate.

IS Curve: At lower interest rates, equilibrium output in the goods market is higher.



An increase in government spending shifts out the IS curve.



# LM Curve

- Demand for real balances:

$$M^d / P = Y L(i)$$

- Equilibrium in money market:

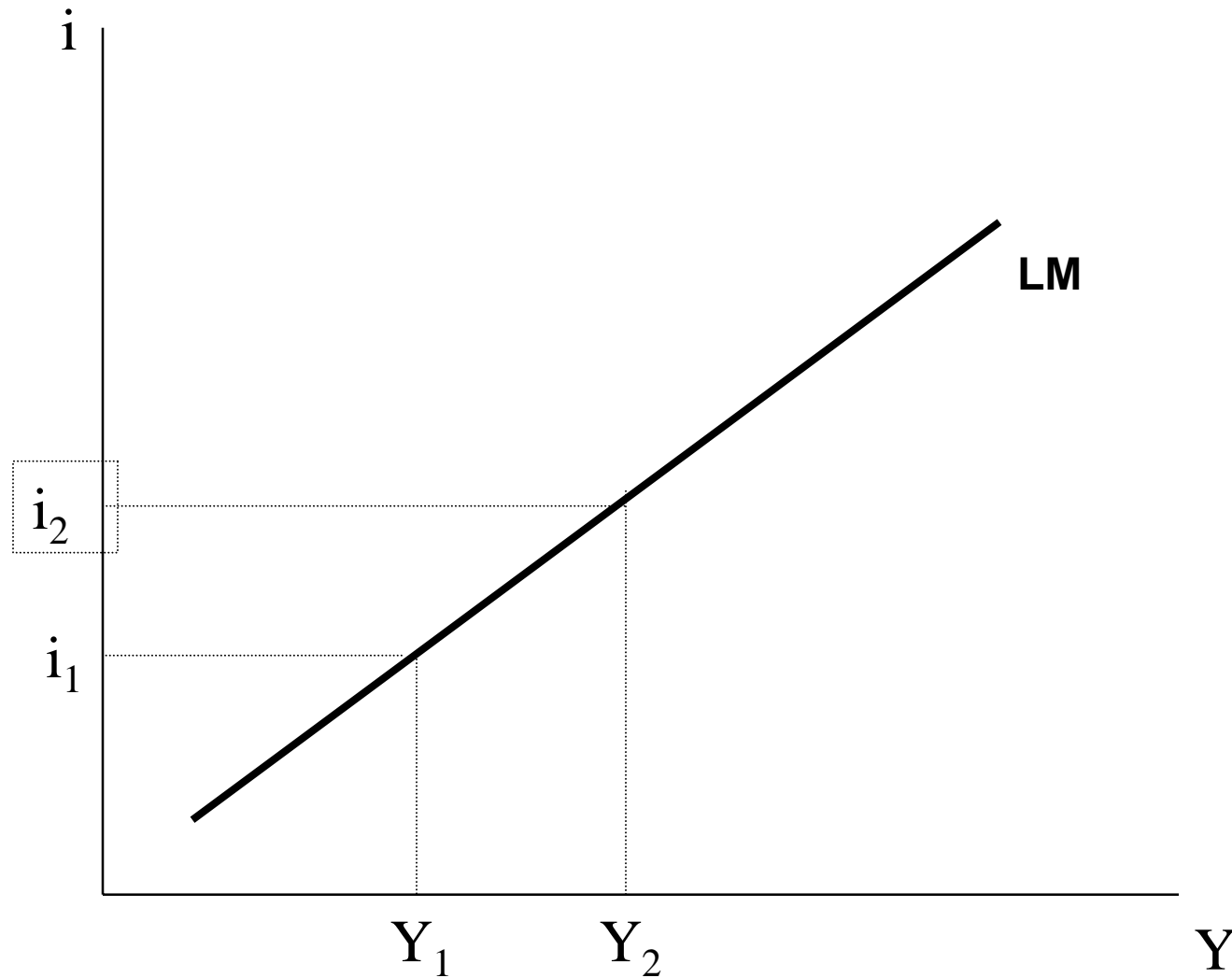
$$M^d = M$$

- LM Curve:

