Intermediate Macroeconomics

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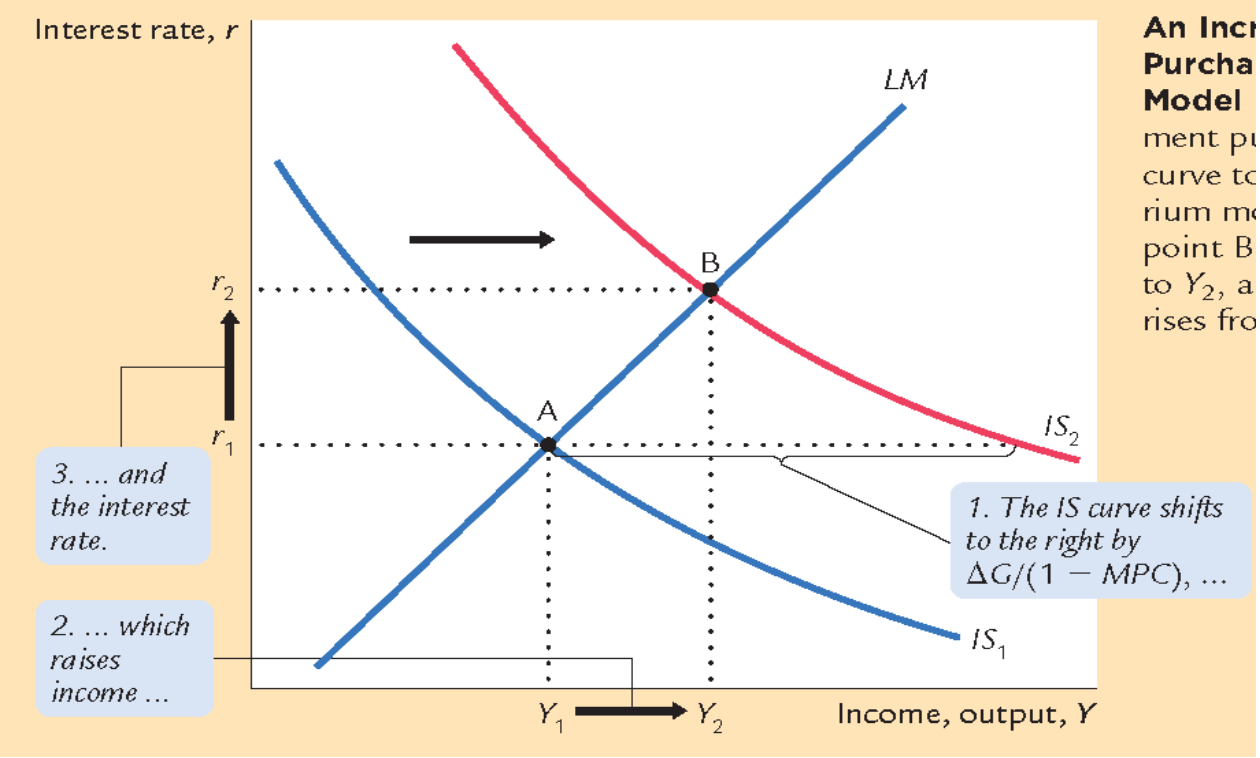
Lecture 10 Aggregate Supply II: Apply the IS-LM Curve

- Explaining Economic Fluctuations
  - Fiscal policy and the IS curve
  - Monetary policy and the LM curve
  - Policy interactions
  - Shocks in the IS-LM model
  - Monetary Policy Instrument

- As a Theory of Aggregate Demand
  - From the IS-LM model to the aggregate demand
  - The IS-LM model in the short run and long run

- The Great Depression
  - The spending hypothesis (shock to IS)
  - The money hypothesis (shock to LM)
  - The effects of falling prices
  - The liquidity trap

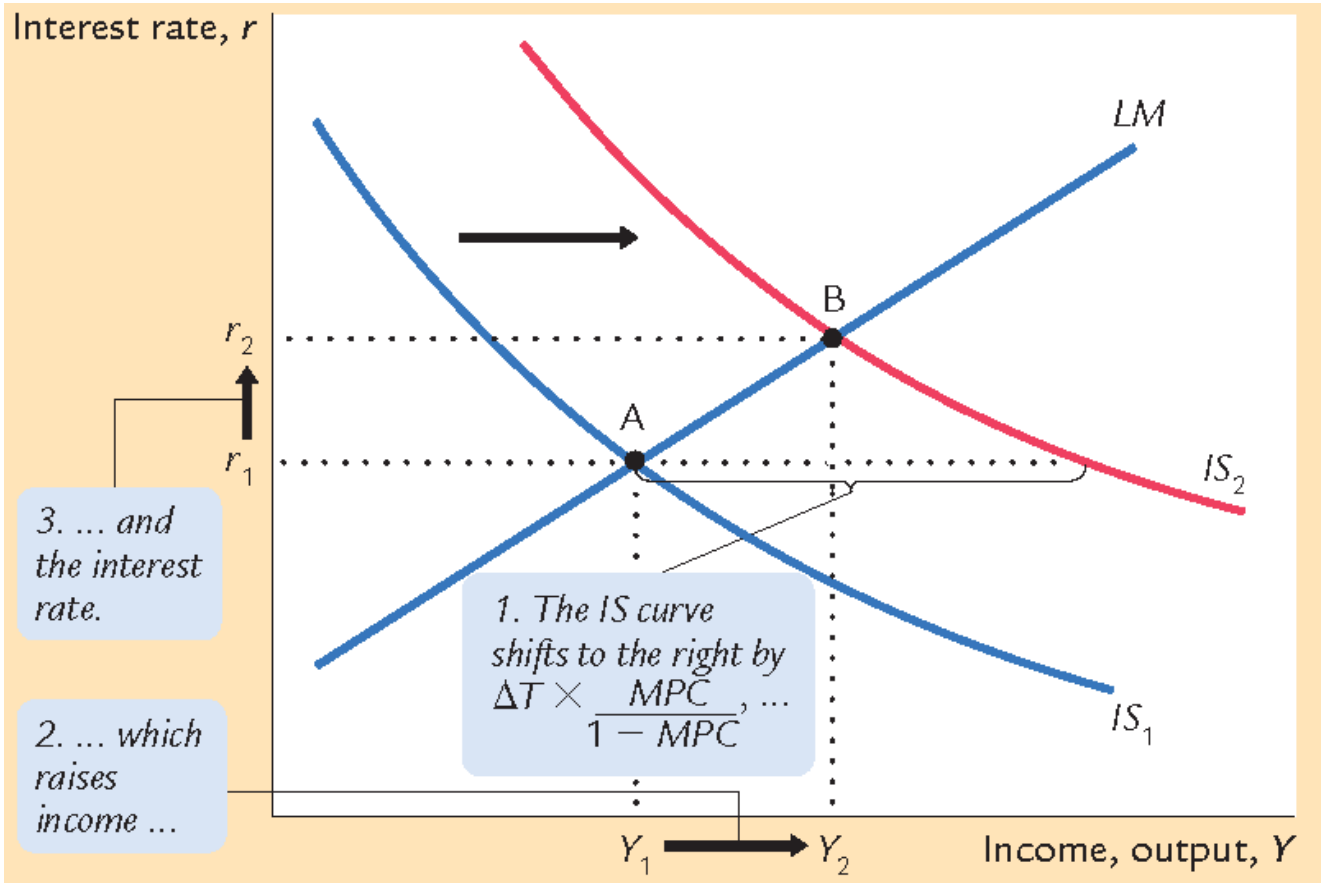
Fiscal Policy and the IS Curve



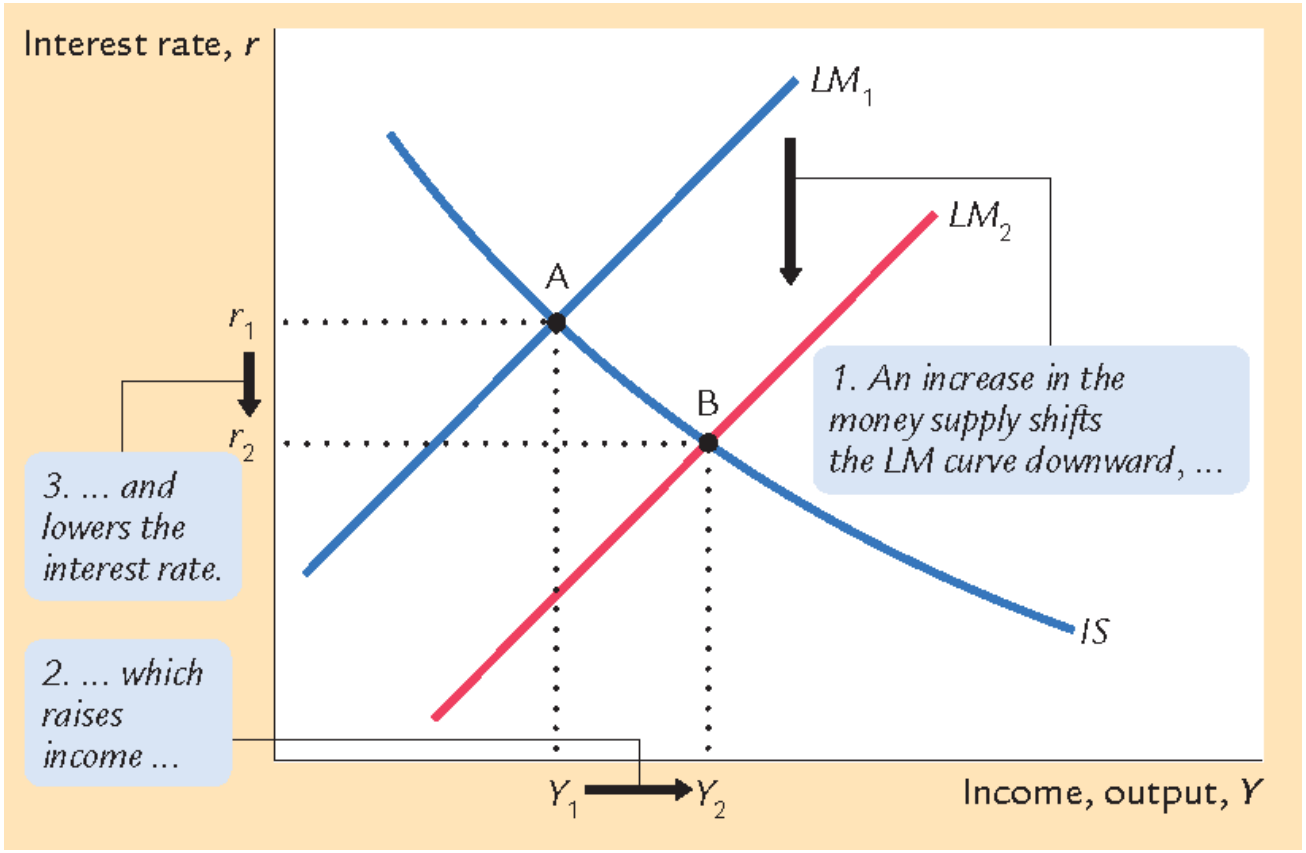
Why is the increase of income smaller than the initial movement of the IS curve?