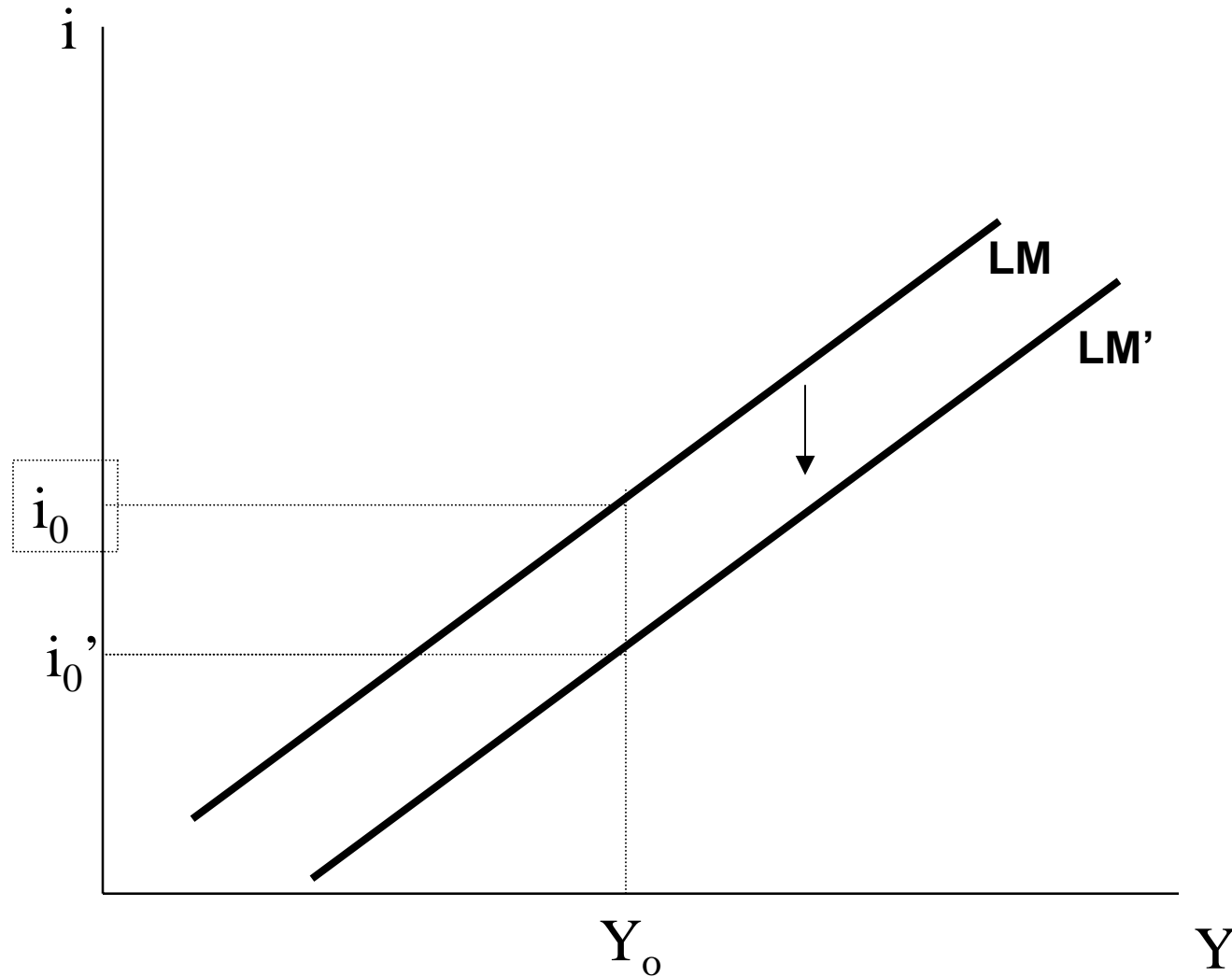
$$M / P = Y L(i)$$

- Movements along the LM Curve: An increase in  $Y$  increases money demand, which causes an increase in interest rates to maintain money market equilibrium.
- Shifts in the LM curve: An increase in money supply lowers interest rates at any given level of output.

LM Curve: At higher levels of output, equilibrium in the money market implies higher interest rates.