This is because of the **crowding out effect of investment**: higher interest rate reduces investment.

Fiscal Policy and the IS Curve



Monetary Policy and the LM Curve

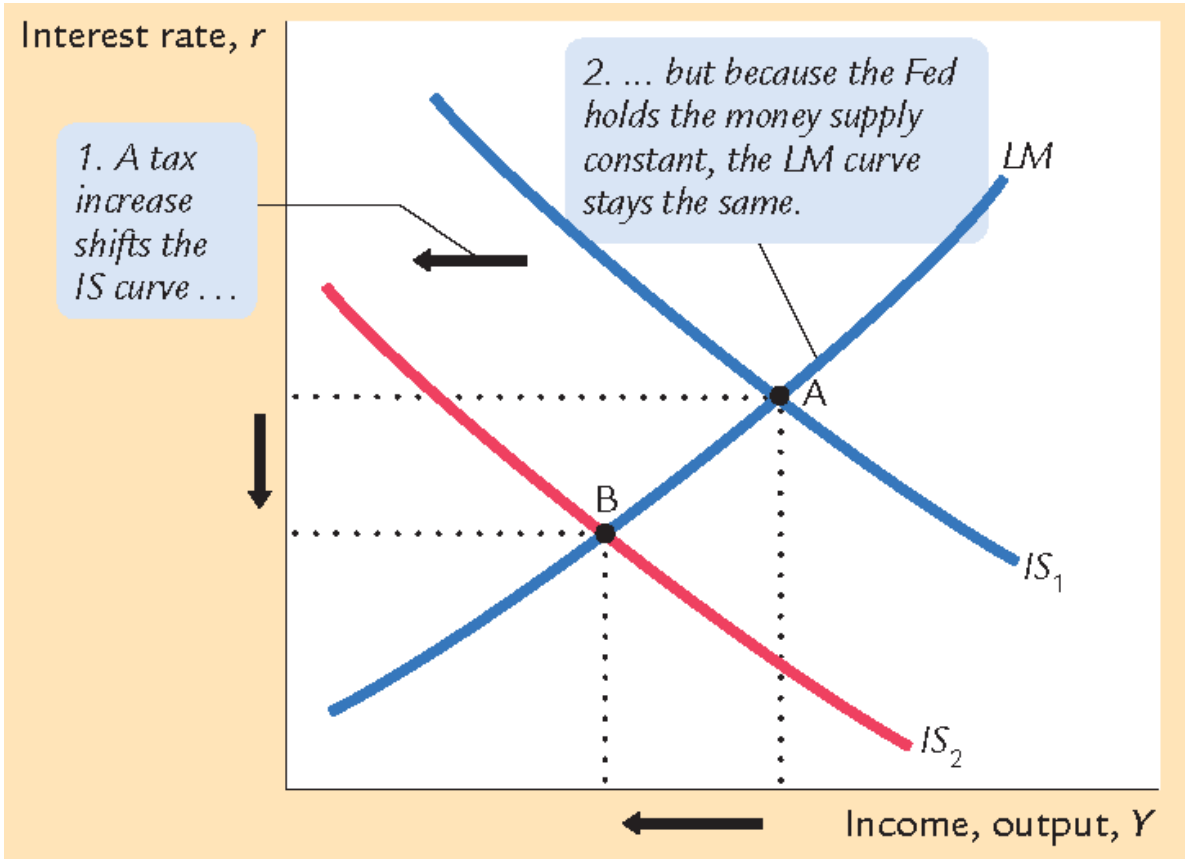


Combining the Two Policies

Assuming tax is raised, how will this affect the economy?

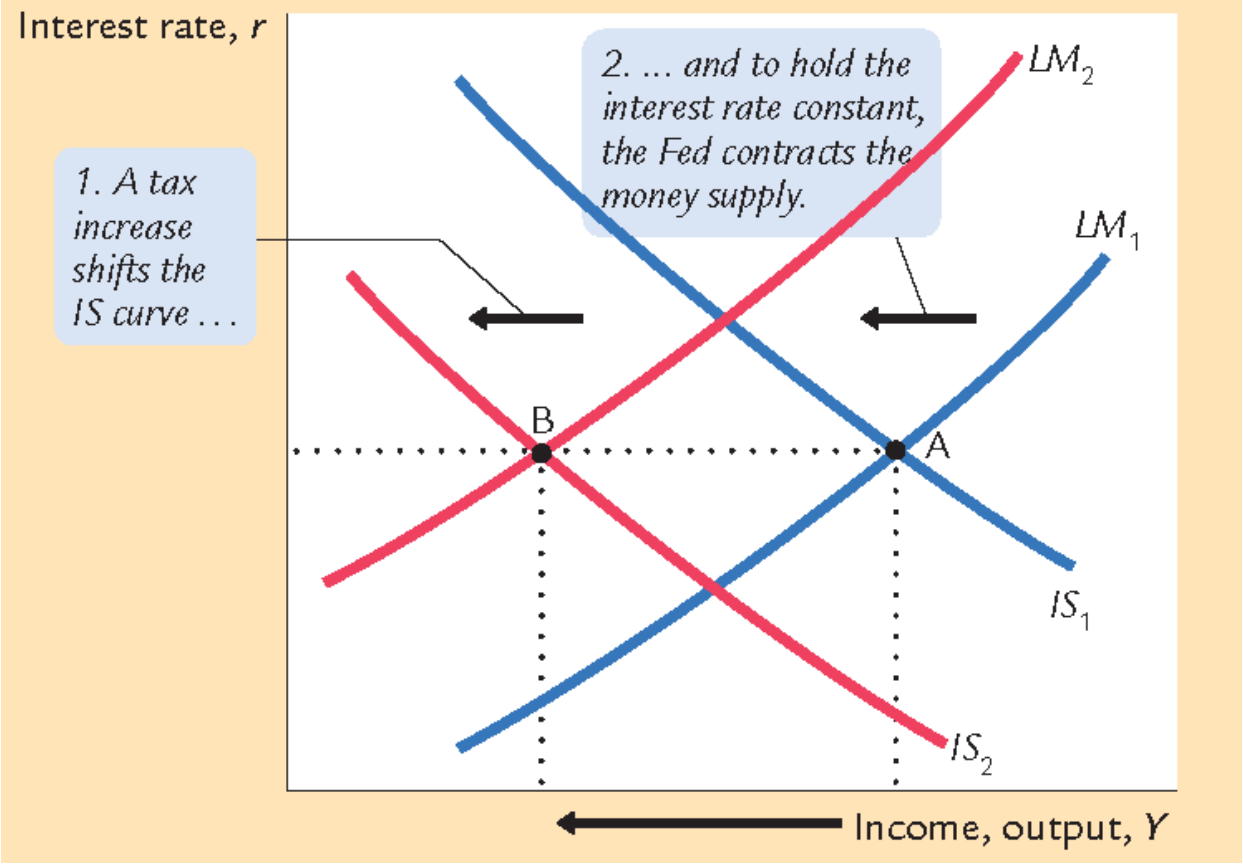
-It depends on how the FED respond.