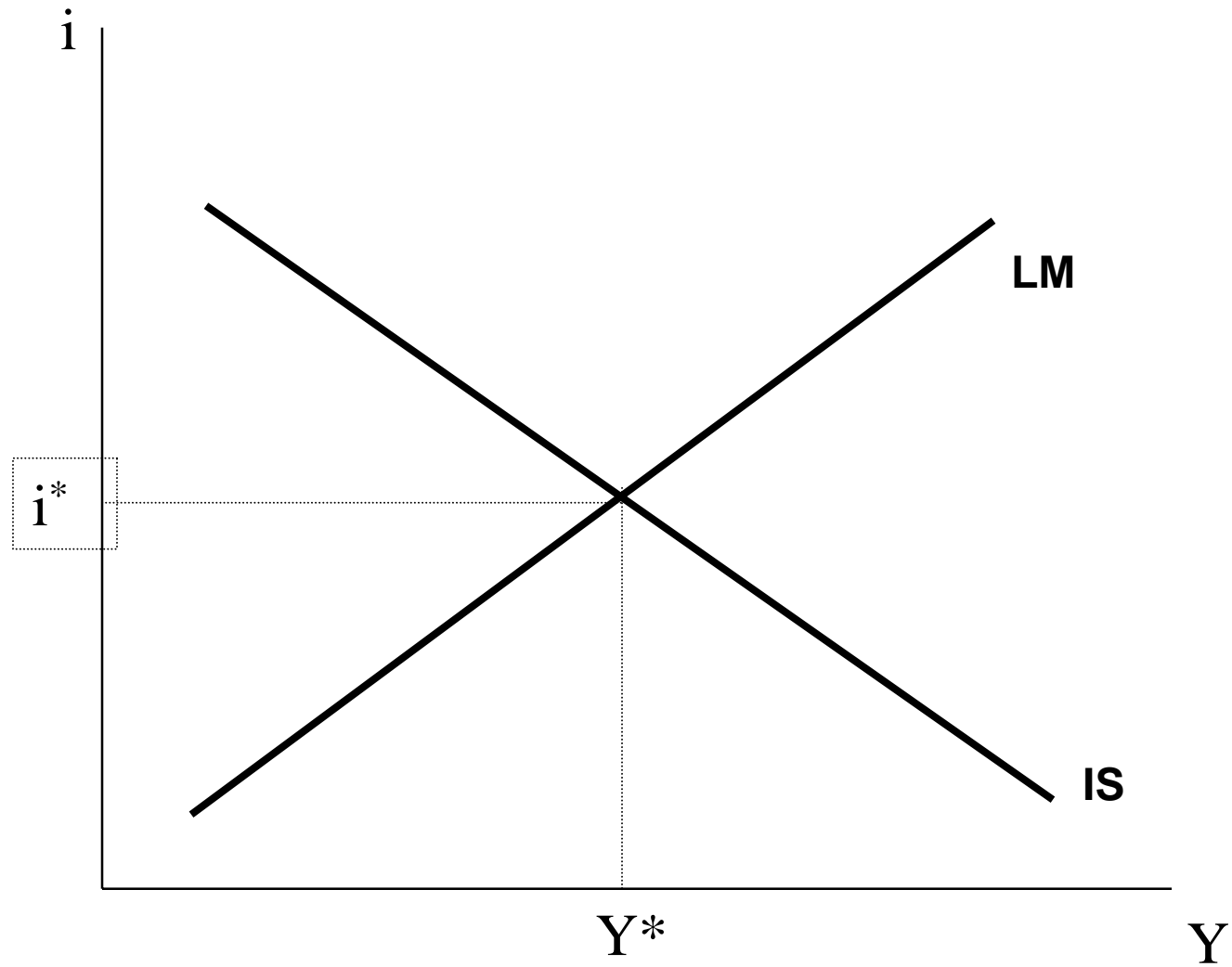


An increase in money supply shifts the LM Curve. At the current level of output, the interest rate required to maintain equilibrium in the money market is lower.





# Equilibrium in goods and money market:



# Comparative statics:

- Decrease in autonomous consumption.
- Increase in government spending: fiscal policy, output and interest rates.
- Increase in money supply: monetary policy, output and interest rates.