If the FED choose to hold money supply constant, then



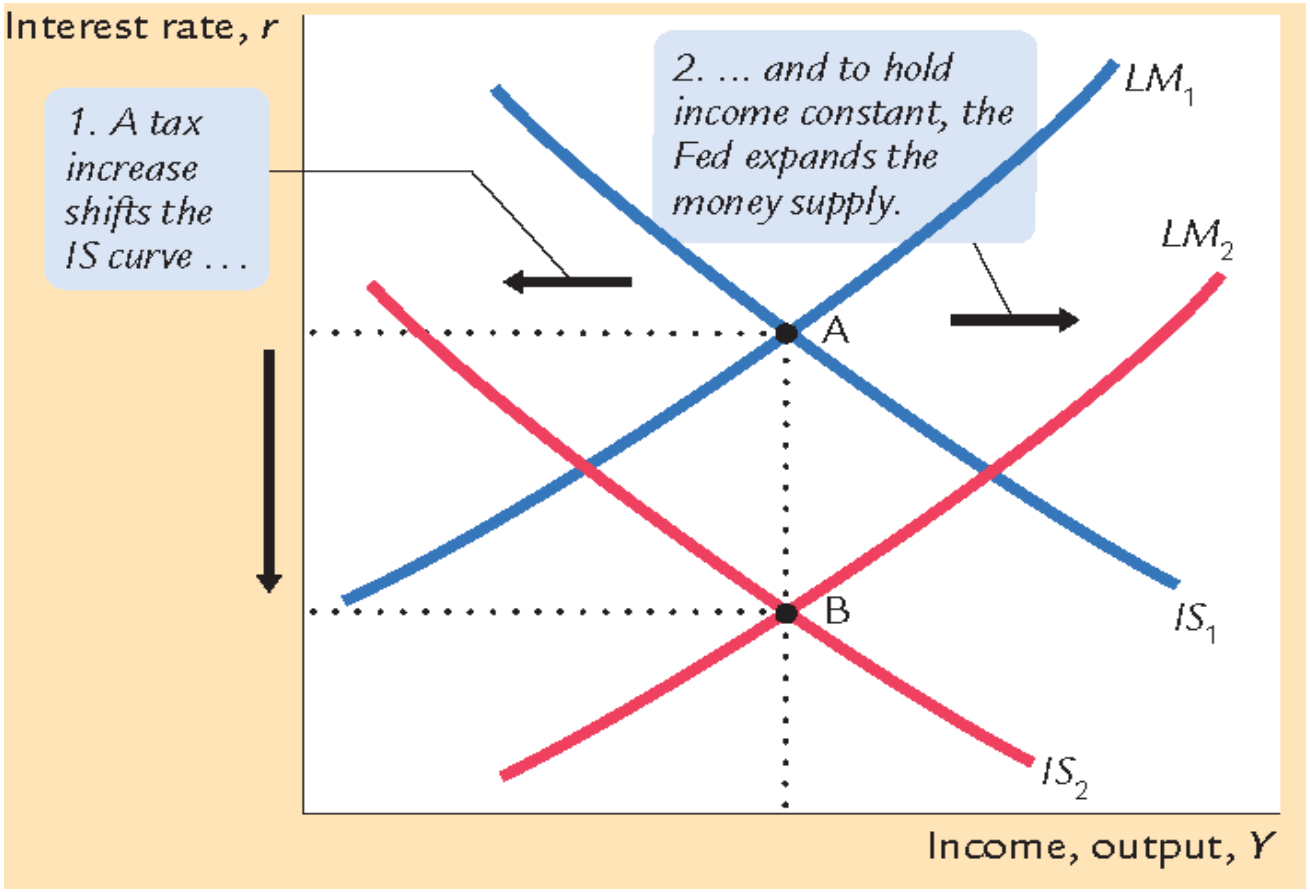
Combining the Two Policies

If the FED choose to keep interest rate constant by reducing money supply:



Combining the Two Policies

If the FED choose to keep income constant by increasing money supply:



Shocks in the IS-LM Model

- **Shocks** are unexpected change in exogenous economic factors that have effect on endogenous economic factors
  - shocks to the IS curve are exogenous changes in the demand of goods and services
    - **Animal spirit**: exogenous waves of optimism and pessimism
    - Tax policy
    - Trade policy
  - shocks to the LM curve are exogenous changes in the demand of money
    - Restricting credit card usage (increasing money demand)
    - booming stock market(reducing money demand)
    - booming real state market(reducing money demand)

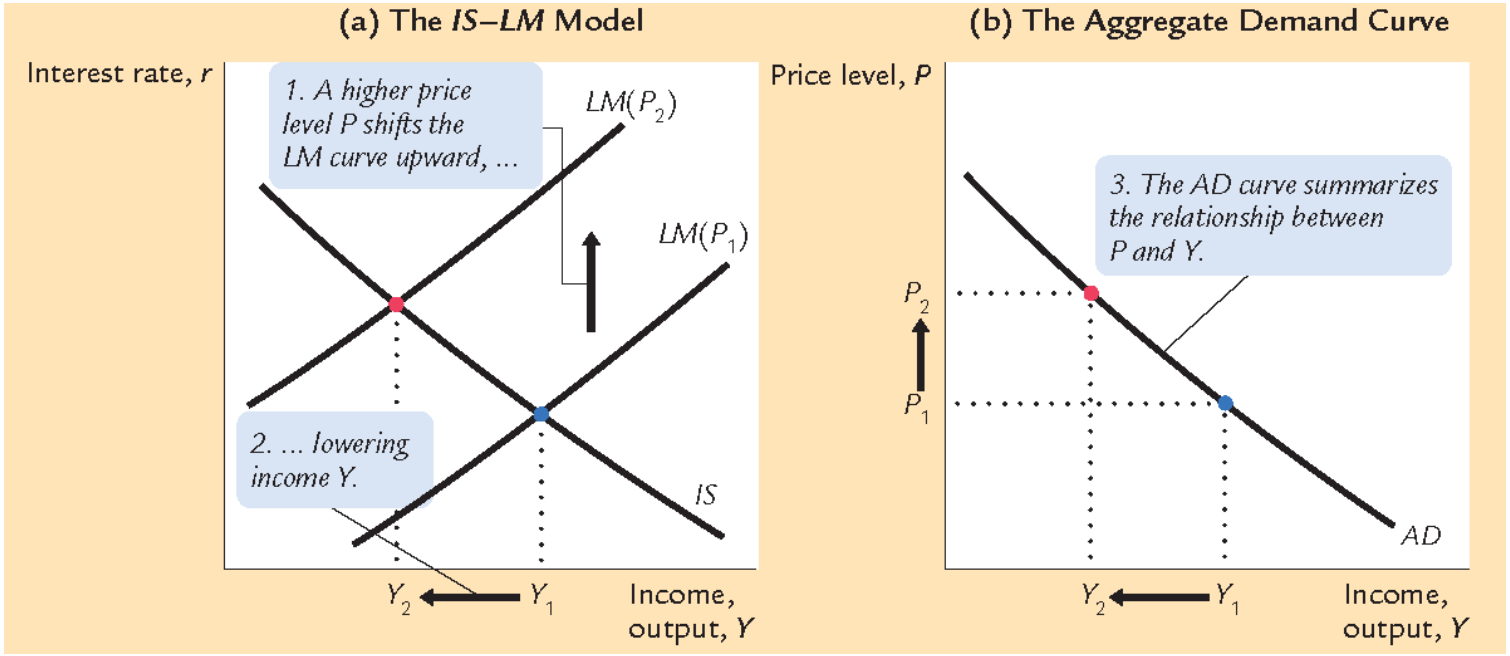
Shocks during the 2001 recession: IT bubble , 911 Terrorism Attack, accounting scandal

Monetary Policy Instruments

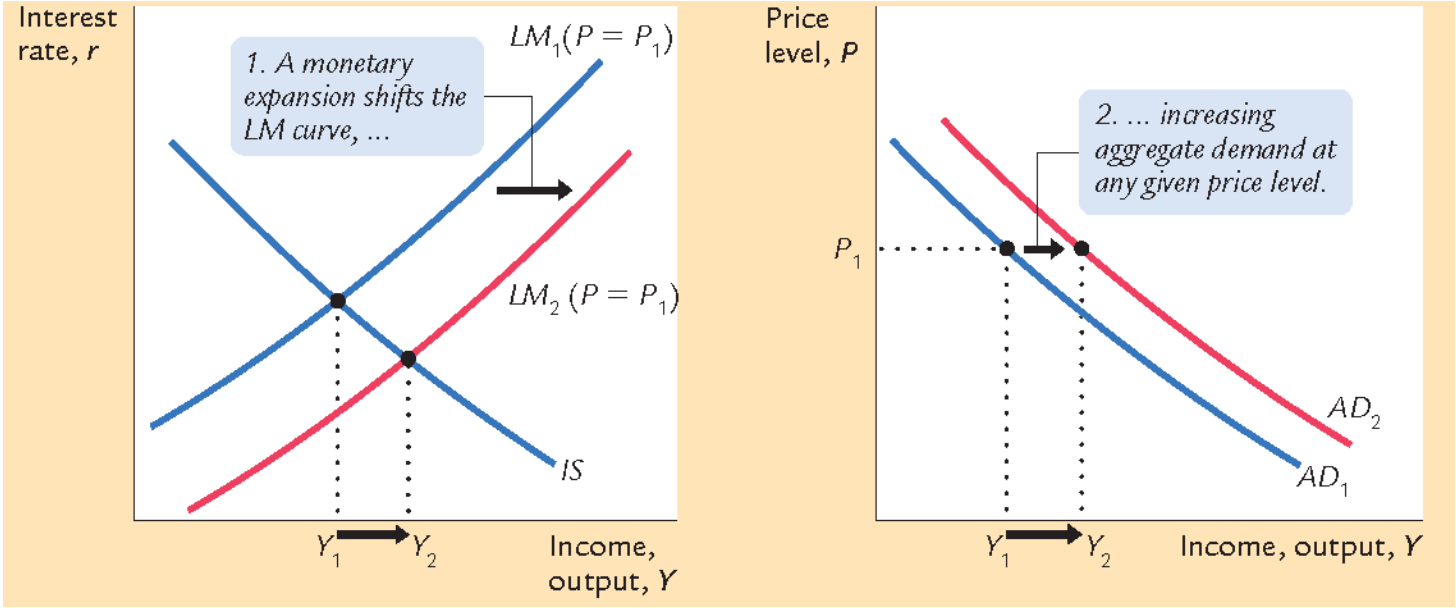
- Federal Reserve of the United States
  - federal funds market (联邦资金市场, federal funds rate)
  - open market operation (公开市场操作, FED sell and buy treasury bonds)
  - discount window (贴现窗口, discount rate)
  - foreign currency operation

- People's Bank of China
  - open market operation (公开市场业务)
  - deposit reserve (存款准备金)
  - loans to commercial banks (中央银行贷款)
  - interest rate
  - Standing Lending Facility (常备借贷便利，similar to the discount window)

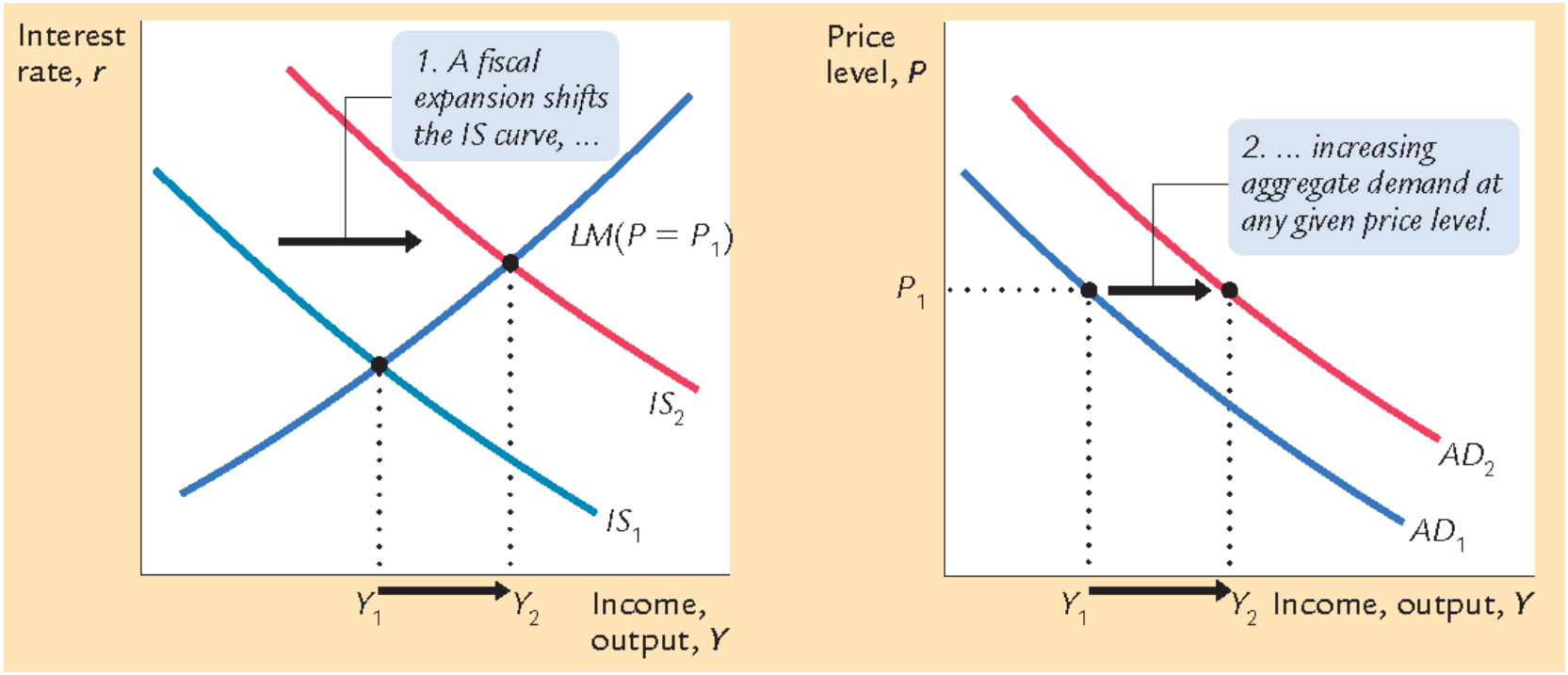
IS-LM Model and Aggregate Demand



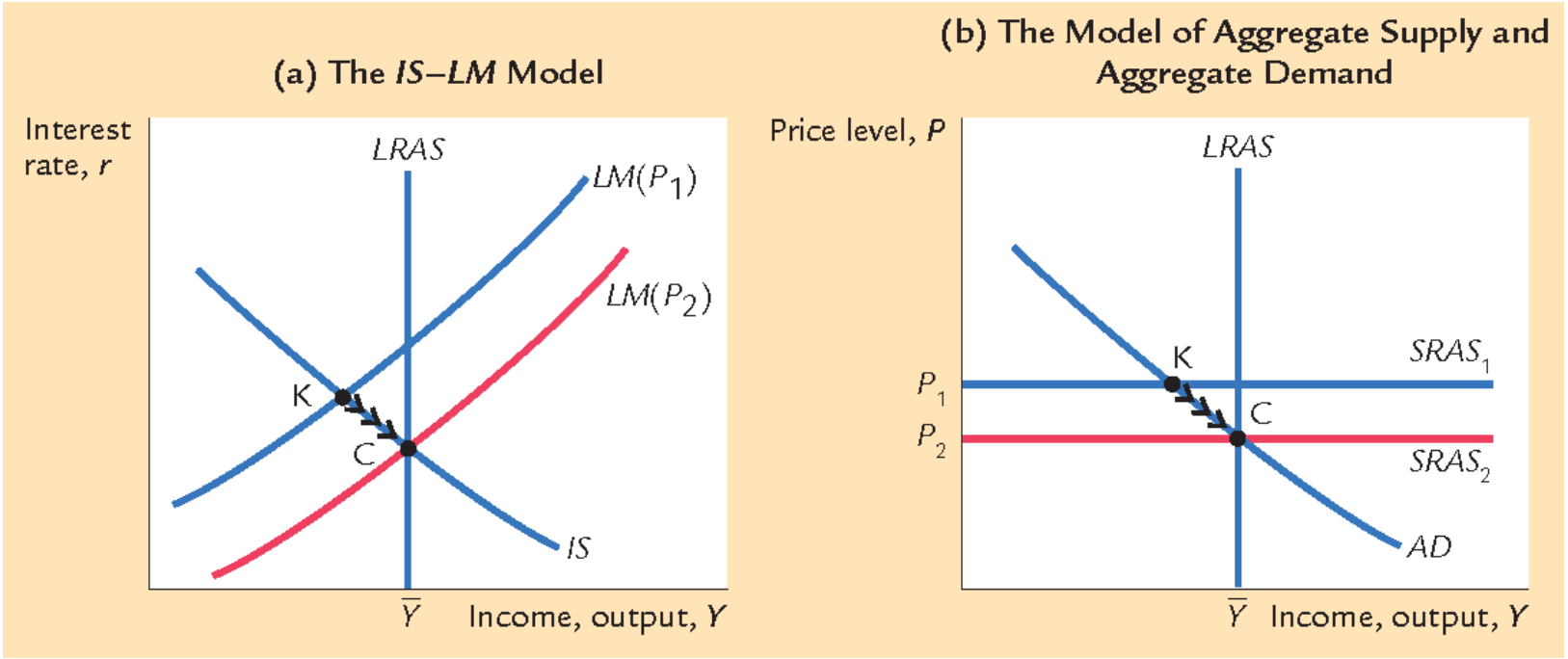
Monetary Policy and Aggregate Demand



Fiscal Policy and Aggregate Demand



IS-LM Model in the Short Run and Long Run



The Great Depression

Year	Unemployment Rate (1)	Real GNP (2)	Consumption (2)	Investment (2)	Government Purchases (2)
1929	3.2	203.6	139.6	40.4	22.0
1930	8.9	183.5	130.4	27.4	24.3
1931	16.3	169.5	126.1	16.8	25.4
1932	24.1	144.2	114.8	4.7	24.2
1933	25.2	141.5	112.8	5.3	23.3
1934	22.0	154.3	118.1	9.4	26.6
1935	20.3	169.5	125.5	18.0	27.0
1936	17.0	193.2	138.4	24.0	31.8
1937	14.3	203.2	143.1	29.9	30.8
1938	19.1	192.9	140.2	17.0	33.9
1939	17.2	209.4	148.2	24.7	35.2
1940	14.6	227.2	155.7	33.0	36.4

Source: Historical Statistics of the United States, Colonial Times to 1970, Parts I and II (Washington, DC: U.S. Department of Commerce, Bureau of Census, 1975).
Note: (1) The unemployment rate is series D9. (2) Real GNP, consumption, investment, and government purchases are series F3, F48, F52, and F66, and are measured in billions of 1958 dollars. (3) The interest rate is the prime Commercial

The Great Depression

Year	Nominal Interest Rate (3)	Money Supply (4)	Price Level (5)	Inflation (6)	Real Money Balances (7)
1929	5.9	26.6	50.6	–	52.6
1930	3.6	25.8	49.3	−2.6	52.3
1931	2.6	24.1	44.8	−10.1	54.5
1932	2.7	21.1	40.2	−9.3	52.5
1933	1.7	19.9	39.3	−2.2	50.7
1934	1.0	21.9	42.2	7.4	51.8
1935	0.8	25.9	42.6	0.9	60.8
1936	0.8	29.6	42.7	0.2	62.9
1937	0.9	30.9	44.5	4.2	69.5
1938	0.8	30.5	43.9	−1.3	69.5
1939	0.6	34.2	43.2	−1.6	79.1
1940	0.6	39.7	43.9	1.6	90.3

Paper rate, 4–6 months, series ×445. (4) The money supply is series ×414, currency plus demand deposits, measured in billions of dollars. (5) The price level is the GNP deflator (1958 = 100), series E1. (6) The inflation rate is the percentage change in the price level series. (7) Real money balances, calculated by dividing the money supply by the price level and multiplying by 100, are in billions of 1958 dollars.

The Spending Hypothesis: a Shock to the IS Curve

- it looks more like a shift of the IS curve. Why?
  - because the interest rate falls along with the income

- The causes of this reduction of spending have many folds:
  - the crash of the stock market
    - reducing wealth and raising uncertainty
  - drop in the investment in housing
    - Overbuilding in the 1920s/ reduction in migration in 1930s
  - increasing bank failure
    - Reducing investment
  - contractionary fiscal policy
    - The revenue act of 1932

The Money Hypothesis: a Shock to the LM Curve

- According to Friedman and Schwartz (*A Monetary History of the United States, 1867–1960*), the Great Depression (along with all other major economic crisis in the US history) was mainly due to the **contraction of money supply**.

- This strong assertion is problematic:
  - Even though the nominal money supply was reduced during the great depression, the real money balance is largely constant.
  - the interest rate falls instead of rising (not look like a shift of the LM curve)

Albeit these drawbacks, this book is still considered as the most influential book for monetarist economist.

The Money Hypothesis: the Effect of Falling Prices

- An alternative money hypothesis: contraction in money supply reduces the price, which in turn affects the income.

  - **Stabilizing effect** of falling price: falling price raises income
    - Lower price, higher real money balance, shift the LM to the right
    - Pigou effect: higher real money balance, higher wealth, more consumption, shift the IS to the right

  - **Destabilizing effect** of falling price: falling price reduces income
    - **Debt deflation**: unexpected deflation enriches creditors and impoverish debtors and debtors typically have higher propensity to spend
    - **Expected deflation**:

$$Y = C(Y - T) + I(i - E\pi) + G \qquad IS,$$

$$M/P = L(i, Y) \qquad LM.$$

falling prices induces people to expect a falling inflation, which raises the real interest rate, and in turn reduces investment, shifts the IS curve to the left.

Could the Great Depression Happen Again?

- Not very likely. Because
  - Policymakers (or their advisors) now know much more about macroeconomics:
    - The Fed knows better than to let M fall so much, especially during a contraction.
    - Fiscal policymakers know better than to raise taxes or cut spending during a contraction.
  - Federal deposit insurance makes widespread bank failures very unlikely.
  - Automatic stabilizers make fiscal policy expansionary during an economic downturn